



**SHAHEED HASAN KHAN MEAWATI GOVERNMENT MEDICAL COLLEGE,  
NALHAR, NUH (HARYANA)**

**DEPARTMENT OF ANATOMY**

**Competency Based Undergraduate  
Curriculum in Pre-clinical and Para-clinical Subjects**

**HUMAN ANATOMY (CODE: AN)**

**Learning Objectives**

| Number   | COMPETENCY<br>The student should be able to   | Domain<br>K/S/A/C | Level<br>K/KH/<br>SH/P | Core<br>(Y/N) | Teaching-Learning Methods | Assessment<br>Methods                | Number<br>required to<br>certify<br>P | Vertical<br>Integration | Horizontal<br>Integration |
|--|---|-------------------|------------------------|---------------|---------------------------|--------------------------------------|---------------------------------------|-------------------------|---------------------------|
| Human Anatomy  |   |                   |                        |               |                           |                                      |                                       |                         |                           |
| <b>Topic: Anatomical terminology</b> <span style="float: right;">Number of competencies: (2)</span> <span style="float: right;">Number of procedures for certification: (NIL)</span>                 |   |                   |                        |               |                           |                                      |                                       |                         |                           |
| AN1.1  | Demonstrate normal anatomical position, various planes, relation, comparison, laterality & movement in our body<br><b>Learning Objective</b> <ol style="list-style-type: none"> <li>At the end of the session phase I students must be able to describe Normal anatomical positions.</li> <li>At the end of the session phase I students must be able to define various anatomical planes correctly.</li> <li>at the end of the session phase I students must be able to describe various anatomical terms correctly.</li> <li>At the end of the session phase I students must be able to demonstrate anatomical position correctly</li> <li>at the end of the session phase I students must be able to demonstrate various movements in relation to various joints.</li> </ol> | K/S               | SH                     | Y             | Lecture, DOAP session     | Written/ Viva voce/skills assessment |                                       |                         |                           |
| AN1.2  | Describe composition of bone and bone marrow<br><b>Learning Objective</b> <ol style="list-style-type: none"> <li>at the end of the session phase I students must be able to list the functions of bone and the bone marrow.</li> </ol>  | K                 | KH                     | Y             | Lecture                   | Written/ Viva voce                   |                                       |                         |                           |
| <b>Topic: General features of bones &amp; Joints</b> <span style="float: right;">Number of competencies: (6)</span> <span style="float: right;">Number of procedures for certification: (NIL)</span> |   |                   |                        |               |                           |                                      |                                       |                         |                           |
| AN2.1  | Describe parts, blood and nerve supply of a long bone<br><b>Learning Objective</b> <ol style="list-style-type: none"> <li>at the end of the session phase I students must be able to describe the types of bones in human body.</li> <li>At the end of the session phase I students must be able to describe parts of long bone.</li> <li>At the end of the session phase I students must be able to discuss types of epiphyses of long bone.</li> <li>At the end of the session phase I students must be able to describe the blood supply of the long bone</li> <li>At the end of the session phase I students must be able to describe the nerve supply of bone.</li> </ol>  | K                 | KH                     | Y             | Lecture, DOAP session     | Written/ Viva voce                   |                                       |                         |                           |
| AN2.2  | Enumerate laws of ossification<br><b>Learning Objective</b> <ol style="list-style-type: none"> <li>At the end of the session phase I students must be able to define and describe the types of ossification</li> <li>At the end of the session phase I students must be able to enumerate laws of ossification</li> </ol>   | K                 | KH                     | N             | Lecture                   | Written                              |                                       |                         |                           |
| AN2.3  | Enumerate special features of a sesamoid bone<br><b>Learning Objective</b>  | K                 | KH                     | N             | Lecture                   | Written                              |                                       |                         |                           |

|  |   |   |    |   |         |                    |  |             |            |
|--|---|---|----|---|---------|--------------------|--|-------------|------------|
|  | i. At the end of the session phase I students must be able to describe special features of sesamoid bone correctly  |   |    |   |         |                    |  |             |            |
| AN2.4  | Describe various types of cartilage with its structure & distribution in body<br><b>Learning Objective</b><br>i. At the end of the session phase I students must be able to define the structure and function of cartilage correctly.<br>ii. At the end of the session phase I students must be able to discuss the types and distribution of cartilage correctly   | K | KH | Y | Lecture | Written/ Viva voce |  | Orthopedics |            |
| AN2.5  | Describe various joints with subtypes and examples<br><b>Learning Objective</b><br>i. At the end of the session phase I students must be able to define joints<br>ii. At the end of the session phase I students must be able to describe and classify joints with examples<br>iii. At the end of the session phase I students must be able to Demonstrate different movements associated with joints with example.   | K | KH | Y | Lecture | Written/ Viva voce |  | Orthopedics |            |
| AN2.6  | Explain the concept of nerve supply of joints & Hilton's law<br><b>Learning Objective</b><br>i. At the end of the session phase I students must be able to describes the nerve supply of joint.<br>ii. At the end of the session phase I students must be able to discuss Hilton law in relation to nerve supply.   | K | KH | Y | Lecture | Written/ Viva voce |  |             |            |
| <b>Topic: General features of Muscle</b> <span style="float: right;"><b>Number of competencies: (3)</b></span> <span style="float: right;"><b>Number of procedures for certification: (NIL)</b></span> |   |   |    |   |         |                    |  |             |            |
| AN3.1  | Classify muscle tissue according to structure & action<br><b>Learning Objective</b><br>i. At the end of the session Phase I student must be able to describe the types of muscles<br>ii. At the end of the session Phase I student must be able to classify the muscles based on its structure<br>iii. At the end of the session phase I student must be able to discuss the nomenclature of the muscles correctly.<br>iv. At the end of the session phase I student must be able to discuss action of the muscles correctly. | K | KH | Y | Lecture | Written/ Viva voce |  |             | Physiology |
| AN3.2  | Enumerate parts of skeletal muscle and differentiate between tendons and aponeuroses with examples<br><b>Learning Objective</b><br>i. At the end of the session phase I student must be able to describe parts of skeletal muscle based on its insertion.<br>ii. At the end of the session phase I student must be able to enumerate the examples of aponeuroses.<br>iii. At the end of the session phase I student must be able to differentiate between tendon and aponeuroses  | K | KH | Y | Lecture | Written/ Viva voce |  |             |            |
| AN3.3  | Explain Shunt and spurt muscles<br><b>Learning Objective</b><br>i. At the end of the session phase I student must be able to describe shunt & spurt muscles correctly<br>ii. At the end of the session phase I student must be able to list the shunt & spurt muscles.  | K | KH | N | Lecture | Written            |  |             |            |

| <div> <div>Topic: General features of skin and fascia</div> <div>Number of competencies: (5)</div> <div>Number of procedures for certification: (NIL)</div> </div>           |   |                   |                        |               |                           |                       |                                       |                                    |                           |
|--|---|-------------------|------------------------|---------------|---------------------------|-----------------------|---------------------------------------|------------------------------------|---------------------------|
| AN4.1  | Describe different types of skin & dermatomes in body<br><b>Learning Objective</b> <ol style="list-style-type: none"> <li>At the end of the session phase I student must be able to describe various types of skin and its location in human body correctly.</li> <li>At the end of the session phase I student must be able to define and demonstrate dermatomes of the body correctly</li> </ol>  | K                 | KH                     | N             | Lecture, DOAP session     | Written               |                                       |                                    |                           |
| Number   | COMPETENCY<br>The student should be able to   | Domain<br>K/S/A/C | Level<br>K/KH/<br>SH/P | Core<br>(Y/N) | Teaching-Learning Methods | Assessment<br>Methods | Number<br>required to<br>certify<br>P | Vertical<br>Integration            | Horizontal<br>Integration |
| AN4.2  | Describe structure & function of skin with its appendages<br><b>Learning Objective</b> <ol style="list-style-type: none"> <li>At the end of the session Phase I student must be able to describe the structure of the skin.</li> <li>At the end of the session Phase I student must be able to describe the function of skin</li> <li>At the end of the session Phase I student must be able to describe the appendages of the skin.</li> </ol>                                   | K                 | KH                     | Y             | Lecture, DOAP session     | Written/ Viva voce    |                                       | Dermatology, Venereology & Leprosy |                           |
| AN4.3  | Describe superficial fascia along with fat distribution in body<br><b>Learning Objective</b> <ol style="list-style-type: none"> <li>At the end of the session Phase I student must be able to define and describe the superficial fascia</li> <li>At the end of the session Phase I student must be able to enumerate the examples of superficial fascia.</li> <li>At the end of the session Phase I student must be able to list the functions of superficial fascia.</li> </ol> | K                 | KH                     | Y             | Lecture, DOAP session     | Written/ Viva voce    |                                       |                                    |                           |
| AN4.4  | Describe modifications of deep fascia with its functions<br><b>Learning Objective</b> <ol style="list-style-type: none"> <li>At the end of the session Phase I student must be able to define and describe deep fascia</li> <li>At the end of the session Phase I student must be able to enumerate the modifications of deep fascia with examples.</li> </ol>  | K                 | KH                     | Y             | Lecture, DOAP session     | Written/ Viva voce    |                                       | Dermatology, Venereology & Leprosy |                           |
| AN4.5  | Explain principles of skin incisions<br><b>Learning Objective</b> <ol style="list-style-type: none"> <li>At the end of the session Phase I student must be able to describe various types of skin incisions correctly</li> <li>At the end of the session Phase I student must be able to discuss the principal of giving skin incision.</li> </ol>  | K                 | KH                     | N             | Lecture                   | Written               |                                       | Dermatology, Venereology & Leprosy |                           |
| <div> <div>Topic: General features of the cardiovascular system</div> <div>Number of competencies: (8)</div> <div>Number of procedures for certification: (NIL)</div> </div> |   |                   |                        |               |                           |                       |                                       |                                    |                           |
| AN5.1  | Differentiate between blood vascular and lymphatic system<br><b>Learning Objective</b> <ol style="list-style-type: none"> <li>At the end of the session Phase I student must be able to describe the terms and structures of blood vascular system and lymphatic system.</li> <li>At the end of the session Phase I student must be able to differentiate between blood vascular system and lymphatic system</li> </ol>   | K                 | KH                     | Y             | Lecture                   | Written/ Viva voce    |                                       |                                    | Physiology                |

|  |  |   |    |   |         |                    |  |                  |            |
|--|--|---|----|---|---------|--------------------|--|------------------|------------|
| AN5.2  | Differentiate between pulmonary and systemic circulation<br><b>Learning Objective</b><br>i. At the end of the session Phase I student must be able to discuss the pulmonary & systematic circulation and differentiate between them.   | K | KH | Y | Lecture | Written/ Viva voce |  |                  | Physiology |
| AN5.3  | List general differences between arteries & veins<br><b>Learning Objective</b><br>i. At the end of the session Phase I student must be able to describe arteries & veins.<br>ii. At the end of the session Phase I student must be able to differentiate between arteries & veins.   | K | KH | Y | Lecture | Written/ Viva voce |  |                  |            |
| AN5.4  | Explain functional difference between elastic, muscular arteries and arterioles<br><b>Learning Objective</b><br>i. At the end of the session Phase I student must be able to describe elastic arteries, muscular arteries & arterioles with examples<br>ii. At the end of the session Phase I student must be able to differentiate between elastic arteries, muscular arteries & arterioles   | K | KH | Y | Lecture | Written/ Viva voce |  |                  |            |
| AN5.5  | Describe portal system giving examples<br><b>Learning Objective</b><br>i. At the end of the session Phase I student must be able to describe portal system.<br>ii. At the end of the session Phase I student must be able to enumerate the example of portal system.   | K | KH | Y | Lecture | Written/ Viva voce |  |                  |            |
| AN5.6  | Describe the concept of anastomoses and collateral circulation with significance of end-arteries<br><b>Learning Objective</b><br>i. At the end of the session Phase I student must be able to describe the anastomosis .<br>ii. At the end of the session Phase I student must be able to describes the importance of end arteries.<br>iii. At the end of the session Phase I student must be able to discuss the collateral circulation with its significance.            | K | KH | Y | Lecture | Written/ Viva voce |  | General Medicine | Physiology |
| AN5.7  | Explain function of meta-arterioles, precapillary sphincters, arterio-venous anastomoses<br><b>Learning Objective</b><br>i. At the end of the session Phase I student must be able to describe the meta-arterioles,precapillary sphincters and AV anastomosis.<br>ii. At the end of the session Phase I student must be able to discuss the function of meta-arterioles,precapillary sphincters arterio venous anastomoses   | K | KH | N | Lecture | Written            |  |                  | Physiology |
| AN5.8  | Define thrombosis, infarction & aneurysm<br><b>Learning Objective</b><br>i. At the end of the session Phase I student must be able to define thrombosis correctly<br>ii. At the end of the session Phase I student must be able to define infarction correctly<br>iii. At the end of the session Phase I student must be able to define aneurysm correctly<br>iv. At the end of the session Phase I student must be able to discuss the formation of infarct and thrombus. | K | KH | N | Lecture | Written            |  | Pathology        | Physiology |
| <b>Topic: General Features of lymphatic system</b> <span style="float: right;">Number of competencies: (3)</span> <span style="float: right;">Number of procedures for certification: (NIL)</span> |  |   |    |   |         |                    |  |                  |            |
| AN6.1  | List the components and functions of the lymphatic system<br><b>Learning Objective</b><br>i. At the end of the session Phase I student must be able to enumerate components of lymphatic system<br>ii. At the end of the session Phase I student must be able to describe the function of lymphatic system   | K | KH | N | Lecture | Written            |  |                  |            |

| Number   | COMPETENCY<br>The student should be able to  | Domain<br>K/S/A/C | Level<br>K/KH/<br>SH/P | Core<br>(Y/N) | Teaching-Learning Methods | Assessment<br>Methods | Number<br>required to<br>certify<br>P | Vertical<br>Integration | Horizontal<br>Integration |
|--|--|-------------------|------------------------|---------------|---------------------------|-----------------------|---------------------------------------|-------------------------|---------------------------|
| AN6.2  | Describe structure of lymph capillaries & mechanism of lymph circulation<br><b>Learning Objective</b><br>i. At the end of the session Phase I student must be able to define lymph and describe the structure of lymph capillaries.<br>ii. At the end of the session Phase I student must be able to describe the formation of lymph.<br>iii. At the end of the session Phase I student must be able to describe the mechanism of lymph circulation. | K                 | KH                     | N             | Lecture                   | Written               |                                       |                         |                           |
| AN6.3  | Explain the concept of lymphoedema and spread of tumors via lymphatics and venous system<br><b>Learning Objective</b><br>i. At the end of the session Phase I student must be able to define lymphoedema and discuss the spread of cancer via lymphatic circulation.<br>ii. At the end of the session Phase I student must be able to discuss spread of tumour via venous system   | K                 | KH                     | N             | Lecture                   | Written               |                                       | General Surgery         |                           |
| <b>Topic: Introduction to the nervous system</b> <span style="float: right;">Number of competencies: (8)</span> <span style="float: right;">Number of procedures for certification: (NIL)</span> |  |                   |                        |               |                           |                       |                                       |                         |                           |
| AN7.1  | Describe general plan of nervous system with components of central, peripheral & autonomic nervous systems<br><b>Learning Objective</b><br>i. At the end of the session Phase I student must be able to define the nervous system.<br>ii. At the end of the session Phase I student must be able to describe the types and of nervous system.<br>iii. At the end of the session Phase I student must be able to classify the nervous system          | K                 | KH                     | Y             | Lecture                   | Written               |                                       |                         |                           |
| AN7.2  | List components of nervous tissue and their functions<br><b>Learning Objective</b><br>i. At the end of the session Phase I student must be able to enumerate component of central and autonomic NS.<br>ii. At the end of the session Phase I student must be able to describe functions of CNS, PNS and autonomic NS.  | K                 | KH                     | Y             | Lecture                   | Written/ Viva voce    |                                       |                         | Physiology                |
| AN7.3  | Describe parts of a neuron and classify them based on number of neurites, size & function<br><b>Learning Objective</b><br>i. At the end of the session Phase I student must be able to classify neuron based on number of neurites , size & functions  | K                 | KH                     | Y             | Lecture                   | Written/ Viva voce    |                                       |                         | Physiology                |
| AN7.4  | Describe structure of a typical spinal nerve<br><b>Learning Objective</b><br>i. At the end of the session Phase I student must be able to describe the structure and formation of a typical spinal nerve.  | K                 | KH                     | Y             | Lecture                   | Written/ Viva voce    |                                       |                         |                           |
| AN7.5  | Describe principles of sensory and motor innervation of muscles<br><b>Learning Objective</b><br>i. At the end of the session Phase I student must be able to describe principle of sensory innervations of muscles<br>ii. At the end of the session Phase I student must be able to describe the principle of motor innervation of muscles   | K                 | KH                     | N             | Lecture                   | Written               |                                       | General Medicine        | Physiology                |

|   |  |                                 |                                  |                             |  |                             |                                     |                             |                               |
|---|--|---------------------------------|----------------------------------|-----------------------------|--|-----------------------------|-------------------------------------|-----------------------------|-------------------------------|
| AN7.6   | Describe concept of loss of innervation of a muscle with its applied anatomy<br><b>Learning Objective</b><br>i. At the end of the session Phase I student must be able to describe concept of loss of innervation of muscles with its applied anatomy in relation to disease process.  | K                               | KH                               | Y                           | Lecture  | Written/ Viva voce          |                                     | General Medicine            |                               |
| AN7.7   | Describe various type of synapse<br><b>Learning Objective</b><br>i. At the end of the session Phase I student must be able to define synapse and describe various type of synapses correctly   | K                               | KH                               | N                           | Lecture  | Written                     |                                     |                             | Physiology                    |
| AN7.8   | Describe differences between sympathetic and spinal ganglia<br><b>Learning Objective</b><br>i. At the end of the session Phase I student must be able to define Ganglion and describe types of ganglion and enumerate differences between sympathetic and spinal ganglia.  | K                               | KH                               | N                           | Lecture  | Written                     |                                     |                             |                               |
| <b>Topic: Features of individual bones (Upper Limb)</b> <span style="float: right;"><b>Number of competencies: (6)</b></span> <span style="float: right;"><b>Number of procedures for certification: (NIL)</b></span> |  |                                 |                                  |                             |  |                             |                                     |                             |                               |
| AN8.1   | Identify the given bone, its side, important features & keep it in anatomical position<br><b>LEARNING OBJECTIVES:</b><br>i. Identification of the scapula, clavicle, humerus, radius and ulna.<br>ii. Identification of the side of the given bones.<br>iii. Hold the bones in anatomical position.  | K/S                             | SH                               | Y                           | DOAP session                                     | Viva voce/ Practicals/ OSPE |                                     |                             |                               |
| AN8.2   | Identify & describe joints formed by the given bone<br><b>i.</b> Identification of the shoulder joint, acromioclavicular joint, sternoclavicular joint, elbow joint, superior and inferior radio ulnar joint.<br><b>ii.</b> Describe articulating surfaces and ligaments of the joints<br><b>iii.</b> Describe movements at the given joints Describe factors responsible for the stability        | K/S                             | SH                               | Y                           | Lecture, DOAP session                            | Viva voce                   |                                     |                             |                               |
| AN8.3   | Enumerate peculiarities of clavicle<br><b>Learning objective:</b><br>i. Enumerate the peculiarities of clavicle  | K                               | KH                               | Y                           | Lecture, DOAP session                            | Viva voce                   |                                     |                             |                               |
| <b>Number</b>   | <b>COMPETENCY</b><br><b>The student should be able to</b>  | <b>Domain</b><br><b>K/S/A/C</b> | <b>Level</b><br><b>K/KH/SH/P</b> | <b>Core</b><br><b>(Y/N)</b> | <b>Teaching-Learning Methods</b>                 | <b>Assessment Methods</b>   | <b>Number required to certify P</b> | <b>Vertical Integration</b> | <b>Horizontal Integration</b> |
| AN8.4   | Demonstrate important muscle attachment on the given bone<br><b>Learning objective:</b><br>i. Demonstrate the muscle attachments on the given bone   | K/S                             | SH                               | Y                           | Practical DOAP session, Small group teaching     | Viva voce<br>Practicals     |                                     | Orthopedics                 |                               |
| AN8.5   | Identify and name various bones in articulated hand, Specify the parts of metacarpals and phalanges and enumerate the peculiarities of pisiform<br><b>Learning objectives:</b><br><b>i.</b> Identification of the bones:carpals , metacarpals, and phalanges<br><b>ii.</b> Describe Different parts of the meta carpals and phalanges.<br><b>iii.</b> Enumerate the peculiarities of the pisiform. | K/S                             | SH                               | Y                           | Practical,F91 DOAP session, Small group teaching | Viva voce<br>Practicals     |                                     |                             |                               |
| AN8.6   | Describe scaphoid fracture and explain the anatomical basis of avascular necrosis<br><b>Learning objectives:</b><br>i. Describe parts of the scaphoid bone.<br>ii. Describe arterial supply of the scaphoid bone<br>iii. Describe clinical presentation of scaphoid fracture.<br>iv. Explain anatomical basis of scaphoid fracture.  | K                               | KH                               | N                           | DOAP session                                     | Viva voce                   |                                     | Orthopedics                 |                               |

| <b>Topic: Pectoral region</b> <b>Number of competencies: (3)</b> <b>Number of procedures for certification: (NIL)</b>                       |  |     |    |   |  |                                      |  |                 |  |
|---|--|-----|----|---|--|--------------------------------------|--|-----------------|--|
| AN9.1   | Describe attachment, nerve supply & action of pectoralis major and pectoralis minor<br><b>Learning objectives:</b> <ol style="list-style-type: none"> <li>Describe attachments of pectoralis major , pectoralis minor</li> <li>Describe nerve supply of the muscles.</li> <li>Describe action of the given muscles.</li> </ol>   | K   | KH | Y | Lecture, Practical                                       | Written                              |  |                 |  |
| AN9.2   | Breast: Describe the location, extent, deep relations, structure, age changes, blood supply, lymphatic drainage, microanatomy and applied anatomy of breast<br><b>Learning objective:</b> <ol style="list-style-type: none"> <li>Describe the location , extent and deep relations of breast.</li> <li>Describe structure and age changes of the breast.</li> <li>Describe blood supply and lymphatic drainage of the breast</li> <li>Describe the microanatomy and applied anatomy of the breast</li> </ol>   | K   | KH | Y | Practical, Lecture                                       | Written/ Viva voce                   |  | General Surgery |  |
| AN9.3   | Describe development of breast<br><b>Learning objectives:</b> <ol style="list-style-type: none"> <li>Describe the development of breast</li> <li>Describe developmental anomalies of the breast.</li> </ol>  | K   | KH | N | Lecture  | Written                              |  |                 |  |
| <b>Topic: Axilla, Shoulder and Scapular region</b> <b>Number of competencies: (13)</b> <b>Number of procedures for certification: (NIL)</b> |  |     |    |   |  |                                      |  |                 |  |
| AN10.1  | Identify & describe boundaries and contents of axilla<br><b>Learning objectives:</b> <ol style="list-style-type: none"> <li>identify boundaries and contents of axilla.</li> <li>Describe the contents and boundaries of axilla.</li> </ol>  | K/S | SH | Y | Practical, Lecture, Small group discussion, DOAP session | Written/ Viva voce/ skill assessment |  |                 |  |
| AN10.2  | Identify, describe and demonstrate the origin, extent, course, parts, relations and branches of axillary artery & tributaries of vein<br><b>Learning objectives:</b> <ol style="list-style-type: none"> <li>Identify the origin, extent, course, parts, relations and branches of the given vessels.</li> <li>Describe the origin, extent, course, parts, relations and branches of the given vessels</li> <li>Demonstrate the extent, course, parts ,relations and branches of the given vessels.</li> </ol>  | K/S | SH | Y | Practical, Lecture, Small group discussion, DOAP session | Written/ Viva voce/ skill assessment |  |                 |  |
| AN10.3  | Describe, identify and demonstrate formation, branches, relations, area of supply of branches, course and relations of terminal branches of brachial plexus<br><b>Learning objectives:</b> <ol style="list-style-type: none"> <li>Describe the formation, branches, relations, areas of supply of branches, course and relations of terminal branches of brachial plexus</li> <li>Identify the formation, branches, relations, areas of supply of branches, course and relations of terminal branches of the given vessels.</li> <li>Demonstrate the formation, branches, relations, areas of supply of branches, course and relations of terminal branches of the given vessels.</li> </ol> | K/S | SH | Y | Practical, Lecture, Small group discussion, DOAP session | Written/ Viva voce/ skill assessment |  |                 |  |



| Number  | COMPETENCY<br>The student should be able to   | Domain<br>K/S/A/C | Level<br>K/KH/<br>SH/P | Core<br>(Y/N) | Teaching-Learning Methods                                | Assessment<br>Methods                | Number<br>required to<br>certify<br>P | Vertical<br>Integration | Horizontal<br>Integration |
|---------|---|-------------------|------------------------|---------------|--|--------------------------------------|---------------------------------------|-------------------------|---------------------------|
| AN10.4  | Describe the anatomical groups of axillary lymph nodes and specify their areas of drainage<br><b>Learning objective:</b><br>i. Describe the anatomical groups of axillary lymph nodes.<br>ii. Specify their areas of drainage.  | K                 | KH                     | Y             | Practical, Lecture                                       | Written/ Viva voce                   |                                       | General Surgery         |                           |
| AN10.5  | Explain variations in formation of brachial plexus<br><b>Learning objectives:</b><br>i. Explain prefixed anomalies of the brachial plexus.<br>ii. Explain postfixed anomalies of the brachial plexus.   | K                 | KH                     | Y             | Practical, Lecture                                       | Written/ Viva voce                   |                                       |                         |                           |
| AN10.6  | Explain the anatomical basis of clinical features of Erb's palsy and Klumpke's paralysis<br><b>Learning objectives:</b><br>i. Describe erb's palsy and klumpke's palsy.<br>ii. Explain anatomical basis of these palsies.<br>iii. Explain Clinical presentation of the given palsies.   | K                 | KH                     | N             | Lecture  | Written                              |                                       | General Surgery         |                           |
| AN10.7  | Explain anatomical basis of enlarged axillary lymph nodes<br><b>Learning objectives:</b><br>i. Causes of enlarged lymph nodes<br>ii. Describe sentinel lymph nodes  | K                 | KH                     | N             | Lecture  | Written                              |                                       | General Surgery         |                           |
| AN10.8  | Describe, identify and demonstrate the position, attachment, nerve supply and actions of trapezius and latissimus dorsi<br><b>Learning objectives:</b><br>i. Describe the position, attachment, nerve supply and actions of trapezius and latissimus dorsi<br>ii. identify and demonstrate the position, attachment, nerve supply and actions of trapezius and latissimus dorsi<br>iii. demonstrate the position, attachment, nerve supply and actions of trapezius and latissimus dorsi. | K/S               | SH                     | Y             | Practical, Lecture, Small group discussion, DOAP session | Written/ Viva voce/ skill assessment |                                       |                         |                           |
| AN10.9  | Describe the arterial anastomosis around the scapula and mention the boundaries of triangle of auscultation<br><b>Learning objective:</b><br>i. Describe the arterial anastomosis around scapula<br>ii. Mention the boundaries of triangle of auscultation.   | K                 | KH                     | N             | Lecture  | Written                              |                                       |                         |                           |
| AN10.10 | Describe and identify the deltoid and rotator cuff muscles<br><b>Learning objectives:</b><br>i. Describe the deltoid muscle and rotator cuff muscle.<br>ii. Identify the deltoid muscle and rotator cuff muscle.  | K/S               | SH                     | Y             | Practical, Lecture, Small group discussion, DOAP session | Written/ Viva voce/ skill assessment |                                       |                         |                           |
| AN10.11 | Describe & demonstrate attachment of serratus anterior with its action<br><b>Learning objectives:</b><br>i. Describe the attachment of serratus anterior .<br>ii. Describe and demonstrate the actions of serratus anterior.  | K/S               | SH                     | Y             | Practical, Lecture, Small group discussion, DOAP session | Written/ Viva voce/ skill assessment |                                       |                         |                           |

| AN10.12   | Describe and demonstrate shoulder joint for– type, articular surfaces, capsule, synovial membrane, ligaments, relations, movements, muscles involved, blood supply, nerve supply and applied anatomy<br><b>Learning objectives:</b><br><b>i.</b> Describe shoulder joint for– type, articular surfaces, capsule, synovial membrane, ligaments, relations.<br><b>ii.</b> Demonstrate movements and muscles involved.<br><b>iii.</b> Describe the blood supply and nerve supply.<br><b>iv.</b> Describe the applied anatomy. | K/S               | SH                     | Y             | Practical,<br>Lecture, Small group<br>discussion, DOAP session | Written/ Viva voce/ skill<br>assessment |                                       | Orthopedics             |                           |
|---|--|-------------------|------------------------|---------------|--|---|---------------------------------------|-------------------------|---------------------------|
| AN10.13   | Explain anatomical basis of Injury to axillary nerve during intramuscular injections<br><b>Learning objectives:</b><br><b>i.</b> Describe the anatomy of axillary nerve<br><b>ii.</b> Describe its branches and muscles innervating.<br><b>iii.</b> Describe the anatomical basis of axillary nerve during intramuscular injections  | K                 | KH                     | N             | Lecture  | Viva voce                               |                                       |                         |                           |
| <b>Topic: Arm &amp; Cubital fossa</b> <b>Number of competencies: (6)</b> <b>Number of procedures for certification: (NIL)</b> |  |                   |                        |               |  |   |                                       |                         |                           |
| Number  | COMPETENCY<br>The student should be able to  | Domain<br>K/S/A/C | Level<br>K/KH/<br>SH/P | Core<br>(Y/N) | Teaching-Learning Methods                                      | Assessment<br>Methods                   | Number<br>required to<br>certify<br>P | Vertical<br>Integration | Horizontal<br>Integration |
| AN11.1  | Describe and demonstrate muscle groups of upper arm with emphasis on biceps and triceps brachii<br><b>Learning objectives:</b><br><b>i.</b> Describe all the muscles of upper arm .<br><b>ii.</b> Describe the origin and insertion of biceps and triceps.<br><b>iii.</b> Demonstrate the actions of above.  | K/S               | SH                     | Y             | Practical,<br>Lecture, Small group<br>discussion, DOAP session | Written/ Viva voce/ skill<br>assessment |                                       |                         |                           |
| AN11.2  | Identify & describe origin, course, relations, branches (or tributaries), termination of important nerves and vessels in arm<br><b>Learning objectives:</b><br><b>i.</b> Identify the nerves and vessels.<br><b>ii.</b> Describe the origin, relations, branches, termination of important nerve and vessels in arm.   | K/S               | SH                     | Y             | Practical,<br>Lecture, Small group<br>discussion, DOAP session | Written/ Viva voce/ skill<br>assessment |                                       |                         |                           |
| AN11.3  | Describe the anatomical basis of Venepuncture of cubital veins<br><b>Learning objectives:</b><br><b>i.</b> Describe the coarse and draining areas of cubital veins.<br><b>ii.</b> Describe the applied anatomy of cubital veins.   | K                 | KH                     | Y             | Practical, Lecture   | Written/ Viva voce                      |                                       | General Surgery         |                           |
| AN11.4  | Describe the anatomical basis of Saturday night paralysis<br><b>Learning objectives:</b><br><b>i.</b> Describe the Saturday night paralysis.<br><b>ii.</b> Nerve involved in the palsy.<br><b>iii.</b> Describe the clinical presentation.   | K                 | KH                     | Y             | Practical, Lecture   | Written/ Viva voce                      |                                       | Orthopedics             |                           |
| AN11.5  | Identify & describe boundaries and contents of cubital fossa<br><b>Learning objectives:</b><br><b>i.</b> Identify the boundaries of cubical fossa.<br><b>ii.</b> Describe the boundaries of the fossa.<br><b>iii.</b> Identify and describe its contents.  | K/S               | SH                     | Y             | Practical, Lecture, Small group<br>discussion, DOAP session    | Written/ Viva voce/ skill<br>assessment |                                       |                         |                           |

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|---|--|-----|----|---|--|--------------------------------------|--|--|--|
| AN11.6  | Describe the anastomosis around the elbow joint<br><b>Learning objectives:</b><br>i. Identify the vessels around elbow joint.<br>ii. Describe the anastomoses formed by the vessels.   | K   | KH | N | Lecture  | Written                              |  |  |  |
| <b>Topic: Forearm &amp; hand</b> <span style="float: right;"><b>Number of competencies: (15)</b></span> <span style="float: right;"><b>Number of procedures for certification: (NIL)</b></span> |  |     |    |   |  |                                      |  |  |  |
| AN12.1  | Describe and demonstrate important muscle groups of ventral forearm with attachments, nerve supply and actions<br><b>Learning objectives:</b><br>i. Describe muscles of ventral forearm .<br>ii. Describe the attachments and nerve supply.<br>iii. Demonstrate their actions.   | K/S | SH | Y | Practical, Lecture, Small group discussion, DOAP session | Written/ Viva voce/ skill assessment |  |  |  |
| AN12.2  | Identify & describe origin, course, relations, branches (or tributaries), termination of important nerves and vessels of forearm<br><b>Learning objectives:</b><br>i. Identify the nerves and vessels of forearm.<br>ii. Describe the origin, course, and relations of nerves and vessels.<br>iii. Describe branches of nerves and vessels . | K/S | SH | Y | Practical, Lecture, Small group discussion, DOAP session | Written/ Viva voce/ skill assessment |  |  |  |
| AN12.3  | Identify & describe flexor retinaculum with its attachments<br><b>Learning objectives:</b><br>i. Identify the flexor retinaculum.<br>ii. Describe its attachments .<br>iii. Describe the structures passing through the retinaculum.   | K/S | SH | Y | Practical, Lecture, Small group discussion, DOAP session | Written/ Viva voce/ skill assessment |  |  |  |
| AN12.4  | Explain anatomical basis of carpal tunnel syndrome<br><b>Learning objectives:</b><br>i. Describe the structures passing through carpal tunnel.<br>ii. Describe carpal tunnel syndrome.<br>iii. Clinical presentation.  | K   | KH | Y | Lecture  | Written/ Viva voce                   |  |  |  |
| AN12.5  | Identify & describe small muscles of hand. Also describe movements of thumb and muscles involved<br><b>Learning objectives:</b><br>i. Identify small muscles of hand.<br>ii. Describe the muscles<br>iii. Demonstrate the actions of the muscles.<br>iv. Describe movements of thumb and muscles involved.                                   | K/S | SH | Y | Practical, Lecture, Small group discussion, DOAP session | Written/ Viva voce/ skill assessment |  |  |  |
| AN12.6  | Describe & demonstrate movements of thumb and muscles involved<br><b>Learning objectives:</b><br>i. Describe muscles of thumb.<br>ii. Demonstrate the movements of the muscles.  | K/S | SH | Y | Practical, Lecture, Small group discussion, DOAP session | Written/ Viva voce/ skill assessment |  |  |  |
| AN12.7  | Identify & describe course and branches of important blood vessels and nerves in hand<br><b>Learning objectives:</b><br>i. Identify the course of important blood vessels and nerves in hand.<br>ii. Describe the branches of the vessels and nerves.  | K/S | SH | Y | Practical, Lecture, Small group discussion, DOAP session | Written/ Viva voce/ skill assessment |  |  |  |

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|---------|--|-----|----|---|--|--------------------------------------|--|-----------------|--|
| AN12.8  | Describe anatomical basis of Claw hand<br><b>Learning objectives:</b><br>i. Describe the injuries of ulnar nerve and their effects.<br>ii. Explain the claw hand defect.<br>iii. Explain the clinical presentation.  | K   | KH | Y | Lecture  | Written/ Viva voce                   |  | General Surgery |  |
| AN12.9  | Identify & describe fibrous flexor sheaths, ulnar bursa, radial bursa and digital synovial sheaths<br><b>Learning objectives:</b><br>i. Identify fibrous flexor sheaths, ulnar bursa, radial bursa and digital synovial sheaths.<br>ii. describe fibrous flexor sheaths, ulnar bursa, radial bursa and digital synovial sheaths.   | K/S | SH | Y | Practical, Lecture, Small group discussion, DOAP session | Written/ Viva voce/ skill assessment |  |                 |  |
| AN12.10 | Explain infection of fascial spaces of palm<br><b>Learning objectives:</b><br>i. Explain infection of fascial spaces of palm correctly.  | K   | KH | N | Lecture  | Written                              |  | General Surgery |  |
| AN12.11 | Identify, describe and demonstrate important muscle groups of dorsal forearm with attachments, nerve supply and actions<br><b>Learning objectives:</b><br>i. Identify and demonstrate important muscle groups of dorsal forearm with attachments, nerve supply and actions.<br>ii. describe important muscle groups of dorsal forearm with attachments, nerve supply and actions.  | K/S | SH | Y | Practical, Lecture, Small group discussion, DOAP session | Written/ Viva voce/ skill assessment |  | General Surgery |  |
| AN12.12 | Identify & describe origin, course, relations, branches (or tributaries), termination of important nerves and vessels of back of forearm<br><b>Learning objectives:</b><br>i. Describe origin, course, relations, branches (or tributaries), termination of important nerves and vessels of back of forearm.<br>ii. Identify origin, course, relations, branches (or tributaries), termination of important nerves and vessels of back of forearm. | K/S | SH | Y | Practical, Lecture, Small group discussion, DOAP session | Written/ Viva voce/ skill assessment |  | General Surgery |  |
| AN12.13 | Describe the anatomical basis of Wrist drop<br><b>Learning objectives:</b><br><b>i.</b> Anatomy of muscles and their actions acting at wrist.<br><b>ii.</b> Nerve supply of these nerves.<br><b>iii.</b> Injury and mechanism causing wrist drop<br><b>iv.</b> Clinical presentation of wrist drop   | K   | KH | Y | Lecture  | Written/ Viva voce                   |  | General Surgery |  |
| AN12.14 | Identify & describe compartments deep to extensor retinaculum<br><b>Learning objectives:</b><br>i. Identify all the compartments deep to the retinaculum.<br>ii. Describe these in detail correctly.   | K/S | SH | Y | Practical, Lecture, Small group discussion, DOAP session | Written/ Viva voce/ skill assessment |  | General Surgery |  |
| AN12.15 | Identify & describe extensor expansion formation<br><b>Learning objectives:</b><br>i. Identify extensor expansion formation<br>ii. describe extensor expansion formation.  | K/S | SH | Y | Practical, Lecture, Small group discussion, DOAP session | Written/ Viva voce/ skill assessment |  |                 |  |

| Topic: General Features, Joints, radiographs & surfacemarking |   | Number of competencies:(8) |    |   | Number of procedures for certification:(NIL)                |                                      |  |                |  |
|---|---|----------------------------|----|---|---|--------------------------------------|--|----------------|--|
| AN13.1  | Describe and explain Fascia of upper limb and compartments, veins of upper limb and its lymphatic drainage<br><b>Learning objectives :</b><br>i. Describe Fascia of upper limb and compartments, veins of upper limb and its lymphatic drainage<br>ii. explain Fascia of upper limb and compartments, veins of upper limb and its lymphatic drainage  | K                          | KH | Y | Lecture   | Written/ Viva voce                   |  |                |  |
| AN13.2  | Describe dermatomes of upper limb<br><b>Learning objective:</b><br>i. describe all the dermatomes in the upper limb correctly.  | K                          | KH | N | Lecture   | Written/ Viva voce                   |  |                |  |
| AN13.3  | Identify & describe the type, articular surfaces, capsule, synovial membrane, ligaments, relations, movements, blood and nerve supply of elbow joint, proximal and distal radio-ulnar joints, wrist joint & first carpometacarpal joint<br><b>Learning objectives:</b><br>i. Identify the type, articular surfaces, capsule, synovial membrane, ligaments, relations, movements, blood and nerve supply of elbow joint, proximal and distal radio-ulnar joints, wrist joint & first carpometacarpal joint.<br>ii. describe the type, articular surfaces, capsule, synovial membrane, ligaments, relations, movements, blood and nerve supply of elbow joint, proximal and distal radio-ulnar joints, wrist joint & first carpometacarpal joint. | K/S                        | SH | Y | Practical,<br>Lecture, Small group discussion, DOAP session | Written/ Viva voce/ skill assessment |  |                |  |
| AN13.4  | Describe Sternoclavicular joint, Acromioclavicular joint, Carpometacarpal joints & Metacarpophalangeal joint<br><b>Learning objectives:</b><br>i. Describe Sternoclavicular joint, Acromioclavicular joint, Carpometacarpal joints & Metacarpophalangeal joint correctly with their ligaments, articulating surfaces, movements, stability and clinical importance.   | K                          | KH | N | Lecture   | Written                              |  |                |  |
| AN13.5  | Identify the bones and joints of upper limb seen in anteroposterior and lateral view radiographs of shoulder region, arm, elbow, forearm and hand<br><b>Learning objectives:</b><br>i. Describe basics of a radiograph<br>ii. Identify the view and structures visible in radiograph.<br>iii. Identify the bones and joints of upper limb seen in anteroposterior and lateral view radiographs of shoulder region, arm, elbow, forearm and hand.  | K/S                        | SH | Y | Practical,<br>Small group discussion, DOAP session          | Viva voce/ skill assessment          |  | Radiodiagnosis |  |
| AN13.6  | Identify & demonstrate important bony landmarks of upper limb: Jugular notch, sternal angle, acromial angle, spine of the scapula, vertebral level of the medial end, Inferior angle of the scapula<br><b>Learning objectives:</b><br>i. Identify important bony landmarks of upper limb: Jugular notch, sternal angle, acromial angle, spine of the scapula, vertebral level of the medial end, Inferior angle of the scapula.<br>ii. demonstrate important bony landmarks of upper limb: Jugular notch, sternal angle, acromial angle, spine of the scapula, vertebral level of the medial end, Inferior angle of the scapula.  | K/S                        | SH | Y | Practical,<br>Lecture, Small group discussion, DOAP session | Viva voce/ skill assessment          |  |                |  |

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|---|--|-----|----|---|--|--------------------------------------|--|--------------------------------|--|
| AN13.7  | Identify & demonstrate surface projection of:<br>Cephalic and basilic vein, Palpation of Brachial artery, Radial artery, Testing of muscles: Trapezius, pectoralis major, serratus anterior, latissimus dorsi, deltoid, biceps brachii, Brachioradialis<br><b>Learning objectives:</b> <ol style="list-style-type: none"> <li>Identify surface projection of: Cephalic and basilic vein, Palpation of Brachial artery, Radial artery, Testing of muscles: Trapezius, pectoralis major, serratus anterior, latissimus dorsi, deltoid, biceps brachii, Brachioradialis.</li> <li>demonstrate surface projection of: Cephalic and basilic vein, Palpation of Brachial artery, Radial artery, Testing of muscles: Trapezius, pectoralis major, serratus anterior, latissimus dorsi, deltoid, biceps brachii, Brachioradialis.</li> </ol> | K/S | SH | Y | Practical, Lecture, Small group discussion, DOAP session | Viva voce/ skill assessment          |  |                                |  |
| AN13.8  | Describe development of upper limb<br><b>Learning objective:</b> <ol style="list-style-type: none"> <li>Describe development of upper limb</li> </ol>  | K   | KH | N | Lecture  | Written                              |  |                                |  |
| <b>Features of individual bones(LowerLimb)</b> <div> <div>Number ofcompetencies:(4)</div> <div>Number of procedures for certification:(NIL)</div> </div>  |  |     |    |   |  |                                      |  |                                |  |
| AN14.1  | Identify the given bone, its side, important features & keep it in anatomical position<br><b>Learning objective:</b> <ol style="list-style-type: none"> <li>Identify the given bone, its side, important features &amp; keep it in anatomical position (bones of lower limb).</li> </ol>   | K/S | SH | Y | DOAP session   | Viva voce                            |  |                                |  |
| AN14.2  | Identify & describe joints formed by the given bone<br><b>Learning objective:</b> <ol style="list-style-type: none"> <li>Identify joints formed by the given bone (bones of lower limb)</li> <li>describe joints formed by the given bone (bones of lower limb)</li> </ol>   | K/S | SH | Y | Lecture, DOAP session                                    | Viva voce                            |  |                                |  |
| AN14.3  | Describe the importance of ossification of lower end of femur & upper end of tibia<br><b>Learning objectives:</b> <ol style="list-style-type: none"> <li>Describe the importance of ossification of lower end of femur &amp; upper end of tibia.</li> </ol>  | K   | KH | Y | Lecture  | Viva voce/ Practicals                |  | Forensic Medicine & Toxicology |  |
| AN14.4  | Identify and name various bones in the articulated foot with individual muscle attachment<br><b>Learning objectives:</b> <ol style="list-style-type: none"> <li>Identify and name various bones in the articulated foot with individual muscle attachment.</li> </ol>  | K/S | SH | N | Practical, DOAP session, Small group teaching            | Viva voce/ Practicals                |  |                                |  |
| <b>Topic: Front &amp; Medial sideofthigh</b> <div> <div>Number of competencies:(5) ð</div> <div>Number of procedures for certification:(NIL)</div> </div> |  |     |    |   |  |                                      |  |                                |  |
| AN15.1  | Describe and demonstrate origin, course, relations, branches (or tributaries), termination of important nerves and vessels of anterior thigh<br><b>Learning objectives:</b> <ol style="list-style-type: none"> <li>Describe origin, course, relations, branches (or tributaries), termination of important nerves and vessels of anterior thigh.</li> <li>demonstrate origin, course, relations, branches (or tributaries), termination of important nerves and vessels of anterior thigh.</li> </ol>  | K/S | SH | Y | Practical, Lecture, Small group discussion, DOAP session | Written/ Viva voce/ skill assessment |  |                                |  |

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|---|---|-----|----|---|--|---|--|-----------------|--|
| AN15.2  | Describe and demonstrate major muscles with their attachment, nerve supply and actions<br><b>Learning objectives:</b><br>i. Describe major muscles with their attachment, nerve supply and actions.<br>ii. Demonstrate major muscles with their attachment, nerve supply and actions.   | K/S | SH | Y | Practical,<br>Lecture, Small group<br>discussion, DOAP session | Written/ Viva voce/ skill<br>assessment |  |                 |  |
| AN15.3  | Describe and demonstrate boundaries, floor, roof and contents of femoral triangle<br><b>Learning objectives:</b><br>i. Describe boundaries, floor, roof and contents of femoral triangle<br>ii. Demonstrate boundaries, floor, roof and contents of femoral triangle  | K/S | SH | Y | Practical,<br>Lecture, Small group<br>discussion, DOAP session | Written/ Viva voce/ skill<br>assessment |  | General Surgery |  |
| AN15.4  | Explain anatomical basis of Psoas abscess & Femoral hernia<br><b>Learning objectives:</b><br>i. Anatomy of femoral canal<br>ii. Explain femoral hernia<br>iii. Explain psoas abscess and its clinical features correctly.   | K   | KH | N | Lecture, DOAP session  | Written/ Viva voce                      |  | General Surgery |  |
| AN15.5  | Describe and demonstrate adductor canal with its content<br><b>Learning objectives:</b><br>i. Describe the boundaries of adductor canal.<br>ii. Demonstrate the boundaries and contents of adductor canal.  | K/S | SH | Y | Practical, Lecture, Small group<br>discussion, DOAP session    | Written/ Viva voce/ skill<br>assessment |  |                 |  |
| <b>Topic: Gluteal region &amp; backofthigh</b> <span style="float: right;"><b>Number ofcompetencies:(6)</b></span> <span style="float: right;"><b>Number of procedures for certification:(NIL)</b></span> |   |     |    |   |  |   |  |                 |  |
| AN16.1  | Describe and demonstrate origin, course, relations, branches (or tributaries), termination of important nerves and vessels of gluteal region<br><b>Learning objectives:</b><br>i. Describe origin, course, relations, branches (or tributaries), termination of important nerves and vessels of gluteal region<br>ii. Demonstrate origin, course, relations, branches (or tributaries), termination of important nerves and vessels of gluteal region | K/S | SH | Y | Practical,<br>Lecture, Small group<br>discussion, DOAP session | Written/ Viva voce/ skill<br>assessment |  |                 |  |
| AN16.2  | Describe anatomical basis of sciatic nerve injury during gluteal intramuscular injections<br><b>Learning objectives:</b><br>i. Describe the course of the sciatic nerve in the gluteal region.<br>ii. Describe the muscles in the gluteal region with their relation to the sciatic nerve<br>iii. Describe applied anatomy.   | K   | KH | Y | Lecture, DOAP session  | Written/ Viva voce                      |  | General Surgery |  |
| AN16.3  | Explain the anatomical basis of Trendelenburg sign<br><b>Learning objectives:</b><br>i. Describe actions of gluteus medius and gluteus minimus.<br>ii. Describe its applied anatomy   | K   | KH | Y | Lecture, DOAP session  | Written/ Viva voce                      |  | General Surgery |  |
| AN16.4  | Describe and demonstrate the hamstrings group of muscles with their attachment, nerve supply and actions<br><b>Learning objectives:</b><br>i. Describe the hamstrings group of muscles with their attachment, nerve supply and actions<br>ii. demonstrate the hamstrings group of muscles with their attachment, nerve supply and actions   | K/S | SH | Y | Practical, Lecture, Small group<br>discussion, DOAP session    | Written/ Viva voce/ skill<br>assessment |  |                 |  |

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|--|---|---------------------------------|----------------------------------|-----------------------------|--|--------------------------------------|-------------------------------------|-----------------------------|-------------------------------|
| AN16.5   | Describe and demonstrate the origin, course, relations, branches (or tributaries), termination of important nerves and vessels on the back of thigh<br><b>Learning objectives:</b><br>i. Describe the origin, course, relations, branches (or tributaries), termination of important nerves and vessels on the back of thigh<br>ii. Demonstrate the origin, course, relations, branches (or tributaries), termination of important nerves and vessels on the back of thigh  | K/S                             | SH                               | Y                           | Practical, Lecture, Small group discussion, DOAP session | Written/ Viva voce/ skill assessment |                                     |                             |                               |
| AN16.6   | Describe and demonstrate the boundaries, roof, floor, contents and relations of popliteal fossa<br><b>Learning objectives:</b><br>i. Describe the boundaries, roof, floor, contents of popliteal fossa<br>ii. demonstrate the boundaries, roof, floor, contents of popliteal fossa<br>iii. demonstrate the boundaries, roof, floor, relations of popliteal fossa  | K/S                             | SH                               | Y                           | Practical, Lecture, Small group discussion, DOAP session | Written/ Viva voce/ skill assessment |                                     |                             |                               |
| <b>Topic:HipJoint</b> <div> <div>Number ofcompetencies:(3)</div> <div>Number of procedures for certification:(NIL)</div> </div>  |   |                                 |                                  |                             |  |                                      |                                     |                             |                               |
| AN17.1   | Describe and demonstrate the type, articular surfaces, capsule, synovial membrane, ligaments, relations, movements and muscles involved, blood and nerve supply, bursae around the hip joint<br><b>Learning objectives:</b><br>i. Describe the type, articular surfaces, capsule, synovial membrane, ligaments, relations, movements and muscles involved, blood and nerve supply, bursae around the hip joint.<br>ii. demonstrate the type, articular surfaces, capsule, synovial membrane, ligaments, relations, movements and muscles involved, blood and nerve supply, bursae around the hip joint. | K/S                             | SH                               | Y                           | Practical, Lecture, Small group discussion, DOAP session | Written/ Viva voce/ skill assessment |                                     |                             |                               |
| Number   | <b>COMPETENCY</b><br><b>The student should be able to</b>   | <b>Domain</b><br><b>K/S/A/C</b> | <b>Level</b><br><b>K/KH/SH/P</b> | <b>Core</b><br><b>(Y/N)</b> | <b>Teaching-Learning Methods</b>                         | <b>Assessment Methods</b>            | <b>Number required to certify P</b> | <b>Vertical Integration</b> | <b>Horizontal Integration</b> |
| AN17.2   | Describe anatomical basis of complications of fracture neck of femur<br><b>Learning objectives:</b><br>1. Anatomy of the neck of the femur<br>2. Vascular supply<br>3. Changes with age and applied anatomy   | K                               | KH                               | N                           | Lecture  | Written/ Viva voce                   |                                     | Orthopedics                 |                               |
| AN17.3   | Describe dislocation of hip joint and surgical hip replacement<br><b>Learning objectives:</b><br>i. Anatomy of the hip joint<br>ii. Dislocation of hip joint<br>iii. Surgical replacement of the hip joint  | K                               | KH                               | N                           | Lecture  | Written/ Viva voce                   |                                     | Orthopedics                 |                               |
| <b>Topic: Knee joint, Anterolateral compartment of leg &amp; dorsumoffoot</b> <div> <div>Number of competencies:(7) ð</div> <div>Number of procedures for certification:(NIL)</div> </div> |   |                                 |                                  |                             |  |                                      |                                     |                             |                               |
| AN18.1   | Describe and demonstrate major muscles of anterolateral compartment of leg with their attachment, nerve supply and actions<br><b>Learning objectives:</b><br>i. Describe major muscles of anterolateral compartment of leg with their attachment, nerve supply and actions  | K/S                             | SH                               | Y                           | Practical, Lecture, Small group discussion, DOAP session | Written/ Viva voce/ skill assessment |                                     |                             |                               |



|   |  |     |    |   |  |                                      |  |                 |  |
|---|--|-----|----|---|--|--------------------------------------|--|-----------------|--|
|   | ii. demonstrate major muscles of anterolateral compartment of leg with their attachment, nerve supply and actions  |     |    |   |  |                                      |  |                 |  |
| AN18.2  | Describe and demonstrate origin, course, relations, branches (or tributaries), termination of important nerves and vessels of anterior compartment of leg<br><b>Learning objectives:</b><br>i. Describe origin, course, relations, branches (or tributaries), termination of important nerves and vessels of anterior compartment of leg.<br>ii. Demonstrate origin, course, relations, branches (or tributaries), termination of important nerves and vessels of anterior compartment of leg.   | K/S | SH | Y | Practical, Lecture, Small group discussion, DOAP session | Written/ Viva voce/ skill assessment |  |                 |  |
| AN18.3  | Explain the anatomical basis of foot drop<br><b>Learning objectives:</b><br>i. Describe the actions of tibialis anterior and fibularis tertius and extensor digitorum longus.<br>ii. Describe the course and muscles supplied by common peroneal nerve.  | K   | KH | Y | Lecture, DOAP session                                    | Written/ Viva voce                   |  | General Surgery |  |
| AN18.4  | Describe and demonstrate the type, articular surfaces, capsule, synovial membrane, ligaments, relations, movements and muscles involved, blood and nerve supply, bursae around the knee joint<br><b>Learning objectives:</b><br>i. Describe the type, articular surfaces, capsule, synovial membrane, ligaments, relations, movements and muscles involved, blood and nerve supply, bursae around the knee joint.<br>ii. Demonstrate the type, articular surfaces, capsule, synovial membrane, ligaments, relations, movements and muscles involved, blood and nerve supply, bursae around the knee joint. | K/S | SH | Y | Practical, Lecture, Small group discussion, DOAP session | Written/ Viva voce/ skill assessment |  |                 |  |
| AN18.5  | Explain the anatomical basis of locking and unlocking of the knee joint<br><b>Learning objectives:</b><br>i. Explain the action of popliteus muscle<br>ii. Explain the mechanism involved in extension and flexion of the knee joint   | K   | KH | Y | Small group teaching                                     | Written/ Viva voce                   |  |                 |  |
| AN18.6  | Describe knee joint injuries with its applied anatomy<br>Describe knee joint injuries with its applied anatomy.<br><b>Learning objectives:</b><br>i. Describe the anatomy of the knee joint<br>ii. Describe various types of injuries of knee joint with its applied anatomy   | K   | KH | N | Lecture  | Written/ Viva voce                   |  | Orthopedics     |  |
| AN18.7  | Explain anatomical basis of Osteoarthritis<br><b>Learning objectives:</b><br>i. Describe the anatomy of the synovial joint<br>ii. Describe changes occurring with age<br>iii. Describe its applied anatomy   | K   | KH | N | Lecture  | Written/ Viva voce                   |  | Orthopedics     |  |
| <b>Topic: Back of Leg&amp;Sole</b> <span style="float: right;">Number ofcompetencies:(7)</span> <span style="float: right;">Number of procedures for certification:(NIL)</span> |  |     |    |   |  |                                      |  |                 |  |

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| AN19.1 | <p>Describe and demonstrate the major muscles of back of leg with their attachment, nerve supply and actions</p> <p><b>Learning objectives:</b></p> <ul style="list-style-type: none"><li>i. Describe the major muscles of back of leg with their attachment, nerve supply and actions</li><li>ii. Demonstrate the major muscles of back of leg with their attachment, nerve supply and actions.</li></ul> | K/S | SH | Y | Practical,<br>Lecture, Small group<br>discussion, DOAP session | Written/ Viva voce/ skill<br>assessment |  |  |  |
|--------|--|-----|----|---|--|---|--|--|--|

| Number   | COMPETENCY<br>The student should be able to  | Domain<br>K/S/A/C | Level<br>K/KH/<br>SH/P | Core<br>(Y/N) | Teaching-Learning Methods                                | Assessment<br>Methods                | Number<br>required to<br>certify<br>P | Vertical<br>Integration | Horizontal<br>Integration |
|--|--|-------------------|------------------------|---------------|--|--------------------------------------|---------------------------------------|-------------------------|---------------------------|
| AN19.2   | Describe and demonstrate the origin, course, relations, branches (or tributaries), termination of important nerves and vessels of back of leg<br><b>Learning objectives:</b><br>i. Describe the origin, course, relations, branches (or tributaries), termination of important nerves and vessels of back of leg.<br>ii. Demonstrate the origin, course, relations, branches (or tributaries), termination of important nerves and vessels of back of leg.   | K/S               | SH                     | Y             | Practical, Lecture, Small group discussion, DOAPsession  | Written/ Viva voce/ skill assessment |                                       |                         |                           |
| AN19.3   | Explain the concept of “Peripheral heart”<br><b>Learning objectives:</b><br>i. Describe the calf muscles and deep veins and the valve system .<br>ii. Describe the role of soleus in the pumping of blood.   | K                 | KH                     | Y             | Lecture  | Written/ Viva voce                   |                                       | General Surgery         |                           |
| AN19.4   | Explain the anatomical basis of rupture of calcaneal tendon<br><b>Learning objectives:</b><br>i. Describe the attachments of the plantaris , gastrocnemius , and soleus to the calcaneum bone.<br>ii. Describe the applied anatomy.  | K                 | KH                     | N             | Lecture  | Written/ Viva voce                   |                                       | Orthopedics             |                           |
| AN19.5   | Describe factors maintaining importance arches of the foot with its importance<br><b>Learning objectives:</b><br>i. Enumerate the arches of the foot<br>ii. Structures forming the arches<br>iii. Factors maintaining these arches.  | K                 | KH                     | Y             | Lecture  | Written/ Viva voce                   |                                       |                         |                           |
| AN19.6   | Explain the anatomical basis of Flat foot & Club foot<br><b>Learning objectives:</b><br>i. Describe the applied anatomy of the arches of the foot.   | K                 | KH                     | N             | Lecture  | Written/ Viva voce                   |                                       | Orthopedics             |                           |
| AN19.7   | Explain the anatomical basis of Metatarsalgia & Plantar fasciitis<br><b>Learning objectives:</b><br>i. Describe the anatomy of the metatarsalgia<br>ii. Explain the anaomy of the plantar fasciitis.<br>iii. Explain applied anatomy   | K                 | KH                     | N             | Lecture  | Written/ Viva voce                   |                                       | Orthopedics             |                           |
| <b>Topic: General Features, Joints, radiographs &amp; surfacemarking</b> <span style="float: right;">Number ofcompetencies:(10)</span> <span style="float: right;">Number of procedures for certification:(NIL)</span> |  |                   |                        |               |  |                                      |                                       |                         |                           |
| AN20.1   | Describe and demonstrate the type, articular surfaces, capsule, synovial membrane, ligaments, relations, movements and muscles involved, blood and nerve supply of tibiofibular and ankle joint<br><b>Learning objectives:</b><br>i. Describe the type, articular surfaces, capsule, synovial membrane, ligaments, relations, movements and muscles involved, blood and nerve supply of tibiofibular and ankle joint.<br>ii. Demonstrate the type, articular surfaces, capsule, synovial membrane, ligaments, relations, movements and muscles involved, blood and nerve supply of tibiofibular and ankle joint. | K/S               | SH                     | Y             | Practical, Lecture, Small group discussion, DOAP session | Written/ Viva voce/ skill assessment |                                       |                         |                           |

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| AN20.2 | Describe the subtalar and transverse tarsal joints<br><b>Learning objectives:</b><br>i. Describe the anatomy of subtalar joint, articulating surfaces and ligaments<br>ii. Describe the anatomy of transverse tarsal joint , articulating surfaces and ligaments.   | K   | KH | N | Lecture, DOAP session                                    | Written/ Viva voce                   |  |                 |  |
| AN20.3 | Describe and demonstrate Fascia lata, Venous drainage, Lymphatic drainage, Retinacula & Dermatomes of lower limb<br><b>Learning objectives:</b><br>i. Describe Fascia lata, Venous drainage, Lymphatic drainage, Retinacula & Dermatomes of lower limb<br>ii. Demonstrate Fascia lata, Venous drainage, Lymphatic drainage, Retinacula & Dermatomes of lower limb               | K/S | SH | Y | Practical, Lecture, Small group discussion, DOAP session | Written/ Viva voce/ skill assessment |  |                 |  |
| AN20.4 | Explain anatomical basis of enlarged inguinal lymph nodes<br><b>Learning objectives:</b><br>i. Classify inguinal lymph nodes into superficial and deep lymph nodes<br>ii. Explain Areas drained by these nodes<br>iii. Explain applied anatomy.   | K   | KH | N | Lecture  | Written/ Viva voce                   |  | General Surgery |  |
| AN20.5 | Explain anatomical basis of varicose veins and deep vein thrombosis<br><b>Learning objectives:</b><br>i. Explain anatomy of superficial and deep veins and the perforators in the leg and their valve mechanism.<br>ii. Explain applied anatomy of varicose veins and deep vein thrombosis.   | K   | KH | Y | Lecture  | Written/ Viva voce                   |  | General Surgery |  |
| AN20.6 | Identify the bones and joints of lower limb seen in anteroposterior and lateral view radiographs of various regions of lower limb<br><b>Learning objectives:</b><br>i. Describe the basics of a radiograph<br>ii. Identify the view.<br>iii. Identify the bones and joints of lower limb seen in anteroposterior and lateral view radiographs of various regions of lower limb. | K/S | SH | Y | Lecture, Small group discussion, DOAP session            | Viva voce/ skill assessment          |  | Radiodiagnosis  |  |

| Number | COMPETENCY<br>The student should be able to  | Domain<br>K/S/A/C | Level<br>K/KH/<br>SH/P | Core<br>(Y/N) | Teaching-Learning Methods                                | Assessment<br>Methods       | Number<br>required to<br>certify<br>P | Vertical<br>Integration | Horizontal<br>Integration |
|--------|--|-------------------|------------------------|---------------|--|-----------------------------|---------------------------------------|-------------------------|---------------------------|
| AN20.7 | Identify & demonstrate important bony landmarks of lower limb: -Vertebral levels of highest point of iliac crest, posterior superior iliac spines, iliac tubercle, pubic tubercle, ischial tuberosity, adductor tubercle,<br>-Tibial tuberosity, head of fibula,<br>-Medial and lateral malleoli, Condyles of femur and tibia, sustentaculum tali, tuberosity of fifth metatarsal, tuberosity of the navicular<br><b>Learning objectives:</b><br>i. Identify important bony landmarks of lower limb: -Vertebral levels of highest point of iliac crest, posterior superior iliac spines, iliac tubercle, pubic tubercle, ischial tuberosity, adductor tubercle, -Tibial tuberosity, head of fibula, -Medial and lateral malleoli, Condyles of femur and tibia, sustentaculum tali, tuberosity of fifth metatarsal, tuberosity of the navicular<br>ii. Identify important bony landmarks of lower limb: -Vertebral levels of highest point of iliac crest, posterior superior iliac spines, iliac tubercle, pubic tubercle, ischial tuberosity, adductor tubercle,<br>-Tibial tuberosity, head of fibula, | K/S               | SH                     | Y             | Practical, Lecture, Small group discussion, DOAP session | Viva voce/ skill assessment |                                       |                         |                           |

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|  | -Medial and lateral malleoli, Condyles of femur and tibia, sustentaculum tali, tuberosity of fifth metatarsal, tuberosity of the navicula  |     |    |   |  |                                      |  |                                   |  |
| AN20.8   | Identify & demonstrate palpation of femoral, popliteal, post tibial, anti tibial & dorsalis pedis blood vessels in a simulated environment<br><b>Learning objectives:</b><br>i. Identify & demonstrate palpation of femoral, popliteal, post tibial, anti tibial & dorsalis pedis blood vessels in a simulated environment.<br>ii. Identify & demonstrate palpation of femoral, popliteal, post tibial, anti tibial & dorsalis pedis blood vessels in a simulated environment.   | K/S | SH | Y | Practical, Lecture, Small group discussion, DOAP session | Viva voce/ skill assessment          |  | General Medicine                  |  |
| AN20.9   | Identify & demonstrate Palpation of vessels (femoral, popliteal,dorsalis pedis,post tibial), Mid inguinal point, Surface projection of: femoral nerve, Saphenous opening, Sciatic, tibial, common peroneal & deep peroneal nerve, Great and small saphenous veins<br><b>Learning objectives:</b><br>i. Identify Palpation of vessels (femoral, popliteal,dorsalis pedis,post tibial), Mid inguinal point, Surface projection of: femoral nerve, Saphenous opening, Sciatic, tibial, common peroneal & deep peroneal nerve, Great and small saphenous veins.<br>ii. Demonstrate Palpation of vessels (femoral, popliteal,dorsalis pedis,post tibial), Mid inguinal point, Surface projection of: femoral nerve, Saphenous opening, Sciatic, tibial, common peroneal & deep peroneal nerve, Great and small saphenous veins. | K/S | SH | Y | Practical, Lecture, Small group discussion, DOAP session | Viva voce/ skill assessment          |  | General Medicine, General Surgery |  |
| AN20.10  | Describe basic concept of development of lower limb<br><b>Learning objectives:</b><br>i. Describe positioning and regulation of lower lib development<br>ii. Describe patterning of lower limb developments.   | K   | KH | N | Lecture  | Viva voce                            |  |                                   |  |
| <b>Topic: Thoraciccage</b> <b>Number ofcompetencies:(11)</b> <b>Number of procedures for certification:(NIL)</b> |  |     |    |   |  |                                      |  |                                   |  |
| AN21.1   | Identify and describe the salient features of sternum, typical rib, 1 <sup>st</sup> rib and typical thoracic vertebra<br><b>Learning objectives</b><br>(i)Identify and describe the salient features of sternum<br>(ii)Differentiate between typical and atypical ribs<br>(ii) Identify and describe the salient features and side of typical rib, 1 <sup>st</sup> rib and typical thoracic vertebra<br>(iii) Identify and describe the salient features of typical thoracic vertebra  | K/S | SH | Y | Lecture, DOAP session                                    | Viva voce/ skill assessment          |  |                                   |  |
| AN21.2   | Identify & describe the features of 2 <sup>nd</sup> , 11 <sup>th</sup> and 12 <sup>th</sup> ribs, 1 <sup>st</sup> , 11 <sup>th</sup> and 12 <sup>th</sup> thoracic vertebrae<br><b>Learning objectives</b><br>(i)Identify & describe the features of 2 <sup>nd</sup> , 11 <sup>th</sup> and 12 <sup>th</sup> ribs<br>(ii) Identify & describe the features of 1 <sup>st</sup> , 11 <sup>th</sup> and 12 <sup>th</sup> thoracic vertebrae<br>(iii) describe anomalies of ribs and vertebrae   | K/S | SH | N | Lecture, DOAP session                                    | Viva voce/ skill assessment          |  |                                   |  |
| AN21.3   | Describe & demonstrate the boundaries of thoracic inlet, cavity and outlet<br><b>Learning objectives</b><br>(i) Describe the boundaries of thoracic inlet, cavity and outlet<br>(ii)Demonstrate the boundaries of thoracic inlet, cavity and outlet correctly  | K/S | SH | Y | Practical, Lecture, Small group discussion, DOAP session | Written/ Viva voce/ skill assessment |  |                                   |  |

|               |   |                                 |                                  |                             |  |                                      |   |                             |                               |
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|               | (iii) Enumerate the structures passing through thoracic inlet   |                                 |                                  |                             |  |                                      |   |                             |                               |
| AN21.4        | Describe & demonstrate extent, attachments, direction of fibres, nerve supply and actions of intercostal muscles<br><b>Learning objectives</b><br>(i) Describe and demonstrate intercostal muscles<br>(ii) Describe direction of fibers and attachments<br>(iii) Nerve supply of intercostal muscles  | K/S                             | SH                               | Y                           | Practical, Lecture, Small group discussion, DOAP session | Written/ Viva voce/ skill assessment |   |                             |                               |
| <b>Number</b> | <b>COMPETENCY</b><br><b>The student should be able to</b>   | <b>Domain</b><br><b>K/S/A/C</b> | <b>Level</b><br><b>K/KH/SH/P</b> | <b>Core</b><br><b>(Y/N)</b> | <b>Teaching-Learning Methods</b>                         | <b>Assessment Methods</b>            | <b>Number required to certify</b><br><b>P</b> | <b>Vertical Integration</b> | <b>Horizontal Integration</b> |
| AN21.5        | Describe & demonstrate origin, course, relations and branches of a typical intercostal nerve<br><b>Learning objectives</b><br>(i) Describe origin, course, relations and branches of a typical intercostal nerve<br>(ii) Demonstrate origin, course, relations and branches of a typical intercostal nerve  | K/S                             | SH                               | Y                           | Practical, Lecture, Small group discussion, DOAP session | Written/ Viva voce/ skill assessment |   |                             |                               |
| AN21.6        | Mention origin, course and branches/ tributaries of:<br>1) anterior & posterior intercostal vessels<br>2) internal thoracic vessels<br><b>Learning objectives</b><br>(i) Describe origin and course of anterior & posterior intercostal vessels<br>(ii) Enumerate the branches/ tributaries of anterior & posterior intercostal vessels<br>(iii) Describe origin and course of internal thoracic vessels<br>(iv) Enumerate the branches/ tributaries of internal thoracic vessels | K                               | KH                               | Y                           | Practical, Lecture                                       | Written/ Viva voce                   |   |                             |                               |
| AN21.7        | Mention the origin, course, relations and branches of<br>1) atypical intercostal nerve<br>2) superior intercostal artery, subcostal artery<br><b>Learning objectives</b><br>(i) Describe the origin, course, relations and branches of atypical intercostal nerve correctly<br>(ii) Describe the origin, course, relations and branches of superior intercostal artery, subcostal artery  | K                               | KH                               | N                           | Lecture  | Written                              |   |                             |                               |
| AN21.8        | Describe & demonstrate type, articular surfaces & movements of manubriosternal, costovertebral, costotransverse and xiphisternal joints<br><b>Learning objectives</b><br>(i) Describe the type and articular surfaces of manubriosternal, costovertebral, costotransverse and xiphisternal joints<br>(ii) Describe & demonstrate movements of manubriosternal, costovertebral, costotransverse and xiphisternal joints<br>(iii) Describe nerve supply of these joints             | K/S                             | SH                               | Y                           | Practical, Lecture, Small group discussion, DOAP session | Written/ Viva voce/ skill assessment |   |                             |                               |

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| AN21.9   | Describe & demonstrate mechanics and types of respiration<br><b>Learning objectives</b><br>(i) Define Respiration and types of respiration<br>(ii) Describe mechanics of respiration<br>(iii) describe muscles involved in respiration  | K/S | SH | Y | Practical, Lecture, Small group discussion, DOAP session | Written/ Viva voce/ skill assessment |  |  | Physiology |
| AN21.10  | Describe costochondral and interchondral joints<br><b>Learning objectives</b><br>(i) describe type and articular surfaces in costochondral joints<br>(ii) describe type and articular surfaces in interchondral joints  | K   | KH | N | Lecture  | Written                              |  |  |            |
| AN21.11  | Mention boundaries and contents of the superior, anterior, middle and posterior mediastinum<br><b>Learning objectives</b><br>(i)Describe boundaries and contents of superior mediastinum<br>(ii)Describe boundaries and contents of anterior mediastinum<br>(iii)Describe boundaries and contents of middle mediastinum<br>(iv)Describe boundaries and contents of posterior mediasinum   | K   | KH | Y | Practical, Lecture                                       | Written/ Viva voce                   |  |  |            |
| <b>Topic: Heart&amp;Pericardium</b> <span style="float: right;"><b>Number ofcompetencies:(7)</b></span> <span style="float: right;"><b>Number of procedures for certification:(NIL)</b></span> |   |     |    |   |  |                                      |  |  |            |
| AN22.1   | Describe & demonstrate subdivisions, sinuses in pericardium, blood supply and nerve supply of pericardium<br><b>Learning objectives</b><br>(i)Describe and demonstrate pericardium<br>(ii)Describe subdivisions and sinuses in pericardium<br>(iii)Describe blood supply and nerve supply of pericardium<br>(iv)Clinical correlation of pericardium   | K/S | SH | Y | Practical, Lecture, Small group discussion, DOAP session | Written/ Viva voce/ skill assessment |  |  |            |
| AN22.2   | Describe& demonstrate external and internal features of each chamber of heart<br><b>Learning objectives</b><br>(i)Describe & demonstrate external features of each chamber of heart<br>(ii)Describe & demonstrate external features of each chamber of heart  | K/S | SH | Y | Practical, Lecture, Small group discussion, DOAP session | Written/ Viva voce/ skill assessment |  |  | Physiology |
| AN22.3   | Describe manubriosternal, costovertebral, costotransverse and xiphisternal joints& demonstrate origin, course and branches of coronary arteries<br><b>Learning objectives</b><br>(i)Describe and identify manubriosternal joint<br>(ii)Describe its important features<br>(iii)Describe costovertebral, costotransverse and xiphisternal joints<br>(iv)Enumerate the branches of coronary artery<br>(v)Demonstrate the origin ,course and branches of coronary artery correctly | K/S | SH | Y | Practical, Lecture, Small group discussion, DOAP session | Written/ Viva voce/ skill assessment |  |  | Physiology |

| Number  | COMPETENCY<br>The student should be able to  | Domain<br>K/S/A/C | Level<br>K/KH/<br>SH/P | Core<br>(Y/N) | Teaching-Learning Methods                                | Assessment<br>Methods                | Number<br>required to<br>certify<br>P | Vertical<br>Integration | Horizontal<br>Integration |
|---|--|-------------------|------------------------|---------------|--|--------------------------------------|---------------------------------------|-------------------------|---------------------------|
| AN22.4  | Describe anatomical basis of ischaemic heart disease<br><b>Learning objectives</b><br>(i) Define ischaemia<br>(ii) Describe ischaemic heart disease<br>(iii) describe treatment modalities of ischaemic heart disease  | K                 | KH                     | Y             | Lecture  | Written/ Viva voce                   |                                       | General<br>Medicine     | Physiology                |
| AN22.5  | Describe & demonstrate the formation, course, tributaries and termination of coronary sinus<br><b>Learning objectives</b><br>(i) Describe & demonstrate the formation, course and termination of coronary sinus<br>(ii) Describe tributaries of coronary sinus correctly   | K/S               | SH                     | Y             | Practical, Lecture, Small group discussion, DOAP session | Written/ Viva voce/ skill assessment |                                       |                         |                           |
| AN22.6  | Describe the fibrous skeleton of heart<br><b>Learning objectives</b><br>(i) Describe pericardium and its embryology<br>(ii) Describe myocardium and endocardium  | K                 | KH                     | Y             | Lecture  | Written                              |                                       |                         |                           |
| AN22.7  | Mention the parts, position and arterial supply of the conducting system of heart<br><b>Learning objectives</b><br>(i) Describe the components of conducting system of heart<br>(ii) Describe location of SA, AV node and bundle of his<br>(iii) Describe the blood supply of conducting system  | K                 | KH                     | Y             | Lecture  | Written                              |                                       | General<br>Medicine     | Physiology                |
| <b>Topic: Mediastinum</b> <span style="float: right;">Number of competencies:(7)</span> <span style="float: right;">Number of procedures for certification:(NIL)</span> |  |                   |                        |               |  |                                      |                                       |                         |                           |
| AN23.1  | Describe & demonstrate the external appearance, relations, blood supply, nerve supply, lymphatic drainage and applied anatomy of oesophagus<br><b>Learning objectives</b><br>(i) Describe & demonstrate the external appearance and relations of oesophagus<br>(ii) Describe and demonstrate constrictions of oesophagus<br>(iii) Describe blood supply and nerve supply of oesophagus<br>(iv) Describe lymphatic drainage and applied anatomy of oesophagus | K/S               | SH                     | Y             | Practical, Lecture, DOAP session                         | Written/ Viva voce/ skill assessment |                                       | General Surgery         |                           |
| AN23.2  | Describe & demonstrate the extent, relations tributaries of thoracic duct and enumerate its applied anatomy<br><b>Learning objectives</b><br>(i) Describe & demonstrate the extent and of thoracic duct<br>(ii) Describe tributaries of thoracic duct correctly<br>(iii) Enumerate its applied anatomy   | K/S               | SH                     | Y             | Practical, Lecture, DOAP session                         | Written/ Viva voce/ skill assessment |                                       | General Surgery         |                           |



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| AN23.3 | Describe & demonstrate origin, course, relations, tributaries and termination of superior venacava, azygos, hemiazygos and accessory hemiazygos veins<br><b>Learning objectives</b><br>(i) Describe & demonstrate origin, course, termination and relations of superior vena cava<br>(ii) Describe tributaries of superior vena cava,<br>(iii) Describe & demonstrate origin, course and relations of azygos, hemiazygos and accessory hemiazygos veins<br>(iv) Describe triuteries hemiazygos and accessory hemiazygos veins | K/S | SH | Y | Practical, Lecture, Small group discussion, DOAP session | Written/ Viva voce/ skill assessment |  |                 |  |
| AN23.4 | Mention the extent, branches and relations of arch of aorta & descending thoracic aorta<br><b>Learning objectives</b><br>(i) Describe and identify the extent, branches and relations of arch of aorta correctly<br>(ii) Mention the extent, branches and relations of descending thoracic aorta  | K   | KH | Y | Practical, Lecture                                       | Written/ Viva voce                   |  |                 |  |
| AN23.5 | Identify & Mention the location and extent of thoracic sympathetic chain<br><b>Learning objectives</b><br>(i) Describe the location and extent of thoracic sympathetic chain.<br>(ii) identify the location and extent of thoracic sympathetic chain.   | K/S | SH | Y | Practical, Lecture, Small group discussion, DOAP session | Written/ Viva voce/ skill assessment |  |                 |  |
| AN23.6 | Describe the splanchnic nerves<br>(i) Describe the splanchnic nerves.<br>(ii) Identify the splanchnic nerves.   | K   | KH | N | Lecture  | Written                              |  |                 |  |
| AN23.7 | Mention the extent, relations and applied anatomy of lymphatic duct<br>(i) Describe the extent and relations of lymphatic duct.<br>(ii) Describe applied anatomy of lymphatic duct.   | K   | KH | Y | Lecture  | Written/ Viva voce                   |  | General Surgery |  |

| Number   | COMPETENCY<br>The student should be able to   | Domain<br>K/S/A/C | Level<br>K/KH/<br>SH/P | Core<br>(Y/N) | Teaching-Learning Methods                                | Assessment<br>Methods                | Number<br>required to<br>certify<br>P | Vertical<br>Integration | Horizontal<br>Integration |
|--|---|-------------------|------------------------|---------------|--|--------------------------------------|---------------------------------------|-------------------------|---------------------------|
| <b>Topic: Lungs&amp;Trachea</b> <span style="float: right;">Number ofcompetencies:(6)</span> <span style="float: right;">Number of procedures for certification:(NIL)</span> |   |                   |                        |               |  |                                      |                                       |                         |                           |
| AN24.1   | Mention the blood supply, lymphatic drainage and nerve supply of pleura, extent of pleura and describe the pleural recesses and their applied anatomy<br><b>Learning objective</b><br>(i) Describe blood supply , lymphatic drainagenerve supply of pleura.<br>(ii)Describe the extent of pleura<br>(iii)Describe theie applied anatomy                 | K                 | KH                     | Y             | Practical, Lecture                                       | Written/ Viva voce                   |                                       | General<br>Medicine     | Physiology                |
| AN24.2   | Identify side, external features and relations of structures which form root of lung & bronchial tree and their clinical correlate<br><b>Learning objective</b><br>(i)Identify side, external features of lung.<br>(ii)Describe and demonstrate the relations of structures forming root of lung and bronchial tree.<br>(iii) Describe Clinical anatomy | K/S               | SH                     | Y             | Practical, Lecture, Small group discussion, DOAP session | Written/ Viva voce/ skill assessment |                                       | General<br>Medicine     | Physiology                |
| AN24.3   | Describe a bronchopulmonary segment<br><b>Learning objective</b><br>(i)Describe bronchopulmonary segment.<br>(ii)Describe the characteristic features of bronchopulmonary segments .<br>(iii)Describe the number and nomenclature of the segments of both lungs.  | K                 | KH                     | Y             | Lecture  | Written/ Viva voce                   |                                       | General<br>Medicine     | Physiology                |
| AN24.4   | Identify phrenic nerve & describe its formation & distribution<br><b>Learning objective</b><br>(i)Identify phrenic nerves.<br>(ii)Describe its root value and distribution.<br>(iii) describe the clinical anatomy of phrenic nerve ( referred pain)  | K/S               | SH                     | Y             | Lecture, Practical                                       | Written/ Viva voce                   |                                       |                         |                           |
| AN24.5   | Mention the blood supply, lymphatic drainage and nerve supply of lungs<br><b>Learning objective</b><br>(i)Describe and demonstrate the blood supply of lungs.<br>(ii)Describe the nerve supply of lungs.<br>(iii)Describe the lymphatic drainage of lungs.  | K                 | KH                     | Y             | Lecture  | Written/ Viva voce                   |                                       |                         |                           |
| AN24.6   | Describe the extent, length, relations, blood supply, lymphatic drainage and nerve supply of trachea<br><b>Learning objective</b><br>Describe the extent , length,relations, of trachea.<br>Describe the blood supply , nerve supply and lymphatic drainage of trachea.   | K                 | KH                     | N             | Lecture  | Written                              |                                       |                         |                           |
| <b>Topic: Thorax</b> <span style="float: right;">Number ofcompetencies:(9)</span> <span style="float: right;">Number of procedures for certification:(01)</span>             |   |                   |                        |               |  |                                      |                                       |                         |                           |
| AN25.1   | Identify, draw and label a slide of trachea and lung<br><b>Learning objective</b><br>(i)Identify the slide of trachea .<br>(ii)Draw and label the diagram.  | K/S               | SH                     | Y             | Lecture, Practical                                       | Written/ skill assessment            | 1                                     |                         |                           |

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|        | (iii)Identify the slide of lung.<br>(iv)Draw and label its diagram and mention the epithelium.   |   |    |   |         |                    |  |                                    |            |
| AN25.2 | Describe development of pleura, lung & heart<br><b>Learning objective</b><br>(i)Describe the development of pleura`<br>(ii)Describe the development of lung.<br>(iii)Describe the development of heart.  | K | KH | Y | Lecture | Written            |  |                                    |            |
| AN25.3 | Describe fetal circulation and changes occurring at birth<br><b>Learning objective</b><br>(i)Describe fetal circulation .<br>(ii)Describe the changes occurring at birth.  | K | KH | Y | Lecture | Written            |  | General<br>Medicine                | Physiology |
| AN25.4 | Describe embryological basis of:<br>1) atrial septal defect, 2) ventricular septal defect, 3) Fallot's tetralogy &<br>4) tracheo-oesophageal fistula<br><b>Learning objective</b><br>(i) Describe embryological basis of atrial septal defect.<br>(ii)Describe embryological basis of ventricular septal defect<br>(iii)Describe fallot's tetralogy<br>(iv)Describe trachea-oesophageal fistula. | K | KH | Y | Lecture | Written/ Viva voce |  | General<br>Medicine,<br>Pediatrics | Physiology |

| Number  | COMPETENCY<br>The student should be able to  | Domain<br>K/S/A/C | Level<br>K/KH/<br>SH/P | Core<br>(Y/N) | Teaching-Learning Methods | Assessment<br>Methods          | Number<br>required to<br>certify<br>P | Vertical<br>Integration             | Horizontal<br>Integration |
|---|--|-------------------|------------------------|---------------|---------------------------|--------------------------------|---------------------------------------|-------------------------------------|---------------------------|
| AN25.5  | Describe developmental basis of congenital anomalies, transposition of great vessels, dextrocardia, patent ductus arteriosus and coarctation of aorta<br><b>Learning objectives</b><br>(i) Describe developmental basis of congenital anomalies<br>(ii) Describe transposition of great vessels and dextrocardia<br>(iii) Describe patent ductus arteriosus and coarctation of aorta                         | K                 | KH                     | Y             | Lecture                   | Written/ Viva voce             |                                       | General<br>Medicine,<br>Pediatrics  | Physiology                |
| AN25.6  | Mention development of aortic arch arteries, SVC, IVC and coronary sinus<br><b>Learning objectives</b><br>(i) Describe development of aortic arch arteries<br>(ii) Describe development of aortic arch arteries, SVC, IVC and coronary sinus   | K                 | KH                     | N             | Lecture                   | Written/ Viva voce             |                                       |                                     |                           |
| AN25.7  | Identify structures seen on a plain x-ray chest (PA view)<br><b>Learning objectives</b><br>(i) define PA and AP view<br>(ii) Identify structures seen on a plain x-ray chest (PA view)   | K/S               | SH                     | Y             | Practical, DOAP session   | Written/ Viva voce             |                                       | Radiodiagnosis,<br>General Medicine |                           |
| AN25.8  | Identify and describe in brief a barium swallow<br><b>Learning objectives</b><br>(i) Identify and describe in brief a barium swallow<br>(ii) Identify structures seen on barium swallow  | K/S               | SH                     | N             | Practical, DOAP session   | Written/ Viva voce             |                                       | Radiodiagnosis,<br>General Medicine |                           |
| AN25.9  | Demonstrate surface marking of lines of pleural reflection, lung borders and fissures, trachea, heart borders, apex beat & surface projection of valves of heart<br><b>Learning objectives</b><br>(i) Demonstrate surface marking of lines of pleural reflection, lung borders, fissures and trachea<br>(ii) Demonstrate surface marking of heart borders, apex beat & surface projection of valves of heart | K/S               | SH                     | Y             | Practical                 | Viva voce/ skill<br>assessment |                                       | General<br>Medicine,<br>Pediatrics  | Physiology                |
| <b>Topic: Skull Osteology</b> <span style="float: right;"><b>Number of competencies:(7)</b></span> <span style="float: right;"><b>Number of procedures for certification:(NIL)</b></span> |  |                   |                        |               |                           |                                |                                       |                                     |                           |
| AN26.1  | Demonstrate anatomical position of skull, Identify and locate individual skull bones in skull<br><b>Learning Objectives</b><br>i. Identify the skull bone<br>ii. Demonstrate Anatomical position of the given bones  | K/S               | SH                     | Y             | Lecture, DOAP session     | Viva voce/ skill<br>assessment |                                       |                                     |                           |
| AN26.2  | Describe the features of norma frontalis, verticalis, occipitalis, lateralis and basalis<br><b>Learning Objectives</b><br>i. Norma frontalis and its fracture<br>ii. Norma verticalis and its fracture<br>iii. Norma occipitalis and its fracture<br>iv. Norma lateralis and its fracture<br>v. Norma basalis and its fracture   | K/S               | SH                     | Y             | Lecture, DOAP session     | Viva voce/ skill<br>assessment |                                       |                                     |                           |

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| AN26.3 | Describe cranial cavity, its subdivisions, foramina and structures passing through them<br><b>Learning Objectives</b><br>i. Describe cranial cavity<br>ii. Subdivisions of cranial cavity<br>iii. foramina and structures passing through them | K/S | SH | Y | Lecture, DOAP session | Viva voce/ skill assessment |  |  |  |
| AN26.4 | Describe morphological features of mandible<br><b>Learning Objectives</b><br>i. Anatomy of the mandible<br>ii. morphological features of mandible  | K/S | SH | Y | Lecture, DOAP session | Viva voce/ skill assessment |  |  |  |
| AN26.5 | Describe features of typical and atypical cervical vertebrae (atlas and axis)<br><b>Learning Objectives</b><br>i. Anatomy of surgical vertebrae<br>ii. typical and atypical vertebrae  | K/S | SH | Y | Lecture, DOAP session | Viva voce/ skill assessment |  |  |  |
| AN26.6 | Explain the concept of bones that ossify in membrane<br><b>Learning Objectives</b><br>i. Ossification of the bone<br>ii. Membranous Ossification of bones  | K   | KH | N | Lecture               | Viva voce                   |  |  |  |

| Number  | COMPETENCY<br>The student should be able to  | Domain<br>K/S/A/C | Level<br>K/KH/<br>SH/P | Core<br>(Y/N) | Teaching-Learning Methods                                | Assessment<br>Methods                | Number<br>required to<br>certify<br>P | Vertical<br>Integration | Horizontal<br>Integration |
|---|--|-------------------|------------------------|---------------|--|--------------------------------------|---------------------------------------|-------------------------|---------------------------|
| AN26.7  | Describe the features of the 7 <sup>th</sup> cervical vertebra<br><b>Learning Objectives:</b><br>i. Identification of the 7 <sup>th</sup> cervical vertebra<br>ii. Features of the 7 <sup>th</sup> cervical vertebra   | K/S               | SH                     | N             | DOAP session   | Viva voce                            |                                       |                         |                           |
| <b>Topic:Scalp</b> <span style="float: right;">Number ofcompetencies:(2)</span> <span style="float: right;">Number of procedures for certification:(NIL)</span>                     |  |                   |                        |               |  |                                      |                                       |                         |                           |
| AN27.1  | Describe the layers of scalp, its blood supply, its nerve supply and surgical importance<br><b>Learning Objectives:</b><br>(i) Layers: Skin, Connective tissue (superficial fascia & deep fascia), Aponeurotic layer, Loose connective tissue and Periosteum.<br>(ii) Contents of connective tissue layer: vessels, nerves<br>(iii) Lymphatic drainage<br>(iv) Applied anatomy: Sebaceous cysts Closed wounds-painful<br>(v) Open wounds bleed profusely | K                 | KH                     | Y             | Practical, Lecture                                       | Written/ Viva voce                   |                                       | General Surgery         |                           |
| AN27.2  | Describe emissary veins with its role in spread of infection from extracranial route to intracranial venous sinuses<br><b>Learning Objective:</b><br>(i) Types of Emissary veins-<br>(ii) Black eye<br>(iii) Safety valve haematoma<br>(iv) applied aspect   | K                 | KH                     | Y             | Lecture  | Written                              |                                       |                         |                           |
| <b>Topic: Face &amp;parotidregion</b> <span style="float: right;">Number ofcompetencies:(10)</span> <span style="float: right;">Number of procedures for certification:(NIL)</span> |  |                   |                        |               |  |                                      |                                       |                         |                           |
| AN28.1  | Describe & demonstrate muscles of facial expression and their nerve supply<br><b>Learning Objective:</b><br>(i) different muscles of face<br>(ii) Nerve supply of face<br>(iii) Blood supply of face<br>(iv) Applied aspects   | K/S               | SH                     | Y             | Practical, Lecture, Small group discussion, DOAP session | Written/ Viva voce/ skill assessment |                                       |                         |                           |
| AN28.2  | Describe sensory innervation of face<br><b>Learning Objective:</b><br>(i) Sensory nerve supply of face<br>(ii) Different branches of trigeminal nerve<br>(iii) Distribution of different branches of trigeminal nerve<br>(iv) Clinical correlation   | K                 | KH                     | Y             | Practical, Lecture                                       | Written/ Viva voce                   |                                       |                         |                           |
| AN28.3  | Describe & demonstrate origin /formation, course, branches /tributaries of facial vessels<br><b>Learning Objective:</b><br>(i) Different arteries supplying face<br>(ii) Facial Artery – course, branches & clinical correlation<br>(iii) Venous drainage of face  | K/S               | SH                     | Y             | Practical, Lecture, Small group discussion, DOAP session | Written/ Viva voce/ skill assessment |                                       |                         |                           |

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|               | (iv) Facial vein –formation, course, tributaries & applied anatomy  |                                 |                                  |                             |  |                                      |   |                             |                               |
| AN28.4        | Describe & demonstrate branches of facial nerve with distribution<br><b>Learning Objective:</b><br>(i) Motor nerve supply of face<br>(ii) Functional components of facial nerve<br>(iii) Course (intracranial & extracranial) of facial nerve<br>(iv) Branches of facial nerve<br>(v) Applied anatomy of facial nerve | K/S                             | SH                               | Y                           | Practical, Lecture, Small group discussion, DOAP session | Written/ Viva voce/ skill assessment |   |                             |                               |
| AN28.5        | Describe cervical lymph nodes and lymphatic drainage of head, face and neck<br><b>Learning Objective:</b><br>(i) Different group of cervical lymph nodes<br>(ii) Area of drainage of different groups of lymph nodes<br>(iii) Applied anatomy   | K                               | KH                               | Y                           | Practical, Lecture                                       | Written/ Viva voce                   |   |                             |                               |
| AN28.6        | Identify superficial muscles of face, their nerve supply and actions<br><b>Learning Objective:</b><br>(i) Origin, insertion and nerve supply of face<br>(ii) Different branches of trigeminal nerve<br>(iii) Distribution of different branches of trigeminal nerve<br>(iv) Clinical correlation                      | K/S                             | SH                               | Y                           | Practical, Lecture, Small group discussion, DOAP session | Written/ Viva voce/ skill assessment |   |                             |                               |
| AN28.7        | Explain the anatomical basis of facial nerve palsy<br><b>Learning Objective:</b><br>(i) Different types of facial nerve palsy<br>(ii) Difference in upper motor neuron and lower motor neuron type facial nerve palsy<br>(iii) Characteristic features of facial nerve palsy  | K                               | KH                               | Y                           | Lecture  | Written                              |   | General Medicine            |                               |
| <b>Number</b> | <b>COMPETENCY</b><br><b>The student should be able to</b>   | <b>Domain</b><br><b>K/S/A/C</b> | <b>Level</b><br><b>K/KH/SH/P</b> | <b>Core</b><br><b>(Y/N)</b> | <b>Teaching-Learning Methods</b>                         | <b>Assessment Methods</b>            | <b>Number required to certify</b><br><b>P</b> | <b>Vertical Integration</b> | <b>Horizontal Integration</b> |
| AN28.8        | Explain surgical importance of deep facial vein<br><b>Learning Objective:</b><br>(i) Dangerous area of face<br>(ii) Variation in its pathway<br>(iii) Surgical importance   | K                               | KH                               | Y                           | Lecture  | Written                              |   | General Surgery             |                               |
| AN28.9        | Describe & demonstrate the parts, borders, surfaces, contents, relations and nerve supply of parotid gland with course of its duct and surgical importance<br><b>Learning Objective:</b><br>(i) Location, shape & extent<br>(ii) relation,<br>(iii) structures related to it,   | K/S                             | SH                               | Y                           | Practical, Lecture, Small group discussion, DOAP session | Written/ Viva voce/ skill assessment |   | General Surgery             |                               |

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|  | (iv) vascular supply,<br>(v) venous drainage,<br>(vi) nerve supply , otic ganglion<br>(vii) Parotid duct- size , lumen opening<br>(viii) Applied anatomy Painful swelling (swelling affects opening of mouth, parotidectomy incision parallel to zygomatic bone(preserve VII nerve)<br>(ix) Parotid abscess  |     |    |   |  |                                      |  |                 |  |
| AN28.10  | Explain the anatomical basis of Frey's syndrome<br><b>Learning Objective:</b><br>(i) Cause of Frey's syndrome<br>(ii) Symptoms   | K   | KH | N | Lecture  | Written                              |  | General Surgery |  |
| <b>Topic: Posterior triangle of neck</b> <b>Number of competencies:(4)</b> <b>Number of procedures for certification:(NIL)</b> |  |     |    |   |  |                                      |  |                 |  |
| AN29.1   | Describe & demonstrate attachments, nerve supply, relations and actions of sternocleidomastoid<br><b>Learning Objective:</b><br>(i) Origin and insertion<br>(ii) Nerve supply<br>(iii) Actions<br>(iv) Applied anatomy   | K/S | SH | Y | Practical, Lecture, Small group discussion, DOAP session | Written/ Viva voce/ skill assessment |  |                 |  |
| AN29.2   | Explain anatomical basis of Erb's & Klumpke's palsy<br><b>Learning Objective:</b><br>(i) Erb's point<br>(ii) Anatomical basis of Erb's palsy<br>(iii) Cause & symptoms of Erb's palsy<br>(iv) Anatomical basis of Klumpke's palsy<br>(v) Cause & symptoms of Klumpke's palsy   | K   | KH | Y | Lecture  | Written                              |  | General Surgery |  |
| AN29.3   | Explain anatomical basis of wry neck<br><b>Learning Objective:</b><br>(i) Causes of wry neck<br>(ii) Anatomical basis<br>(iii) Symptoms of wry neck  | K   | KH | N | Lecture  | Written                              |  | General Surgery |  |
| AN29.4   | Describe & demonstrate attachments of 1) inferior belly of omohyoid, 2) scalenus anterior, 3) scalenus medius & 4) levator scapulae<br><b>Learning Objective:</b><br>(i) Origin , insertion, nerve supply and action of omohyoid<br>(ii) Origin, insertion, nerve supply and action of Scalenus anterior<br>(iii) Origin, insertion, nerve supply and action of Scalenus medius<br>(iv) Origin, insertion, nerve supply and action of Levator scapulae | K/S | SH | N | Lecture, Practical                                       | Written/ Viva voce                   |  |                 |  |
| <b>Topic: Cranial cavity</b> <b>Number of competencies:(5)</b> <b>Number of procedures for certification:(NIL)</b>             |  |     |    |   |  |                                      |  |                 |  |



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| AN30.1 | Describe the cranial fossae & identify related structures<br><b>Learning Objective:</b><br>(i) Cranial fossa and their types<br>(ii) Boundaries of different cranial fossa<br>(iii) Contents of different cranial fossa                      | K/S | SH | Y | Practical, Lecture, Small group discussion, DOAP session | Written/ Viva voce/ skill assessment |  | General Surgery |  |
| AN30.2 | Describe & identify major foramina with structures passing through them<br><b>Learning Objective:</b><br>(i) Identify different foramina<br>(ii) Structure passing through major foramina  | K/S | SH | Y | Practical, Lecture, Small group discussion, DOAP session | Written/ Viva voce/ skill assessment |  | General Surgery |  |
| AN30.3 | Describe & identify dural folds & dural venous sinuses<br><b>Learning Objective:</b><br>(i) Describe & identify dural folds<br>(ii) Types of dural folds<br>(iii) Attachment of dural folds<br>(iv) Identify & Classify dural venous sinuses | K/S | SH | Y | Practical, Lecture, Small group discussion, DOAP session | Written/ Viva voce/ skill assessment |  |                 |  |

| Number | COMPETENCY<br>The student should be able to   | Domain<br>K/S/A/C | Level<br>K/KH/<br>SH/P | Core<br>(Y/N) | Teaching-Learning Methods | Assessment<br>Methods | Number<br>required to<br>certify<br>P | Vertical<br>Integration | Horizontal<br>Integration |
|--------|---|-------------------|------------------------|---------------|---------------------------|-----------------------|---------------------------------------|-------------------------|---------------------------|
| AN30.4 | Describe clinical importance of dural venous sinuses<br><b>Learning Objective:</b><br>(i) Describe different dural sinuses , their location, extent, relation of different dural sinuses<br>(ii) Clinical importance of different dural sinuses | K                 | KH                     | Y             | Lecture                   | Written               |                                       |                         |                           |
| AN30.5 | Explain effect of pituitary tumours on visual pathway<br><b>Learning Objective:</b><br>(i) Anatomical basis of effect of pituitary tumor on visual pathways   | K                 | KH                     | N             | Lecture                   | Written               |                                       | Ophthalmology           |                           |

| Topic:Orbit |   | Number ofcompetencies:(5) |    |   | Number of procedures for certification:(NIL)             |                                      |  |  |  |
|-------------|---|---------------------------|----|---|--|--------------------------------------|--|--|--|
| AN31.1      | Describe & identify extra ocular muscles of eyeball<br><b>Learning Objective:</b><br>(i) Enumerate different extra ocular muscle<br>(ii) Identify different extra ocular muscle<br>(iii) Nerve supply of different extra ocular muscle<br>(iv) Action of different extra ocular muscle<br>(v) Applied anatomy | K/S                       | SH | Y | Practical, Lecture, Small group discussion, DOAP session | Written/ Viva voce/ skill assessment |  |  |  |
| AN31.2      | Describe & demonstrate nerves and vessels in the orbit<br><b>Learning Objective:</b><br>(i) Describes nerves of the orbit<br>(ii) Demonstrate nerve of the orbit<br>(iii) Ciliary ganglion  | K/S                       | SH | Y | Practical, Lecture, Small group discussion, DOAP session | Written/ Viva voce/ skill assessment |  |  |  |

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|   | (iv) Describe vessels in the orbit<br>(v) Demonstrate vessels in the orbit<br>(vi) Applied anatomy of nerves and vessels of the orbit  |     |    |   |  |                                      |  |               |  |
| AN31.3  | Describe anatomical basis of Horner's syndrome<br><b>Learning Objective:</b><br>(i) Cause and anatomical basis of Horner's syndrome<br>(ii) Characteristic features of Horner's syndrome   | K   | KH | N | Lecture  | Written                              |  | Ophthalmology |  |
| AN31.4  | Enumerate components of lacrimal apparatus<br><b>Learning Objective:</b><br>(i) Enumerate different components of lacrimal apparatus<br>(ii) Applied aspect  | K   | KH | Y | Lecture  | Written                              |  |               |  |
| AN31.5  | Explain the anatomical basis of oculomotor, trochlear and abducent nerve palsies along with strabismus<br><b>Learning Objective:</b><br>(i) Explain anatomical basis of oculomotor nerve palsy<br>(ii) Explain anatomical basis of trochlear nerve palsy<br>(iii) Explain anatomical basis of abducent nerve palsy<br>(iv) Explain anatomical basis of strabismus  | K   | KH | Y | Lecture  | Written                              |  | Ophthalmology |  |
| <b>Topic:AnteriorTriangle</b> <span style="float: right;">Number ofcompetencies:(2)</span> <span style="float: right;">Number of procedures for certification:(NIL)</span>                  |  |     |    |   |  |                                      |  |               |  |
| AN32.1  | Describe boundaries and subdivisions of anterior triangle<br><b>Learning Objective:</b><br>(i) Describe boundaries of Anterior triangle<br>(ii) Give subdivision of anterior triangle of neck<br>(iii) Describe boundaries & contents of different subdivision of anterior triangle<br>(iv) Applied aspect of anterior triangle  | K   | KH | Y | Practical, Lecture                                       | Written/ Viva voce                   |  |               |  |
| AN32.2  | Describe & demonstrate boundaries and contents of muscular, carotid, digastric and submental triangles<br><b>Learning Objective:</b><br>(i) Describe boundaries & contents of Muscular triangle<br>(ii) Describe boundaries & contents of Carotid triangle<br>(iii) Describe boundaries & contents of Digastric triangle<br>(iv) Describe boundaries & contents of Submental triangle<br>(v) Demonstrate boundaries & contents of different subdivision of anterior triangle | K/S | SH | Y | Practical, Lecture, Small group discussion, DOAP session | Written/ Viva voce/ skill assessment |  |               |  |
| <b>Topic: Temporal andInfratemporalregions</b> <span style="float: right;">Number ofcompetencies:(5)</span> <span style="float: right;">Number of procedures for certification:(NIL)</span> |  |     |    |   |  |                                      |  |               |  |
| AN33.1  | Describe & demonstrate extent, boundaries and contents of temporal and infratemporal fossae<br><b>Learning Objective:</b><br>(i) Describe extent, boundaries & contents of temporal fossa<br>(ii) Describe extent, boundaries & contents of Infratemporal fossa<br>(iii) Demonstrate boundaries & contents of temporal and infratemporal fossa   | K/S | SH | Y | Practical, Lecture, Small group discussion, DOAP session | Written/ Viva voce/ skill assessment |  |               |  |

|  |  |  |  |  |  |  |  |  |  |
|--|--|--|--|--|--|--|--|--|--|
|  | (iv) Applied anatomy of temporal and infratemporal fossa |  |  |  |  |  |  |  |  |
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| Number  | COMPETENCY<br>The student should be able to  | Domain<br>K/S/A/C | Level<br>K/KH/<br>SH/P | Core<br>(Y/N) | Teaching-Learning Methods                                | Assessment<br>Methods                | Number<br>required to<br>certify<br>P | Vertical<br>Integration | Horizontal<br>Integration |
|---|--|-------------------|------------------------|---------------|--|--------------------------------------|---------------------------------------|-------------------------|---------------------------|
| AN33.2  | Describe & demonstrate attachments, direction of fibres, nerve supply and actions of muscles of mastication<br><b>Learning Objective:</b><br>(i) Origin and insertion of muscles of mastication<br>(ii) Direction of fibers and nerve supply of muscles of mastication<br>(iii) Actions of muscles of mastication<br>(iv) Applied aspect of muscles of mastication | K/S               | SH                     | Y             | Practical, Lecture, Small group discussion, DOAP session | Written/ Viva voce/ skill assessment |                                       | General Surgery         |                           |
| AN33.3  | Describe & demonstrate articulating surface, type & movements of temporomandibular joint<br><b>Learning Objective:</b><br>(i) Temporomandibular joint – type, articular surface<br>(ii) Joint cavity<br>(iii) Ligaments<br>(iv) Nerve supply and Blood supply of TM joint<br>(v) Movements of TM joint<br>(vi) Applied aspect                                      | K/S               | SH                     | Y             | Practical, Lecture, Small group discussion, DOAP session | Written/ Viva voce/ skill assessment |                                       |                         |                           |
| AN33.4  | Explain the clinical significance of pterygoid venous plexus<br><b>Learning Objective:</b><br>(i) Pterygoid venous plexus, its communication<br>(ii) Clinical significance of pterygoid venous plexus  | K                 | KH                     | Y             | Lecture  | Written                              |                                       | General Surgery         |                           |
| AN33.5  | Describe the features of dislocation of temporomandibular joint<br><b>Learning Objective:</b><br>(i) Dislocation of temporomandibular joint<br>(ii) Features of dislocation of temporomandibular joint   | K                 | KH                     | N             | Lecture  | Written                              |                                       | General Surgery         |                           |
| <b>Topic:Submandibularregion</b> <span style="float: right;">Number ofcompetencies:(2)</span> <span style="float: right;">Number of procedures for certification:(NIL)</span> |  |                   |                        |               |  |                                      |                                       |                         |                           |
| AN34.1  | Describe & demonstrate the morphology, relations and nerve supply of submandibular salivary gland & submandibular ganglion<br><b>Learning Objective:</b><br>(i) morphology, relations and nerve supply of submandibular salivary gland<br>(ii) Submandibular ganglion<br>(iii) Applied aspect  | K/S               | SH                     | Y             | Practical, Lecture, Small group discussion, DOAP session | Written/ Viva voce/ skill assessment |                                       | General Surgery         |                           |
| AN34.2  | Describe the basis of formation of submandibular stones<br><b>Learning Objective:</b><br>(i) Anatomical basis of formation of submandibular stone  | K                 | KH                     | N             | Lecture  | Written                              |                                       | General Surgery         |                           |

| Topic: Deep structures in the neck |   | Number of competencies:(10)     |                                  |                             | Number of procedures for certification:(NIL)             |                                      |   |                             |                               |
|------------------------------------|---|---------------------------------|----------------------------------|-----------------------------|--|--------------------------------------|---|-----------------------------|-------------------------------|
| AN35.1                             | Describe the parts, extent, attachments, modifications of deep cervical fascia<br><b>Learning Objective:</b><br>(i) parts, extent, attachments, modifications of deep cervical fascia<br>(ii) Applied anatomy   | K                               | KH                               | Y                           | Lecture  | Written                              |   |                             |                               |
| AN35.2                             | Describe & demonstrate location, parts, borders, surfaces, relations & blood supply of thyroid gland<br><b>Learning Objective:</b><br>(i) Location of thyroid gland<br>(ii) Parts and features of thyroid gland<br>(iii) Capsules of thyroid gland & its clinical correlation<br>(iv) Relations of thyroid gland<br>(v) Blood supply of thyroid gland<br>(vi) Applied anatomy | K/S                             | SH                               | Y                           | Practical, Lecture, Small group discussion, DOAP session | Written/ Viva voce/ skill assessment |   | General Surgery             |                               |
| AN35.3                             | Demonstrate & describe the origin, parts, course & branches subclavian artery<br><b>Learning Objective:</b><br>(i) Origin of subclavian artery<br>(ii) Course of subclavian artery<br>(iii) Different parts of subclavian artery and their relation<br>(iv) Branches of subclavian artery<br>(v) Applied aspect   | K/S                             | SH                               | Y                           | Practical, Lecture, Small group discussion, DOAP session | Written/ Viva voce/ skill assessment |   |                             |                               |
| AN35.4                             | Describe & demonstrate origin, course, relations, tributaries and termination of internal jugular & brachiocephalic veins<br><b>Learning Objective:</b><br>(i) origin, course, relations, tributaries and termination of internal jugular<br>(ii) origin, course, relations, tributaries and termination of brachiocephalic veins<br>(iii) Applied aspect                     | K/S                             | SH                               | Y                           | Practical, Lecture, Small group discussion, DOAP session | Written/ Viva voce/ skill assessment |   |                             |                               |
| <b>Number</b>                      | <b>COMPETENCY</b><br><b>The student should be able to</b>   | <b>Domain</b><br><b>K/S/A/C</b> | <b>Level</b><br><b>K/KH/SH/P</b> | <b>Core</b><br><b>(Y/N)</b> | <b>Teaching-Learning Methods</b>                         | <b>Assessment Methods</b>            | <b>Number required to certify</b><br><b>P</b> | <b>Vertical Integration</b> | <b>Horizontal Integration</b> |
| AN35.5                             | Describe and demonstrate extent, drainage & applied anatomy of cervical lymph nodes<br><b>Learning Objective:</b><br>(i) Extent, drainage of cervical lymph nodes<br>(ii) applied anatomy of cervical lymph nodes   | K/S                             | SH                               | Y                           | Practical, Lecture, Small group discussion, DOAP session | Written/ Viva voce/ skill assessment |   | General Surgery             |                               |
| AN35.6                             | Describe and demonstrate the extent, formation, relation & branches of cervical sympathetic chain<br><b>Learning Objective:</b><br>(i) Extent, formation, relation & branches of cervical sympathetic chain<br>(ii) Cervical sympathetic ganglion<br>(iii) Applied anatomy – Horner’s syndrome  | K/S                             | SH                               | Y                           | Practical, Lecture, Small group discussion, DOAP session | Written/ Viva voce/ skill assessment |   |                             |                               |
| AN35.7                             | Describe the course and branches of IX, X, XI & XII nerve in the neck<br><b>Learning Objective:</b><br>(i) Course and branches of IX, X, XI & XII nerve in the neck   | K                               | KH                               | Y                           | Lecture  | Written                              |   |                             |                               |

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|  | (ii) Applied anatomy  |   |    |   |         |         |  |                 |  |
| AN35.8   | Describe the anatomically relevant clinical features of Thyroid swellings<br><b>Learning Objective:</b><br>(i) Applied anatomy of thyroid swellings   | K | KH | N | Lecture | Written |  | General Surgery |  |
| AN35.9   | Describe the clinical features of compression of subclavian artery and lower trunk of brachial plexus by cervical rib<br><b>Learning Objective:</b><br>(i) Clinical features of compression of subclavian artery by cervical rib<br>(ii) Clinical features of compression of lower trunk of brachial by cervical rib  | K | KH | N | Lecture | Written |  | General Surgery |  |
| AN35.10  | Describe the fascial spaces of neck<br><b>Learning Objective:</b><br>(i) Different fascial spaces of neck<br>(ii) Boundaries of different facial spaces<br>(iii) Contents of different facial spaces<br>(iv) Applied anatomy  | K | KH | N | Lecture | Written |  |                 |  |
| <b>Topic: Mouth, Pharynx&amp;Palate</b> <span style="float: right;">Number ofcompetencies:(5)</span> <span style="float: right;">Number of procedures for certification:(NIL)</span> |   |   |    |   |         |         |  |                 |  |
| AN36.1   | Describe the 1) morphology, relations, blood supply and applied anatomy of palatine tonsil 2) composition of soft palate<br><b>Learning Objective:</b><br>(i) Waldeyer's ring<br>(ii) Different Features- poles, borders and surfaces<br>(iii) Surface relations<br>(iv) Blood supply- arterial and venous<br>(v) Nerve supply<br>(vi) Applied anatomy - Tonsillitis, tonsillectomy<br>(vii) Muscles of soft palate<br>(viii) Origin & insertion of muscles of soft palate<br>(ix) Nerve & blood supply of soft palate<br>(x) Applied anatomy | K | KH | Y | Lecture | Written |  | ENT             |  |
| AN36.2   | Describe the components and functions of Waldeyer's lymphatic ring<br><b>Learning Objective:</b><br>(i) Composition of Waldeyer's ring<br>(ii) Functions of Waldeyer's ring<br>(iii) Applied anatomy  | K | KH | Y | Lecture | Written |  | ENT             |  |
| AN36.3   | Describe the boundaries and clinical significance of pyriform fossa<br><b>Learning Objective:</b><br>(i) Location of Pyriform fossa<br>(ii) Boundaries of Pyriform fossa<br>(iii) Applied anatomy – clinical significance   | K | KH | N | Lecture | Written |  | ENT             |  |

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| AN36.4   | Describe the anatomical basis of tonsillitis, tonsillectomy, adenoids and peri-tonsillar abscess<br><b>Learning Objective:</b><br>(i) tonsillitis<br>(ii) Tonsillectomy<br>(iii) Adenoids<br>(iv) Peri-tonsillar abscess  | K                               | KH                               | N                           | Lecture  | Written                              |   | ENT                         |                               |
| AN36.5   | Describe the clinical significance of Killian’s dehiscence<br><b>Learning Objective:</b><br>(i) What is Kilian’s dehiscence<br>(ii) Location<br>(iii) Applied anatomy   | K                               | KH                               | N                           | Lecture  | Written                              |   | ENT                         |                               |
| <b>Topic: CavityofNose</b> <div> <div>Number ofcompetencies:(3)</div> <div>Number of procedures for certification:(NIL)</div> </div> |   |                                 |                                  |                             |  |                                      |   |                             |                               |
| AN37.1   | Describe & demonstrate features of nasal septum, lateral wall of nose, their blood supply and nerve supply<br><b>Learning Objective:</b><br>(i) Formation ,Features, blood supply , nerve supply & applied anatomy of nasal septum<br>(ii) Lateral wall of nose and its features<br>(iii) Blood supply and nerve supply of lateral wall of nose<br>(iv) Applied anatomy | K/S                             | SH                               | Y                           | Practical, Lecture, Small group discussion, DOAP session | Written/ Viva voce/ skill assessment |   | ENT                         |                               |
| <b>Number</b>  | <b>COMPETENCY</b><br><b>The student should be able to</b>   | <b>Domain</b><br><b>K/S/A/C</b> | <b>Level</b><br><b>K/KH/SH/P</b> | <b>Core</b><br><b>(Y/N)</b> | <b>Teaching-Learning Methods</b>                         | <b>Assessment Methods</b>            | <b>Number required to certify</b><br><b>P</b> | <b>Vertical Integration</b> | <b>Horizontal Integration</b> |
| AN37.2   | Describe location and functional anatomy of paranasal sinuses<br><b>Learning Objective:</b><br>(i) Enumerate different Paranasal sinuses<br>(ii) Location of different paranasal sinuses<br>(iii) Functional anatomy of paranasal sinuses<br>(iv) Functions<br>(v) Applied anatomy  | K                               | KH                               | Y                           | Lecture  | Written                              |   | ENT                         |                               |
| AN37.3   | Describe anatomical basis of sinusitis & maxillary sinus tumours<br><b>Learning Objective:</b><br>(i) Anatomical basis of sinusitis<br>(ii) Anatomical basis of maxillary sinus tumours   | K                               | KH                               | N                           | Lecture  | Written                              |   | ENT                         |                               |
| <b>Topic:Larynx</b> <div> <div>Number ofcompetencies:(3)</div> <div>Number of procedures for certification:(NIL)</div> </div>        |   |                                 |                                  |                             |  |                                      |   |                             |                               |
| AN38.1   | Describe the morphology, identify structure of the wall, nerve supply, blood supply and actions of intrinsic and extrinsic muscles of the larynx<br><b>Learning Objective:</b><br>(i) Location and extent of larynx   | K/S                             | SH                               | Y                           | Practical, Lecture, Small group discussion, DOAP session | Written/ Viva voce/ skill assessment |   | ENT                         |                               |

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|   | (ii) Structures in the wall of larynx<br>(iii) Origin, insertion, nerve supply, blood supply and actions of intrinsic muscles of larynx<br>(iv) Origin, insertion, nerve supply, blood supply and actions of extrinsic muscles of larynx<br>(v) Applied anatomy   |     |    |   |  |                                      |  |     |  |
| AN38.2  | Describe the anatomical aspects of laryngitis<br><b>Learning Objective:</b><br>(i) Anatomical basis of laryngitis   | K   | KH | N | Lecture  | Written                              |  | ENT |  |
| AN38.3  | Describe anatomical basis of recurrent laryngeal nerve injury<br><b>Learning Objective:</b><br>(i) Anatomical basis of recurrent laryngeal nerve injury   | K   | KH | N | Lecture  | Written                              |  | ENT |  |
| <b>Topic:Tongue</b> <div> <div>Number ofcompetencies:(2)</div> <div>Number of procedures for certification:(NIL)</div> </div>                           |   |     |    |   |  |                                      |  |     |  |
| AN39.1  | Describe & demonstrate the morphology, nerve supply, embryological basis of nerve supply, blood supply, lymphatic drainage and actions of extrinsic and intrinsic muscles of tongue<br><b>Learning Objective:</b><br>(i) Functions<br>(ii) Components- root, body, inferior surface, dorsal surface(Anterior 2/3rd , posterior 1/3rd )<br>(iii) Muscles: extrinsic and intrinsic<br>(iv) Actions of extrinsic and intrinsic muscles of tongue<br>(v) Blood supply - arterial / venous<br>(vi) Lymphatic drainage<br>(vii) Nerve supply - motor, general sensory supply, taste sensations, proprioception<br>(viii) Embryological basis of nerve supply of muscles of tongue<br>(ix) Applied anatomy | K/S | SH | Y | Practical, Lecture, Small group discussion, DOAP session | Written/ Viva voce/ skill assessment |  |     |  |
| AN39.2  | Explain the anatomical basis of hypoglossal nerve palsy<br><b>Learning Objective:</b><br>(i) Hypoglossal nerve – functional component, course<br>(ii) Branches<br>(iii) Applied anatomy –hypoglossal nerve palsy  | K   | KH | N | Lecture  | Written                              |  | ENT |  |
| <b>Topic: Organs of hearingandequilibrium</b> <div> <div>Number ofcompetencies:(5)</div> <div>Number of procedures for certification:(NIL)</div> </div> |   |     |    |   |  |                                      |  |     |  |
| AN40.1  | Describe & identify the parts, blood supply and nerve supply of external ear<br><b>Learning Objective:</b><br>(i) Components - Pinna, External Acoustic meatus<br>(ii) Pinna: Parts of pinna, structure and nerve supply<br>(iii) External acoustic meatus<br>(iv) Tympanic membrane<br>(v) Blood supply<br>(vi) Nerve supply   | K/S | SH | Y | Practical, Lecture, Small group discussion, DOAP session | Written/ Viva voce/ skill assessment |  | ENT |  |



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| AN40.2  | Describe & demonstrate the boundaries, contents, relations and functional anatomy of middle ear and auditory tube<br><b>Learning Objective:</b><br>(i) Boundaries - ant wall, post wall, medial wall, lateral wall, roof, floor<br>(ii) Features seen at the boundaries<br>(iii) Ossicles - Malleus, Incus and stapes<br>(iv) Muscles - Tensor Tympani and stapedius<br>(v) Applied anatomy Otitis media Infection of middle ear in children Meningitis | K/S                             | SH                               | Y                           | Practical, Lecture, Small group discussion, DOAP session | Written/ Viva voce/ skill assessment |   | ENT                         |                               |
| AN40.3  | Describe the features of internal ear<br><b>Learning Objective:</b><br>(i) Features of internal ear<br>(ii) Structure of cochlea  | K                               | KH                               | N                           | Lecture  | Written                              |   | ENT                         |                               |
| AN40.4  | Explain anatomical basis of otitis externa and otitis media<br><b>Learning Objective:</b><br>(i) Anatomical basis of otitis externa and otitis media  | K                               | KH                               | N                           | Lecture  | Written                              |   | ENT                         |                               |
| <b>Number</b>   | <b>COMPETENCY</b><br><b>The student should be able to</b>   | <b>Domain</b><br><b>K/S/A/C</b> | <b>Level</b><br><b>K/KH/SH/P</b> | <b>Core</b><br><b>(Y/N)</b> | <b>Teaching-Learning Methods</b>                         | <b>Assessment Methods</b>            | <b>Number required to certify</b><br><b>P</b> | <b>Vertical Integration</b> | <b>Horizontal Integration</b> |
| AN40.5  | Explain anatomical basis of myringotomy<br><b>Learning Objective:</b><br>(i) Describe different layers of eyeball   | K                               | KH                               | N                           | Lecture  | Written                              |   | ENT                         |                               |
| <b>Topic: Eyeball</b> <span style="float: right;">Number of competencies:(3)</span> <span style="float: right;">Number of procedures for certification:(NIL)</span> |   |                                 |                                  |                             |  |                                      |   |                             |                               |
| AN41.1  | Describe & demonstrate parts and layers of eyeball<br><b>Learning Objective:</b><br>(i) Describe different layers of eyeball  | K/S                             | SH                               | Y                           | Practical, Lecture, Small group discussion, DOAP session | Written/ Viva voce/ skill assessment |   | Ophthalmology               |                               |
| AN41.2  | Describe the anatomical aspects of cataract, glaucoma & central retinal artery occlusion<br><b>Learning Objective:</b><br>(i) Cataract and its anatomical basis<br>(ii) Glaucoma & its anatomical basis<br>(iii) Central retinal artery occlusion and its anatomical basis  | K                               | KH                               | N                           | Lecture  | Written                              |   | Ophthalmology               |                               |
| AN41.3  | Describe the position, nerve supply and actions of intraocular muscles<br><b>Learning Objective:</b><br>(i) Enumerate intraocular muscles<br>(ii) Origin, insertion, nerve supply and action of intraocular muscles   | K                               | KH                               | N                           | Lecture  | Written                              |   | Ophthalmology               |                               |

| Topic:BackRegion   |  | Number ofcompetencies:(3) |    |   | Number of procedures for certification:(NIL)             |                                      |  |  |  |
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| AN42.1   | Describe the contents of the vertebral canal<br><b>Learning Objective:</b><br>(i) Describe Vertebral canal and its contents  | K/S                       | SH | Y | Practical, Lecture, Small group discussion, DOAP session | Written/ Viva voce/ skill assessment |  |  |  |
| AN42.2   | Describe & demonstrate the boundaries and contents of Suboccipital triangle<br><b>Learning Objective:</b><br>(i) Describe boundaries of sub-occipital triangle<br>(ii) Describe contents of Sub-occipital triangle<br>(iii) Applied anatomy of Sub-occipital triangle  | K/S                       | SH | Y | Practical, Lecture, Small group discussion, DOAP session | Written/ Viva voce/ skill assessment |  |  |  |
| AN42.3   | Describe the position, direction of fibres, relations, nerve supply, actions of semispinalis capitis and splenius capitis<br><b>Learning Objective:</b><br>(i) Describe origin insertion, direction of fibresm nerve supply & actions of semispinalis capitis<br>(ii) Describe origin insertion, direction of fibresm nerve supply & actions of splenius capitis   | K                         | KH | N | Lecture  | Written                              |  |  |  |
| Topic: Head & neck Joints, Histology, Development, Radiography &Surfacemarking |  | Number ofcompetencies:(9) |    |   | Number of procedures for certification:(NIL)             |                                      |  |  |  |
| AN43.1   | Describe & demonstrate the movements with muscles producing the movements of atlantooccipital joint & atlantoaxial joint<br><b>Learning Objective:</b><br>(i) Describe formation, type of joint and movement of atlantooccipital joint<br>(ii) Describe formation, type of joint and movement of atlantoaxial joint<br>(iii) Give applied anatomy of atlantooccipital and atlantoaxial joint   | K/S                       | SH | Y | Practical, Lecture, Small group discussion, DOAP session | Written/ Viva voce/ skill assessment |  |  |  |
| AN43.2   | Identify, describe and draw the microanatomy of pituitary gland, thyroid, parathyroid gland, tongue, salivary glands, tonsil, epiglottis, cornea, retina<br><b>Learning Objective:</b><br>(i) Identify, describe and draw the microanatomy of pituitary gland,<br>(ii) Identify, describe and draw the microanatomy of thyroid<br>(iii) Identify, describe and draw the microanatomy of parathyroid gland,<br>(iv) Identify, describe and draw the microanatomy of tongue<br>(v) Identify, describe and draw the microanatomy of epiglottis<br>(vi) Identify, describe and draw the microanatomy of cornea<br>(vii) Identify, describe and draw the microanatomy of retina | K/S                       | SH | Y | Lecture, Practical                                       | Written/ skill assessment            |  |  |  |

| Number | COMPETENCY<br>The student should be able to   | Domain<br>K/S/A/C | Level<br>K/KH/<br>SH/P | Core<br>(Y/N) | Teaching-Learning Methods | Assessment<br>Methods       | Number<br>required to<br>certify<br>P | Vertical<br>Integration | Horizontal<br>Integration |
|--------|---|-------------------|------------------------|---------------|---------------------------|-----------------------------|---------------------------------------|-------------------------|---------------------------|
| AN43.3 | Identify, describe and draw microanatomy of olfactory epithelium, eyelid, lip, sclero-corneal junction, optic nerve, cochlea- organ of corti, pineal gland<br><b>Learning Objective:</b><br>(i) Identify, describe and draw the microanatomy of olfactory epithelium<br>(ii) Identify, describe and draw the microanatomy of eyelid<br>(iii) Identify, describe and draw the microanatomy of lips<br>(iv) Identify, describe and draw the microanatomy of sclera-corneal junction,<br>(v) Identify, describe and draw the microanatomy of optic nerve<br>(vi) Identify, describe and draw the microanatomy of cochlea<br>(vii) Identify, describe and draw the microanatomy of organ of corti<br>(viii) Identify, describe and draw the microanatomy of pineal gland  | K/S               | SH                     | N             | Lecture, Practical        | Written/ skill assessment   |                                       |                         |                           |
| AN43.4 | Describe the development and developmental basis of congenital anomalies of face, palate, tongue, branchial apparatus, pituitary gland, thyroid gland & eye<br><b>Learning Objective:</b><br>(i) Describe the development and developmental basis of congenital anomalies of face<br>(ii) Describe the development and developmental basis of palate<br>(iii) Describe the development and developmental basis of tongue<br>(iv) Describe the development and developmental basis of branchial apparatus<br>(v) Describe the development and developmental basis of pituitary gland<br>(vi) Describe the development and developmental basis of thyroid gland<br>(vii) Describe the development and developmental basis of eye  | K                 | KH                     | Y             | Lecture                   | Written/ Viva voce          |                                       |                         |                           |
| AN43.5 | Demonstrate- 1) Testing of muscles of facial expression, extraocular muscles, muscles of mastication, 2) Palpation of carotid arteries, facial artery, superficial temporal artery, 3) Location of internal and external jugular veins, 4) Location of hyoid bone, thyroid cartilage and cricoid cartilage with their vertebral levels<br><b>Learning Objective: To Demonstrate</b><br>(i) Testing of muscles of facial expression,<br>(ii) Testing of extraocular muscles,<br>(iii) Testing of muscles of mastication,<br>(iv) Palpation of carotid arteries,<br>(v) Palpation of facial artery,<br>(vi) Palpation of superficial temporal artery,<br>(vii) Location of internal and external jugular veins,<br>(viii) Location of hyoid bone, thyroid cartilage and cricoid cartilage with their vertebral levels | K/S               | SH                     | Y             | Practical                 | Viva voce/ skill assessment |                                       | General Surgery         |                           |
| AN43.6 | Demonstrate surface projection of- Thyroid gland, Parotid gland and duct, Pterion, Common carotid artery, Internal jugular vein, Subclavian vein, External jugular vein, Facial artery in the face & accessory nerve<br><b>Learning Objective: To Demonstrate surface projection of</b><br>(i) Thyroid gland,<br>(ii) Parotid gland and duct,<br>(iii) Pterion,<br>(iv) Common carotid artery,<br>(v) Internal jugular vein,<br>(vi) Subclavian vein,   | K/S               | SH                     | N             | Practical                 | Viva voce/ skill assessment |                                       | General Surgery         |                           |

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|  | (vii) External jugular vein,<br>(viii) Facial artery in the face<br>(ix) Accessory nerve  |     |    |   |  |                                      |  |                 |  |
| AN43.7   | Identify the anatomical structures in 1) Plain x-ray skull, 2) AP view and lateral view 3) Plain x-ray cervical spine-AP and lateral view 4) Plain x- ray of paranasalsinuses<br><b>Learning Objective: To identify anatomical structure in</b><br>(i) Plain x-ray skull,<br>(ii) AP view and lateral view<br>(iii) Plain x-ray cervical spine-AP and lateral view<br>(iv) Plain x- ray of paranasal sinuses  | K/S | SH | Y | Practical  | Viva voce/ skill assessment          |  | Radiodiagnosis  |  |
| AN43.8   | Describe the anatomical route used for carotid angiogram and vertebral angiogram<br><b>Learning Objective:</b><br>(i) Describe the anatomical route used for carotid angiogram and vertebral angiogram<br>(ii) Applied anatomy  | K/S | SH | N | Practical  | Viva voce/ skill assessment          |  | Radiodiagnosis  |  |
| AN43.9   | Identify anatomical structures in carotid angiogram and vertebral angiogram<br><b>Learning Objective:</b><br>(i) Identify the anatomical structures in carotid angiogram and vertebral angiogram  | K/S | SH | N | Practical  | Viva voce/ skill assessment          |  | Radiodiagnosis  |  |
| <b>Topic: Anteriorabdominalwall</b> <b>Number ofcompetencies:(7)</b> <b>Number of procedures for certification:(NIL)</b> |   |     |    |   |  |                                      |  |                 |  |
| AN44.1   | Describe & demonstrate the Planes (transpyloric, transtubercular, subcostal, lateral vertical, linea alba, linea semilunaris), regions & Quadrants of abdomen<br><b>Learning objectives</b><br>(i) Describe location and vertebral levels of various planes in abdomen.<br>(ii)Enumerate the regions and quadrants of abdomen<br>(iii)Demonstrate the levels of planes and regions.<br>(iv) Describe the abdominal viscera in various regions   | K/S | SH | Y | Practical, Lecture, Small group discussion, DOAPsession  | Written/ Viva voce/ skill assessment |  | General Surgery |  |
| AN44.2   | Describe & identify the Fascia, nerves & blood vessels of anterior abdominal wall<br><b>Learning objectives</b><br>(i) Define boundaries of anterior abdominal wall.<br>(ii) Enumerate the layers of anterior abdominal wall.<br>(iii)Describe fascia and nerve and blood suppy of anterior abdominal wall.<br>(iv) Identify fascia ,nerve and blood supply of anterior abdominal wall.<br>(v)Define umbilicus and its embryological and clinical importance.<br>(vi)Define umbilicus and iits embryological and clinical importance. | K/S | SH | Y | Practical, Lecture, Small group discussion, DOAP session | Written/ Viva voce/ skill assessment |  |                 |  |

| Number  | COMPETENCY<br>The student should be able to  | Domain<br>K/S/A/C | Level<br>K/KH/<br>SH/P | Core<br>(Y/N) | Teaching-Learning Methods                                | Assessment<br>Methods                | Number<br>required to<br>certify<br>P | Vertical<br>Integration | Horizontal<br>Integration |
|---|--|-------------------|------------------------|---------------|--|--------------------------------------|---------------------------------------|-------------------------|---------------------------|
| AN44.3  | Describe the formation of rectus sheath and its contents<br><b>Learning objectives</b><br>(i)Define rectus sheath.<br>(ii)Define formation of rectus sheath at various levels.<br>(iii)Enumerate the contents of rectus sheath .<br>(iv)Identify layers of rectus sheath at various levels.  | K                 | KH                     | Y             | Lecture  | Written/ Viva voce                   |                                       |                         |                           |
| AN44.4  | Describe & demonstrate extent, boundaries, contents of Inguinal canal including Hesselbach's triangle.<br><b>Learning objective</b><br>(i)Describe inguinal canal its extent and direction.<br>(ii)Discuss boundaries and contents of inguinal canal.<br>(iii)Describe the mechanism to maintain the integrity of inguinal canal.<br>(iv)Discuss location and boundaries of hesselbach's triangle. | K/S               | SH                     | Y             | Practical, Lecture, Small group discussion, DOAP session | Written/ Viva voce/ skill assessment |                                       | General Surgery         |                           |
| AN44.5  | Explain the anatomical basis of inguinal hernia.<br><b>Learning objective</b><br>(i)Define hernia.<br>(ii)Factors leading to hernia.<br>(iii)Compare direct and indirect hernia.   | K                 | KH                     | Y             | Lecture  | Written/ Viva voce                   |                                       | General Surgery         |                           |
| AN44.6  | Describe & demonstrate attachments of muscles of anterior abdominal wall<br><b>Learning objective</b><br>(i)Describe the muscles of abdominal wall.<br>(ii)Demonstrate the attachments of muscles of anterior abdominal wall.<br>(iii)Describe the nerve supply and blood supply of anterior abdominal wall.   | K/S               | SH                     | Y             | Practical, Lecture, Small group discussion, DOAP session | Written/ Viva voce/ skill assessment |                                       | General Surgery         |                           |
| AN44.7  | Enumerate common Abdominal incisions<br><b>Learning objective</b><br>(i)Describe the principles of surgical incisions.<br>(ii)Enumerate common abdominal incisions.<br>(iii)Organs exposed to a specific incision.   | K                 | KH                     | N             | Lecture  | Written                              |                                       | General Surgery         |                           |
| <b>Topic: Posteriorabdominalwall</b> <span style="float: right;">Number ofcompetencies:(3)</span> <span style="float: right;">Number of procedures for certification:(NIL)</span> |  |                   |                        |               |  |                                      |                                       |                         |                           |
| AN45.1  | Describe Thoracolumbar fascia<br><b>Learning objective</b><br>(i)Describe the extent of thoracolumbar fascia.<br>(ii) Describe the attachmaents of layers of thoracolumbar fascia.<br>(iii)Describe functions and applied anatomy of thoracolumbar fascia`   | K                 | KH                     | Y             | Lecture  | Written                              |                                       |                         |                           |
| AN45.2  | Describe & demonstrate Lumbar plexus for its root value, formation & branches<br><b>Learning objective</b><br>(i)Describe the formation of lumbar plexus and its root value.<br>(ii)Demonstrate and describe the coarse and its branches.<br>(iii)Describe the areas innervated by branches of lumbar plexus.  | K/S               | SH                     | Y             | Practical, Lecture, Small group discussion, DOAP session | Written/ Viva voce/ skill assessment |                                       |                         |                           |

|  |   |     |    |   |  |                                      |  |                 |  |
|--|---|-----|----|---|--|--------------------------------------|--|-----------------|--|
| AN45.3   | Mention the major subgroups of back muscles, nerve supply and action<br><b>Learning objective</b><br>(i)Mention the major subgroups of back muscles, nerve supply and action<br>(ii)Enumerate the back muscles and subgroups.<br>(iii)Describe muscles forming the posterior abdominal wall and their attachments.<br>(iv)Describe nerve supply and actions of back muscles.<br>(v)Describe psoas sheath and its applied anatomy. | K   | KH | N | Lecture  | Written                              |  |                 |  |
| <b>Topic: Maleexternalgenitalia</b> <b>Number ofcompetencies:(5)</b> <b>Number of procedures for certification:(NIL)</b> |   |     |    |   |  |                                      |  |                 |  |
| AN46.1   | Describe & demonstrate coverings, internal structure, side determination, blood supply, nerve supply, lymphatic drainage & descent of testis with its applied anatomy<br><b>Learning objective</b><br>(i)Describe and demonstrate testis,its coverings and side determination.<br>(ii)Describe blood supply , nerve supply and lymphatic drainage.<br>(iii)Describe and discuss descent of testis and cryptorchidism.             | K/S | SH | Y | Practical, Lecture, Small group discussion, DOAP session | Written/ Viva voce/ skill assessment |  | General Surgery |  |
| AN46.2   | Describe parts of Epididymis<br><b>Learning objective</b><br>(i)Identify epididymis and its branches.<br>(ii)Describe its functions   | K   | KH | Y | Lecture, Practical                                       | Written/ Viva voce                   |  |                 |  |
| AN46.3   | Describe Penis under following headings: (parts, components, blood supply and lymphatic drainage)<br><b>Learning objective</b><br>(i)Describe parts,components,blood supply,nerve supply and lymphatic drainage.<br>(ii)Identify various parts and coverings of penis.<br>(iii)Discuss mechanism of erection and ejaculation.   | K   | KH | Y | Lecture, Practical                                       | Written/ Viva voce                   |  |                 |  |
| AN46.4   | Explain the anatomical basis of Varicocoele<br><b>Learning objective</b><br>(i) Describe varicocoele<br>(ii) Describe treatment of varicocoele  | K   | KH | N | Lecture  | Written                              |  | General Surgery |  |

| Number   | COMPETENCY<br>The student should be able to   | Domain<br>K/S/A/C | Level<br>K/KH/<br>SH/P | Core<br>(Y/N) | Teaching-Learning Methods                                | Assessment<br>Methods                | Number<br>required to<br>certify<br>P | Vertical<br>Integration | Horizontal<br>Integration |
|--|---|-------------------|------------------------|---------------|--|--------------------------------------|---------------------------------------|-------------------------|---------------------------|
| AN46.5   | Explain the anatomical basis of Phimosis & Circumcision<br><b>Learning objective</b><br>(i) Describe phimosis<br>(ii)Describe circumcision  | K                 | KH                     | N             | Lecture  | Written                              |                                       | General Surgery         |                           |
| <b>Topic:Abdominalcavity</b> <span style="float: right;">Number ofcompetencies:(14)</span> <span style="float: right;">Number of procedures for certification:(NIL)</span> |   |                   |                        |               |  |                                      |                                       |                         |                           |
| AN47.1   | Describe & identify boundaries and recesses of Lesser & Greater sac<br><b>Learning objective</b><br>(i)Describe boundaries and recess of lesser and greater sac.<br>(ii)Identify and discuss boundaries and recess of lesser and greater sac.<br>(iii)Boundaries of epiploic foremen and clinical significance.   | K/S               | SH                     | Y             | Practical, Lecture, Small group discussion, DOAP session | Written/ Viva voce/ skill assessment |                                       | General Surgery         |                           |
| AN47.2   | Name & identify various peritoneal folds & pouches with its explanation<br><b>Learning objective</b><br>(i)Enumerate the peritoneal folds and pouches .<br>(ii)Identify the peritoneal folds and pouches.<br>(iii)Discuss the classification of peritoneal folds.<br>(iv)Discuss embryological basis of peritoneal folds.<br>.  | K/S               | SH                     | Y             | Practical, Lecture, Small group discussion, DOAP session | Written/ Viva voce/ skill assessment |                                       | General Surgery         |                           |
| AN47.3   | Explain anatomical basis of Ascites & Peritonitis<br><b>Learning objective</b><br>(i)Define ascites and peritonitis.<br>(ii)Discuss its anatomical basis.   | K                 | KH                     | N             | Lecture  | Written                              |                                       | General Surgery         |                           |
| AN47.4   | Explain anatomical basis of Subphrenic abscess<br><b>Learning objective</b><br>(i)Describe subphrenic abscess.<br>(ii)Enumerate subphrenic abscess.   | K                 | KH                     | N             | Lecture  | Written                              |                                       | General Surgery         |                           |
| AN47.5   | Describe & demonstrate major viscera of abdomen under following headings (anatomical position, external and internal features, important peritoneal and other relations, blood supply, nerve supply, lymphatic drainage and applied aspects)<br><b>Learning objective</b><br>(i)Describe and demonstrate anatomical position of major viscera of abdomen.<br>(ii)Describe external and internal features and peritoneal relations.<br>(iii)Describe blood supply , nerve supply and lymphatic drainage of   | K/S               | SH                     | Y             | Practical, Lecture, Small group discussion, DOAP session | Written/ Viva voce/ skill assessment |                                       | General Surgery         |                           |
| AN47.6   | Explain the anatomical basis of Splenic notch, Accessory spleens, Kehr's sign, Different types of vagotomy, Liver biopsy (site of needle puncture), Referred pain in cholecystitis, Obstructive jaundice, Referred pain around umbilicus, Radiating pain of kidney to groin & Lymphatic spread in carcinoma stomach<br><b>Learning objectives</b><br>(i)Describe the anatomical basis of Splenic notch, Accessory spleens, Kehr's sign, Different types of vagotomy, Liver biopsy (site of needle puncture) | K                 | KH                     | N             | Lecture  | Written                              |                                       | General Surgery         |                           |

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|        | (ii)Describe Referred pain in cholecystitis, Obstructive jaundice, Referred pain around umbilicus<br>(iii)Describe Radiating pain of kidney to groin & Lymphatic spread in carcinoma stomach   |     |    |   |  |                                      |  |                 |  |
| AN47.7 | Mention the clinical importance of Calot's triangle<br><b>Learning objectives</b><br>(i)Describe boundaries of calot's triangle  | K   | KH | N | Lecture  | Written                              |  | General Surgery |  |
|        | (ii)Describe its clinical importance   |     |    |   |  |                                      |  |                 |  |
| AN47.8 | Describe & identify the formation, course relations and tributaries of Portal vein, Inferior vena cava & Renal vein<br><b>Learnig objecrives</b><br>(i)Enumerate the tributaries of inferior vena cava<br>(ii)Describe the formation, course relations and tributaries of Portal vein, Inferior vena cava & Renal vein<br>(iii)Identify the formation, course relations and tributaries of Portal vein, Inferior vena cava   | K/S | SH | Y | Practical, Lecture, Small group discussion, DOAP session | Written/ Viva voce/ skill assessment |  |                 |  |
|        |  |     |    |   |  |                                      |  |                 |  |
| AN47.9 | Describe & identify the origin, course, important relations and branches of Abdominal aorta, Coeliac trunk, Superior mesenteric, Inferior mesenteric & Common iliacartery<br><b>Learning objectives</b><br>(i) Enumerate branches of Abdominal aorta<br>(ii) Describe the origin, course, important relations and branches of (iii)Abdominal aorta and Coeliac trunk,<br>(iv)Identify the branches of Abdominal aorta, Coeliac trunk, Superior mesenteric, Inferior mesenteric & Common iliac artery | K/S | SH | Y | Practical, Lecture, Small group discussion, DOAP session | Written/ Viva voce/ skill assessment |  |                 |  |
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| Number  | COMPETENCY<br>The student should be able to  | Domain<br>K/S/A/C | Level<br>K/KH/<br>SH/P | Core<br>(Y/N) | Teaching-Learning Methods                                | Assessment<br>Methods                | Number<br>required to<br>certify<br>P | Vertical<br>Integration | Horizontal<br>Integration |
|---|--|-------------------|------------------------|---------------|--|--------------------------------------|---------------------------------------|-------------------------|---------------------------|
| AN47.10   | Enumerate the sites of portosystemic anastomosis<br><b>Learning objective</b><br>(i) Describe portocaval anastomoses.<br>(ii) Enumerate the sites .<br>(iii) Describe its Clinical importance.   | K                 | KH                     | Y             | Lecture  | Written                              |                                       | General Surgery         |                           |
| AN47.11   | Explain the anatomic basis of hematemesis& caput medusae in portal hypertension<br><b>Learning objective</b><br>(i) Describe portal hypertension<br>(ii) Describe hematemesis and its possible causes<br>(iii) Describe anatomical basis of caput medusae  | K                 | KH                     | Y             | Lecture,   | Written/ Viva voce                   |                                       | General Surgery         |                           |
| AN47.12   | Describe important nerve plexuses of posterior abdominal wall<br><b>Learning objective</b><br>(i) enumerate nerve plexus of posterior abdominal wall<br>(ii) describe formation of lumbar plexus and its root value<br>(iii) identify the branches of lumbar plexus correctly  | K                 | KH                     | N             | Lecture  | Written                              |                                       |                         |                           |
| AN47.13   | Describe & demonstrate the attachments, openings, nerve supply & action of the thoracoabdominal diaphragm<br><b>Learning objective</b><br>(i) Describe & demonstrate the attachments of thoracoabdominal diaphragm<br>(ii) describe and identify openings in thoracoabdominal diaphragm and their vertebral levels<br>(iii) Describe its nerve supply and action | K/S               | SH                     | Y             | Practical, Lecture, Small group discussion, DOAP session | Written/ Viva voce/ skill assessment |                                       |                         |                           |
| AN47.14   | Describe the abnormal openings of thoracoabdominal diaphragm and diaphragmatic hernia<br><b>Learning objective</b><br>(i) Define diaphragmatic hernia<br>(ii) describe treatment of diaphragmatic hernia<br>(iii) Describe the abnormal openings of thoracoabdominal diaphragm   | K                 | KH                     | N             | Lecture  | Written                              |                                       | General Surgery         |                           |
| <b>Topic: Pelvic wall and viscera</b> <span style="float: right;">Number of competencies:(8)</span> <span style="float: right;">Number of procedures for certification:(NIL)</span> |  |                   |                        |               |  |                                      |                                       |                         |                           |
| AN48.1  | Describe & identify the muscles of Pelvic diaphragm<br><b>Learning objective</b><br>(i) Describe the muscles forming pelvic diaphragm and their nerve supply<br>(ii) Functions of pelvic diaphragm<br>(iii) Openings in pelvic diaphragm   | K/S               | SH                     | Y             | Practical, Lecture, Small group discussion, DOAP session | Written/ Viva voce/ skill assessment |                                       |                         |                           |

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| AN48.2 | Describe & demonstrate the (position, features, important peritoneal and other relations, blood supply, nerve supply, lymphatic drainage and clinical aspects of) important male & female pelvic viscera<br><b>Learning objective</b><br>(i)Describe and demonstrate position of male & female pelvic viscera<br>(ii) Describe important peritoneal relations<br>(iii) Contents of Broad ligament<br>(iv) Describe blood supply, nerve supply, lymphatic drainage and clinical aspects of) important male & female pelvic viscera                      | K/S | SH | Y | Practical, Lecture, Small group discussion, DOAP session | Written/ Viva voce/ skill assessment |  |                 |  |
| AN48.3 | Describe & demonstrate the origin, course, important relations and branches of internal iliac artery<br><b>Learning objective</b><br>(i)Describe & demonstrate the origin, course of internal iliac artery<br>(i) Enumerate the branches of internal iliac artery<br>(ii) identify branches and relations of internal iliac artery   | K/S | SH | Y | Practical, Lecture, Small group discussion, DOAP session | Written/ Viva voce/ skill assessment |  |                 |  |
| AN48.4 | Describe the branches of sacral plexus<br><b>Learning objective</b><br>(i) Describe formation of sacral plexus and its root value<br>(iii) Identify the branches of sacral plexus correctly  | K   | KH | Y | Lecture  | Written                              |  |                 |  |
| AN48.5 | Explain the anatomical basis of suprapubic cystostomy, Urinary obstruction in benign prostatic hypertrophy, Retroverted uterus, Prolapse uterus, Internal and external haemorrhoids, Anal fistula, Vasectomy, Tubal pregnancy & Tuballigation<br><b>Learning objective</b><br>(i) Explain the anatomical basis of suprapubic cystostomy, Urinary obstruction in benign prostatic hypertrophy<br>(ii) Describe Retroverted uterus, Prolapse uterus, Tubal pregnancy & Tubal ligation<br>(iii) Describe Internal and external haemorrhoids, Anal fistula | K   | KH | N | Lecture  | Written                              |  | General Surgery |  |
| AN48.6 | Describe the neurological basis of Automatic bladder<br><b>Learning objective</b><br>(i) Describe nerve supply of urinary bladder<br>(ii)Describe the neurological basis of Automatic bladder  | K   | KH | N | Lecture  | Written                              |  | General Surgery |  |

| Number  | COMPETENCY<br>The student should be able to  | Domain<br>K/S/A/C | Level<br>K/KH/<br>SH/P | Core<br>(Y/N) | Teaching-Learning Methods                                | Assessment<br>Methods                | Number<br>required to<br>certify<br>P | Vertical<br>Integration                        | Horizontal<br>Integration |
|---|--|-------------------|------------------------|---------------|--|--------------------------------------|---------------------------------------|--|---------------------------|
| AN48.7  | Mention the lobes involved in benign prostatic hypertrophy & prostatic cancer<br><b>Learning objective</b><br>(i) Describe the gross anatomy of prostate gland<br>(ii) Describe the lobes involved in benign prostatic hypertrophy & prostatic Cancer  | K                 | KH                     | N             | Lecture  | Written                              |                                       | General Surgery                                |                           |
| AN48.8  | Mention the structures palpable during vaginal & rectal examination<br><b>Learning objective</b><br>(i) Describe the technique of per-vaginal examination and structures palpable<br>(ii) Describe the technique of rectal examination and structures palpable   | K                 | KH                     | N             | Lecture  | Written                              |                                       | Obstetrics &<br>Gynaecology General<br>Surgery |                           |
| <b>Topic:Perineum</b> <span style="float: right;">Number ofcompetencies:(5)</span> <span style="float: right;">Number of procedures for certification:(NIL)</span>        |  |                   |                        |               |  |                                      |                                       |  |                           |
| AN49.1  | Describe & demonstrate the superficial & deep perineal pouch (boundaries and contents)<br><b>Learning objective</b><br>(i) Describe the boundaries of superficial and deep perineal pouch.<br>(ii) Describe the contents of duperficial and deep perineal pouch.<br>(iii) Describe urogenital and anal triangle. | K/S               | SH                     | Y             | Practical, Lecture, Small group discussion, DOAP session | Written/ Viva voce/ skill assessment |                                       | Obstetrics &<br>Gynaecology                    |                           |
| AN49.2  | Describe & identify Perineal body<br><b>Learning objective</b><br>(i) Describe perineal body.<br>(ii) Enumerate the muscles forming perineal body.<br>(iii) Clinical importance of perineal body.  | K/S               | SH                     | Y             | Practical, Lecture, Small group discussion, DOAP session | Written/ Viva voce/ skill assessment |                                       | Obstetrics &<br>Gynaecology                    |                           |
| AN49.3  | Describe & demonstrate Perineal membrane in male & female<br><b>Learning objective</b><br>(i) Describe perineal membrane in male and female.<br>(ii) Structures piercing the perineal membrane in male and female..  | K/S               | SH                     | Y             | Practical, Lecture, Small group discussion, DOAP session | Written/ Viva voce/ skill assessment |                                       |  |                           |
| AN49.4  | Describe & demonstrate boundaries, content & applied anatomy of Ischiorectal fossa<br><b>Learning objective</b><br>(i) Describe the boundaries of ischiorectal fossa.<br>(ii) Describe its contents.<br>(iii) Describe ischiorectal abscess.   | K/S               | SH                     | Y             | Practical, Lecture, Small group discussion, DOAP session | Written/ Viva voce/ skill assessment |                                       | General Surgery                                |                           |
| AN49.5  | Explain the anatomical basis of Perineal tear, Episiotomy, Perianal abscess and Anal fissure<br><b>Learning objective</b><br>(i) Describe perineal tear.<br>(ii) Describe episiotomy.<br>(iii) Describe perianal abscess and anal fissure.   | K                 | KH                     | N             | Lecture  | Written                              |                                       | Obstetrics &<br>Gynaecology                    |                           |
| <b>Topic:Vertebralcolumn</b> <span style="float: right;">Number ofcompetencies:(4)</span> <span style="float: right;">Number of procedures for certification:(NIL)</span> |  |                   |                        |               |  |                                      |                                       |  |                           |

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| AN50.1 | Describe the curvatures of the vertebral column<br><b>Learning objective</b><br>(i) Describe primary and secondary curvatures of vertebral column.<br>(ii) Describe basis of formation of secondary curvature.<br>(iii) Describe structures passing through vertebral column.  | K   | KH | Y | Lecture  | Written/ Viva voce                   |  |  |  |
| AN50.2 | Describe & demonstrate the type, articular ends, ligaments and movements of Intervertebral joints, Sacroiliac joints & Pubic symphysis<br><b>Learning objective</b><br>(i) Describe types of intervertebral, sacroiliac joint and pubic symphysis.<br>(ii) Define primary and secondary cartilaginous joints.<br>(iii) Describe articular ends, ligaments and movements of intervertebral joints, sacroiliac joints and pubic symphysis. | K/S | SH | Y | Practical, Lecture, Small group discussion, DOAP session | Written/ Viva voce/ skill assessment |  |  |  |

| Number  | COMPETENCY<br>The student should be able to  | Domain<br>K/S/A/C | Level<br>K/KH/<br>SH/P | Core<br>(Y/N) | Teaching-Learning Methods                                | Assessment<br>Methods                | Number<br>required to<br>certify<br>P | Vertical<br>Integration | Horizontal<br>Integration |
|---|--|-------------------|------------------------|---------------|--|--------------------------------------|---------------------------------------|-------------------------|---------------------------|
| AN50.3  | Describe lumbar puncture (site, direction of the needle, structures pierced during the lumbar puncture)<br><b>Learning objective</b><br>(I )Describe lumbar puncture<br>(ii) Site of lumbar puncture<br>(iii) Structures pierced during the lumbar puncture.<br>(iv) Uses of lumbar puncture.  | K                 | KH                     | Y             | Lecture  | Written/ Viva voce                   |                                       | General<br>Medicine     |                           |
| AN50.4  | Explain the anatomical basis of Scoliosis, Lordosis, Prolapsed disc, Spondylolisthesis & Spina bifida<br><b>Learning objective</b><br>(i) Describe scoliosis , lordosis, prolapsed disc, spondylolisthesis and spina bifida.<br><b>(ii)</b> Describe their anatomical basis  | K                 | KH                     | N             | Lecture  | Written                              |                                       | Orthopedics             |                           |
| <b>Topic:SectionalAnatomy</b> <span style="float:right">Number ofcompetencies:(2)</span> <span style="float:right">Number of procedures for certification:(NIL)</span>          |  |                   |                        |               |  |                                      |                                       |                         |                           |
| AN51.1  | Describe & identify the cross-section at the level of T8, T10 and L1 (transpyloric plane)<br><b>Leaning objective</b><br>(i) Describe and identify structure visible in cross-section at the level of T8.<br>(II) ) Describe and identify structure visible in cross-section at the level of T 10<br>(iii) Describe and identify structure visible in cross-section at the level of L1 ( Transpyloric plane)   | K/S               | SH                     | Y             | Practical, Lecture, Small group discussion, DOAP session | Written/ Viva voce/ skill assessment |                                       | Radiodiagnosis          |                           |
| AN51.2  | Describe & identify the midsagittal section of male and female pelvis<br><b>Learning objective</b><br>(i)Describe & identify the midsagittal section of male pelvis.<br>(ii) ) Describe & identify the midsagittal section of female pelvis.   | K                 | SH                     | Y             | Practical, Lecture, Small group discussion, DOAP session | Written/ Viva voce/ skill assessment |                                       | Radiodiagnosis          |                           |
| <b>Topic: Histology&amp;Embryology</b> <span style="float:right">Number ofcompetencies:(8)</span> <span style="float:right">Number of procedures for certification:(NIL)</span> |  |                   |                        |               |  |                                      |                                       |                         |                           |
| AN52.1  | Describe & identify the microanatomical features of Gastro-intestinal system:<br>Oesophagus, Fundus of stomach, Pylorus of stomach, Duodenum, Jejunum, Ileum, Large intestine, Appendix, Liver, Gall bladder, Pancreas & Suprarenal gland<br><b>Learning Objectives-</b><br>I. Describe different layers of oesophagus.<br>II. List the functions of different layers of oesophagus<br>III. Describe the four layers of stomach (fundus, body and pylorus)<br>IV. Enumerate the functions of each layer of stomach<br>V. Describe the microanatomy of duodenum<br>VI. Lists the functions of different layers of duodenum.<br>VII. Describe histological features of jejunum and ileum.<br>VIII. Describe microanatomy of Large Intestine and Vermiform Appendix.<br>IX. Development of small and large intestine.<br>X. Rotation of gut.<br>XI. Developement of peritoneum. | K/S               | SH                     | Y             | Lecture, Practical                                       | Written/ skill assessment            |                                       |                         |                           |

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| AN52.2 | Describe & identify the microanatomical features of: Urinary system:<br>Kidney, Ureter & Urinary bladder<br>Male Reproductive System: Testis, Epididymis, Vas deferens, Prostate & penis<br>Female reproductive system: Ovary, Uterus, Uterine tube, Cervix, Placenta & Umbilical cord<br><b>Learning Objectives-</b><br>1. Histology of Kidney, Ureter and Urinary bladder<br>2. List the different layers in urinary bladder and ureter<br>3. Histological feature Ovary, Uterus, Fallopian Tube and Umbilical cord.<br>4. Development of Placenta. | K/S | SH | Y | Lecture, Practical | Written/ skill assessment |  |  |  |
| AN52.3 | Describe & identify the microanatomical features of Cardiooesophageal junction, Corpus luteum<br><b>Learning Objectives-</b><br>1.Histological features of cardio-oesophageal junction.<br>2. Corpus luteum and its function.   | K/S | SH | N | Lecture, Practical | Written/ skill assessment |  |  |  |
| AN52.4 | Describe the development of anterior abdominal wall<br><b>Learning Objectives-</b><br>1.Development of anterior abdominal wall and its congenital anomalies.  | K   | KH | N | Lecture            | Written/ Viva voce        |  |  |  |

| Number  | COMPETENCY<br>The student should be able to  | Domain<br>K/S/A/C | Level<br>K/KH/<br>SH/P | Core<br>(Y/N) | Teaching-Learning Methods | Assessment<br>Methods       | Number<br>required to<br>certify<br>P | Vertical<br>Integration                   | Horizontal<br>Integration |
|---|--|-------------------|------------------------|---------------|---------------------------|-----------------------------|---------------------------------------|---|---------------------------|
| AN52.5  | Describe the development and congenital anomalies of Diaphragm<br><b>Learning Objectives-</b><br>1.Developement of Abdominal Diaphragm and its congenital anomalies.   | K                 | KH                     | Y             | Lecture                   | Written/ Viva voce          |                                       | General Surgery                           |                           |
| AN52.6  | Describe the development and congenital anomalies of: Foregut, Midgut & Hindgut<br><b>Learning Objective-</b><br>1.Developement of Gut tube<br>2. Derivative of Foregut, midgut and hind gut.<br>3. congenital anomalies of Gut tube   | K                 | KH                     | Y             | Lecture                   | Written/ Viva voce          |                                       | General Surgery                           |                           |
| AN52.7  | Describe the development of Urinary system<br><b>Learning Objectives</b><br>1.. Development of kidney<br>2. Derivatives of mesonephric duct.<br>3. Development of urinary bladder, prostate and urethra  | K                 | KH                     | Y             | Lecture                   | Written/ Viva voce          |                                       | General Surgery                           |                           |
| AN52.8  | Describe the development of male & female reproductive system<br><b>Learning Objectives-</b><br>1.Developement of Testis and Ovary<br>2. Descent of Testis<br>3. Development of Uterus and Fallopian Tube and congenital anomalies of Uterus.<br>4.Paramesonephric Duct and its Derivatives.   | K                 | KH                     | Y             | Lecture                   | Written/ Viva voce          |                                       | Obstetrics &<br>Gynaecology               |                           |
| <b>Topic:Osteology</b> <span style="float: right;">Number ofcompetencies:(4)</span> <span style="float: right;">Number of procedures for certification:(NIL)</span> |  |                   |                        |               |                           |                             |                                       |   |                           |
| AN53.1  | Identify & hold the bone in the anatomical position, Describe the salient features, articulations & demonstrate the attachments of muscle groups<br><b>Learning objective</b><br>(i)Identify the bone and describe its anatomical position.<br>(ii)Describe its salient features and articulations`<br>(iii)Describe the attachments of muscles and demonstrate their actions. | K/S               | SH                     | Y             | Lecture, DOAP session     | Viva voce/ skill assessment |                                       | General Surgery, Obstetrics & Gynaecology |                           |
| AN53.2  | Demonstrate the anatomical position of bony pelvis & show boundaries of pelvic inlet, pelvic cavity, pelvic outlet<br><b>Learning objective</b><br>(i)Demonstrate the anatomical position of bony pelvis.<br>(ii) Describe the boundaries of pelvic inlet, pelvic cavity,and pelvic outlet.  | K/S               | SH                     | Y             | Lecture, DOAP session     | Viva voce/ skill assessment |                                       | Obstetrics & Gynaecology                  |                           |
| AN53.3  | Define true pelvis and false pelvis and demonstrate sex determination in male & female bony pelvis<br><b>Learning objective</b><br>(i) Define true and false pelvis.<br>(ii) describe and demonstrate sex determination in male and female pelvis.   | K/S               | SH                     | Y             | Lecture, DOAP session     | Viva voce/ skill assessment |                                       | Obstetrics & Gynaecology                  |                           |

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|---|---|-----|----|---|-----------------------|-----------------------------|--|----------------|--|
| AN53.4  | <p>Explain and demonstrate clinical importance of bones of abdominopelvic region (sacralization of lumbar vertebra, Lumbarization of 1st sacral vertebra, types of bony pelvis &amp; Coccyx)</p> <p><b>Learning objective</b></p> <p>(i) Describe and demonstrate clinical importance of bonesof abdominopelvic region (sacralisation of lumbar vertebra and lumbarization of 1<sup>st</sup> sacral vertebra)</p> <p>(ii) describe and demonstrate types of bony pelvis and coccyx.</p> | K/S | SH | N | Lecture, DOAP session | Viva voce/ skill assessment |  |                |  |
| <p><b>Topic:Radiodiagnosis</b></p> <p><b>Number ofcompetencies:(3)</b></p> <p><b>Number of procedures for certification:(NIL)</b></p> |   |     |    |   |                       |                             |  |                |  |
| AN54.1  | <p>Describe &amp; identify features of plain X ray abdomen</p> <p><b>Learning objectives</b></p> <p>(i) Describe &amp; identify features of plain X ray abdomen</p> <p>(ii)Describe importance of plain x-ray in diagnostic of abdominal problems</p>   | K/S | SH | Y | Lecture, DOAP session | Viva voce/ skill assessment |  | Radiodiagnosis |  |
| AN54.2  | <p>Describe &amp; identify the special radiographs of abdominopelvic region (contrast X ray Barium swallow, Barium meal, Barium enema, Cholecystography, Intravenous pyelography &amp; Hysterosalpingography)</p> <p><b>Learning objectives</b></p> <p>(i) Describe &amp; identify the special radiographs of abdominopelvic region</p> <p>(ii) Identify the structures visible in special radiographs of abdominopelvic region correctly</p>   | K/S | SH | Y | Lecture, DOAP session | Viva voce/ skill assessment |  | Radiodiagnosis |  |



| Number  | COMPETENCY<br>The student should be able to   | Domain<br>K/S/A/C | Level<br>K/KH/<br>SH/P | Core<br>(Y/N) | Teaching-Learning Methods                                | Assessment<br>Methods                | Number<br>required to<br>certify<br>P | Vertical<br>Integration | Horizontal<br>Integration |
|---|---|-------------------|------------------------|---------------|--|--------------------------------------|---------------------------------------|-------------------------|---------------------------|
| AN54.3  | Describe role of ERCP, CT abdomen, MRI, Arteriography in radiodiagnosis of abdomen<br><b>Learning objectives</b><br>(i) Describe role of ERCP, CT abdomen and MRI<br>(ii) Arteriography in radiodiagnosis of abdomen  | K                 | KH                     | N             | Lecture  | Viva voce                            |                                       | Radiodiagnosis          |                           |
| <b>Topic:Surfacemarking</b> <span style="float: right;">Number ofcompetencies:(2)</span> <span style="float: right;">Number of procedures for certification:(NIL)</span>    |   |                   |                        |               |  |                                      |                                       |                         |                           |
| AN55.1  | Demonstrate the surface marking of; Regions and planes of abdomen, Superficial inguinal ring, Deep inguinal ring , McBurney's point, Renal Angle & Murphy's point<br><b>Learning objectives</b><br>(i) Demonstrate the surface marking of; Regions and planes of abdomen,<br>(ii) Demonstrate the surface marking of Superficial inguinal ring, Deep inguinal ring , McBurney's point,<br>(iii) Demonstrate the surface marking of Renal Angle & Murphy's point | K/S               | SH                     | Y             | Practical, Lecture, Small group discussion, DOAP session | Viva voce/ skill assessment          |                                       | General Surgery         |                           |
| AN55.2  | Demonstrate the surface projections of: Stomach, Liver, Fundus of gall bladder, Spleen, Duodenum, Pancreas, Ileocaecal junction, Kidneys & Root of mesentery<br><b>Learning objectives</b><br>(i) Demonstrate the surface projections of: Stomach, Liver, Fundus of gall bladder<br>(ii) Demonstrate the surface projections of Spleen, Duodenum and Pancreas<br>(iii) Demonstrate the surface projections of Ileocaecal junction, Kidneys & Root of mesentery  | K/S               | SH                     | Y             | Practical, Lecture, Small group discussion, DOAP session | Viva voce/ skill assessment          |                                       | General Surgery         |                           |
| <b>Topic: Meninges&amp;CSF</b> <span style="float: right;">Number ofcompetencies:(2)</span> <span style="float: right;">Number of procedures for certification:(NIL)</span> |   |                   |                        |               |  |                                      |                                       |                         |                           |
| AN56.1  | Describe & identify various layers of meninges with its extent & modifications<br><b>Learning objectives:</b><br>(i)Intracranial meninges<br>(ii)Dural folds<br>(iii)Dural venous sinuses<br>(iv)Processes of arachnoid mater<br>(v)Processes of piamater<br>(vi)Subarachnoid space with extensions and cisterns.<br>(vii)Spinal meninges.<br>(viii)Special parts of piamater in spinal cord.<br>(ix)Differences between spinal and cranial dura                | K/S               | SH                     | Y             | Practical, Lecture, Small group discussion, DOAP session | Written/ Viva voce/ skill assessment |                                       | General Medicine        |                           |
| AN56.2  | Describe circulation of CSF with its applied anatomy<br><b>Learning objectives:</b><br>(i)Composition , production , circulation and absorption of csf<br>(ii)Functions of CSF<br>(iii)Blood CSF barrier<br>(iv)Hydrocephalus- causes and its types   | K                 | KH                     | Y             | Lecture  | Written/ Viva voce                   |                                       | General Medicine        | Physiology                |

| <b>Topic:SpinalCord</b> <b>Number ofcompetencies:(5)</b> <b>Number of procedures for certification:(NIL)</b> |   |     |    |   |  |                                      |  |                  |            |
|--|---|-----|----|---|--|--------------------------------------|--|------------------|------------|
| AN57.1   | Identify external features of spinal cord<br><b>Learning objectives:</b><br>(i) Fissures and sulci.<br>(ii) Attachments of spinal nerves.<br>(iii) Spinal segments.<br>(iv) Enlargements of spinal cord.<br>(v) Cauda equina.<br>(vi) Blood supply of spinal cord.  | K/S | SH | Y | Practical, Lecture, Small group discussion, DOAP session | Written/ Viva voce/ skill assessment |  |                  |            |
| AN57.2   | Describe extent of spinal cord in child & adult with its clinical implication<br><b>Learning objectives:</b><br>(i) Extent of spinal cord in adult and child<br>(ii) Its relation with lumbar puncture.   | K   | KH | Y | Lecture  | Written/ Viva voce                   |  |                  |            |
| AN57.3   | Draw & label transverse section of spinal cord at mid-cervical & mid- thoracic level<br><b>Learning objectives:</b><br>(i) Internal structure of spinal cord with nerve cell groups.<br>(ii) Divisions of white mater.<br>(iii) Classification of tracts.<br>(iv) Transverse section of spinal cord at mid cervical and mid thoracic level. | K   | KH | Y | Lecture  | Written/ Viva voce                   |  |                  |            |
| AN57.4   | Enumerate ascending & descending tracts at mid thoracic level of spinal cord<br><b>Learning objectives:</b><br>(i) Major descending tracts- location , origin, termination and function<br>(ii) Major ascending tracts – location, origin, termination and function<br>(iii) Renshaw cell inhibition  | K   | KH | Y | Lecture  | Written/ Viva voce                   |  | General Medicine | Physiology |

| Number  | COMPETENCY<br>The student should be able to  | Domain<br>K/S/A/C | Level<br>K/KH/<br>SH/P | Core<br>(Y/N) | Teaching-Learning Methods | Assessment<br>Methods                   | Number<br>required to<br>certify<br>P | Vertical<br>Integration | Horizontal<br>Integration |
|---|--|-------------------|------------------------|---------------|---------------------------|---|---------------------------------------|-------------------------|---------------------------|
| AN57.5  | Describe anatomical basis of syringomyelia<br><b>Learning objectives:</b><br>(i) Why syringomyelia called as dissociated sensory loss.<br>(ii) Describe Brown sequard syndrome   | K                 | KH                     | N             | Lecture                   | Written                                 |                                       | General<br>Medicine     | Physiology                |
| <b>Topic:MedullaOblongata</b> <div> <div>Number ofcompetencies:(4)</div> <div>Number of procedures for certification:(NIL)</div> </div> |  |                   |                        |               |                           |   |                                       |                         |                           |
| AN58.1  | Identify external features of medulla oblongata<br><b>Learning objectives:</b><br>(i) External features on ventral aspects of medulla oblongata.<br>(ii) Features on dorsal aspect- closed and open part.  | K/S               | SH                     | Y             | Lecture, DOAP session     | Written/ Viva voce/ skill<br>assessment |                                       |                         |                           |
| AN58.2  | Describe transverse section of medulla oblongata at the level of 1) pyramidal decussation, 2) sensory decussation 3) ION<br><b>Learning objectives:</b><br>(i) Transverse section of medulla at the level of great motor decussation.<br>(ii) Transverse section of medulla at sensory decussation.<br>(iii) Transverse section of medulla at inferior olivary nucleus.  | K                 | KH                     | Y             | Lecture                   | Written/ Viva voce                      |                                       |                         |                           |
| AN58.3  | Enumerate cranial nerve nuclei in medulla oblongata with their functional group<br><b>Learning objectives:</b><br>(i) Inferior , medial and dorsal accessory olivary nucleus<br>(ii) Nucleus gracilis and nucleus cuneatus.<br>(iii) Arcuate nucleus.<br>(iv) Dorsal nucleus of vagus.<br>(v) Nucleus of tractus solitaries.<br>(vi) Hypoglossal nucleus.<br>(vii) Nucleus ambiguus.<br>(viii) Vestibular and cochlear nuclei. | K                 | KH                     | Y             | Lecture                   | Written/ Viva voce                      |                                       |                         | Physiology                |
| AN58.4  | Describe anatomical basis & effects of medial & lateral medullary syndrome<br><b>Learning objectives:</b><br>(i) Blood supply of medulla.<br>(ii) Areas involved and signs and symptoms of lateral medullary syndrome.<br>(iii) Areas involved and signs and symptoms of medial medullary syndrome.  | K                 | KH                     | N             | Lecture                   | Written                                 |                                       | General<br>Medicine     | Physiology                |
| <b>Topic:Pons</b> <div> <div>Number ofcompetencies:(3)</div> <div>Number of procedures for certification:(NIL)</div> </div>             |  |                   |                        |               |                           |   |                                       |                         |                           |
| AN59.1  | Identify external features of pons<br><b>Learning objectives:</b><br>(i) Features on anterior surface – basilar artery and attachment of fifth cranial nerve<br>(ii) Features on posterior surface- floor of fourth ventricle  | K/S               | SH                     | Y             | Lecture, DOAP session     | Written/ Viva voce/ skill<br>assessment |                                       |                         | Physiology                |
| AN59.2  | Draw & label transverse section of pons at the upper and lower level<br><b>Learning objectives:</b><br>(i) Transverse section through lower part of pons – internal genu of seventh cranial nerve<br>- Trapezoid body  | K                 | KH                     | Y             | Lecture                   | Written/ Viva voce                      |                                       |                         |                           |

|  |  |                                 |                                  |                             |  |                                      |                                     |                             |                               |
|--|--|---------------------------------|----------------------------------|-----------------------------|--|--------------------------------------|-------------------------------------|-----------------------------|-------------------------------|
|  | (ii) Transverse section through upper part of pons<br>-fourth ventricle and nucleus of fifth nerve. -four leminisci – functions  |                                 |                                  |                             |  |                                      |                                     |                             |                               |
| AN59.3   | Enumerate cranial nerve nuclei in pons with their functional group<br><b>Learning objectives:</b><br>(i) Abducent nerve nucleus<br>(ii) Motor nuclei of facial nerve<br>(iii) Salivatory and lacrimatory nucleus.<br>(iv) Vestibular and dorsal and ventral cochlear nucleus.<br>(v) Three nuclei of trigeminal nerve.   | K                               | KH                               | Y                           | Lecture  | Written/ Viva voce                   |                                     |                             |                               |
| <b>Topic:Cerebellum</b> <span style="float: right;">Number ofcompetencies:(3)</span> <span style="float: right;">Number of procedures for certification:(NIL)</span> |  |                                 |                                  |                             |  |                                      |                                     |                             |                               |
| AN60.1   | Describe & demonstrate external & internal features of cerebellum<br><b>Learning objectives:</b><br>(i) External features - parts, surfaces, notches, fissures<br>(ii) Anatomical subdivisions of cerebellum<br>(iii) Morphological subdivisions of cerebellum with their components , nuclei, connections and functions.<br>(iv) Internal structures of cerebellum- white matter and arbor vitae appearance.<br>(v) Nuclei and fibres in three layers of cerebellar cortex. | K/S                             | SH                               | Y                           | Practical, Lecture, Small group discussion, DOAP session | Written/ Viva voce/ skill assessment |                                     |                             |                               |
| AN60.2   | Describe connections of cerebellar cortex and intracerebellar nuclei<br><b>Learning objectives:</b><br>(i) Intracerebellar nuclei<br>(ii) Afferent and efferent fibres of cerebellum<br>(iii) Cerebellar peduncles with their fibres.  | K                               | KH                               | Y                           | Lecture  | Written/ Viva voce                   |                                     |                             |                               |
| <b>Number</b>  | <b>COMPETENCY</b><br><b>The student should be able to</b>  | <b>Domain</b><br><b>K/S/A/C</b> | <b>Level</b><br><b>K/KH/SH/P</b> | <b>Core</b><br><b>(Y/N)</b> | <b>Teaching-Learning Methods</b>                         | <b>Assessment Methods</b>            | <b>Number required to certify P</b> | <b>Vertical Integration</b> | <b>Horizontal Integration</b> |
| AN60.3   | Describe anatomical basis of cerebellar dysfunction<br><b>Learning objectives:</b><br>(i) Functions of cerebellum<br>(ii) Signs and symptoms due to involvement of archicerebellum, paleocerebellum and neocerebellum  | K                               | KH                               | N                           | Lecture  | Written                              |                                     | General Medicine            | Physiology                    |
| <b>Topic:Midbrain</b> <span style="float: right;">Number ofcompetencies:(3)</span> <span style="float: right;">Number of procedures for certification:(NIL)</span>   |  |                                 |                                  |                             |  |                                      |                                     |                             |                               |
| AN61.1   | Identify external & internal features of midbrain<br><b>Learning objectives:</b><br>(i) External features on ventral surface – crus cerebri<br>(ii) Dorsal surface – corpora quadrigemina and brachia<br>(iii) Internal structure of mid brain- crus cerebri, substantia nigra, tegmentum, tectum, cerebral peduncle   | K/S                             | SH                               | Y                           | Practical, Lecture, Small group discussion, DOAP session | Written/ Viva voce/ skill assessment |                                     |                             |                               |

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|---|--|-----|----|---|--|--------------------------------------|--|------------------|------------|
| AN61.2  | Describe internal features of midbrain at the level of superior & inferior colliculus<br><b>Learning objectives:</b><br>(i) Transverse section of mid brain at the level of superior colliculi<br>(ii) Transverse section of mid brain at the level of inferior colliculi<br>(iii) Substantia nigra with functional and clinical correlation.  | K   | KH | Y | Lecture  | Written/ Viva voce                   |  |                  |            |
| AN61.3  | Describe anatomical basis & effects of Benedikt's and Weber's syndrome<br><b>Learning objectives:</b><br>(i) Blood supply of mid brain<br>(ii) Describe anatomical basis & signs and symptoms of Benedikt's syndrome.<br>(iii) Describe anatomical basis & signs and symptoms of Weber's syndrome.   | K   | KH | N | Lecture  | Written                              |  | General Medicine | Physiology |
| <b>Topic: Cranial nerve nuclei &amp; Cerebral hemispheres</b> <b>Number of competencies: (6)</b> <b>Number of procedures for certification: (NIL)</b> |  |     |    |   |  |                                      |  |                  |            |
| AN62.1  | Enumerate cranial nerve nuclei with its functional component<br><b>Learning objectives:</b><br>(i) General somatic efferent nuclei<br>(ii) Special visceral efferent nuclei<br>(iii) General visceral efferent nuclei<br>(iv) General and special visceral afferent nuclei.<br>(v) General somatic afferent nuclei.<br>(vi) Special somatic afferent nuclei.   | K   | KH | Y | Lecture  | Written/ Viva voce                   |  |                  |            |
| AN62.2  | Describe & demonstrate surfaces, sulci, gyri, poles, & functional areas of cerebral hemisphere<br><b>Learning objectives:</b><br>(i) Describe and demonstrate poles, surfaces, borders and lobes of cerebral hemispheres.<br>(ii) Sulci and gyri on supero lateral, medial and inferior surface of cerebral hemisphere<br>(iii) Functional areas in frontal, parietal, temporal and occipital lobes.<br>(iv) Insular cortex<br>(v) Cerebral hemisphere dominance | K/S | SH | Y | Practical, Lecture, Small group discussion, DOAP session | Written/ Viva voce/ skill assessment |  | General Medicine | Physiology |
| AN62.3  | Describe the white matter of cerebrum<br><b>Learning objectives:</b><br>(i) Types of fibres in white matter.<br>(ii) Corpus callosum<br>(iii) Internal capsule- parts, fibres and blood supply   | K   | KH | Y | Lecture  | Written/ Viva voce                   |  | General Medicine | Physiology |
| AN62.4  | Enumerate parts & major connections of basal ganglia & limbic lobe<br><b>Learning objectives:</b><br>(i) Basal nuclei and their functions<br>(ii) Corpus striatum – caudate and lentiform nucleus<br>(iii) Connections of corpus striatum.<br>(iv) Disorders of basal ganglia<br>(v) Functions and components of limbic system<br>(vi) Limbic lobe<br>(vii) Amygdaloid nuclear complex<br>(viii) Hippocampal formation<br>(ix) Fornix.                           | K   | KH | Y | Lecture  | Written/ Viva voce                   |  |                  | Physiology |

|  |   |                                 |                                  |                             |  |                                      |                                     |                             |                               |
|--|---|---------------------------------|----------------------------------|-----------------------------|--|--------------------------------------|-------------------------------------|-----------------------------|-------------------------------|
| AN62.5   | Describe boundaries, parts, gross relations, major nuclei and connections of dorsal thalamus, hypothalamus, epithalamus, metathalamus and subthalamus<br><b>Learning objectives:</b><br>(i) Divisions of diencephalon<br>(ii) External features of thalamus.<br>(iii) Internal structure of thalamus.<br>(iv) Connections of thalamic nuclei with functional correlations.<br>(v) Metathalamus – parts , connections and functions<br>(vi) Epithalamus – parts, connections and functions<br>(vii) Subthalamus- connections and functions.<br>(viii) Hypothalamus- boundaries subdivisions, nuclei, connections and functions . | K                               | KH                               | Y                           | Lecture  | Written/ Viva voce                   |                                     | General Medicine            | Physiology                    |
| AN62.6   | Describe & identify formation, branches & major areas of distribution of circle of Willis<br><b>Learning objectives:</b><br>(i) Vertebral and carotid system supplying brain.<br>(ii) Circle of willis formation , branches, functional significance and clinical correlation.<br>(iii) Arterial supply of cerebrum – cortical, central and choroidal branches.<br>(iv) Arterial supply of different surfaces of the cerebral hemishpere.   | K/S                             | SH                               | Y                           | Practical, Lecture, Small group discussion, DOAP session | Written/ Viva voce/ skill assessment |                                     | General Medicine            | Physiology                    |
| <b>Number</b>  | <b>COMPETENCY</b><br><b>The student should be able to</b>   | <b>Domain</b><br><b>K/S/A/C</b> | <b>Level</b><br><b>K/KH/SH/P</b> | <b>Core</b><br><b>(Y/N)</b> | <b>Teaching-Learning Methods</b>                         | <b>Assessment Methods</b>            | <b>Number required to certify P</b> | <b>Vertical Integration</b> | <b>Horizontal Integration</b> |
| <b>Topic: VentricularSystem</b> <div> <div>Number ofcompetencies:(2)</div> <div>Number of procedures for certification:(NIL)</div> </div>        |   |                                 |                                  |                             |  |                                      |                                     |                             |                               |
| AN63.1   | Describe & demonstrate parts, boundaries & features of IIIrd, IVth & lateral ventricle<br><b>Learning objectives:</b><br>(i)Third ventricle-boundaries , recesses, communications and choroid plexus.<br>(ii) Fourth ventricle – features , recesses, openings and choroid plexus.<br>(iii)Lateral ventricle- parts, features, boundaries and choroid plexus  | K/S                             | SH                               | Y                           | Practical, Lecture, Small group discussion, DOAP session | Written/ Viva voce/ skill assessment |                                     |                             | Physiology                    |
| AN63.2   | Describe anatomical basis of congenital hydrocephalus<br><b>Learning objectives:</b><br>(i) Causes and types of congenital hydrocephalus.<br>(ii) Clinical features in infants and children.  | K                               | KH                               | N                           | Lecture  | Written                              |                                     | Pediatrics                  | Physiology                    |
| <b>Topic: Histology&amp;Embryology</b> <div> <div>Number ofcompetencies:(3)</div> <div>Number of procedures for certification:(NIL)</div> </div> |   |                                 |                                  |                             |  |                                      |                                     |                             |                               |
| AN64.1   | Describe & identify the microanatomical features of Spinal cord, Cerebellum & Cerebrum<br><b>Learning Objectives</b><br>1.Epithelium and its features .<br>2 Identifying features , distribution and function of each type of epithelium.   | K/S                             | SH                               | Y                           | Lecture,Practical  | Written/ skill assessment            |                                     |                             |                               |
| AN64.2   | Describe the development of neural tube, spinal cord, medulla oblongata, pons, midbrain, cerebral hemisphere & cerebellum<br><b>Learning Objectives</b><br>1.Structure and function of basement membrane.<br>2. Various projections from epithelial cells<br>3. Difference between cilia and microvilli.  | K                               | KH                               | Y                           | Lecture  | Written/ Viva voce                   |                                     |                             |                               |

|   |  |                                 |                                  |                             |                                  |                           |   |                                      |                               |
|---|--|---------------------------------|----------------------------------|-----------------------------|----------------------------------|---------------------------|---|--------------------------------------|-------------------------------|
|   | 4. Cell junction and its types.  |                                 |                                  |                             |                                  |                           |   |                                      |                               |
| AN64.3  | Describe various types of open neural tube defects with its embryological basis<br><b>Learning Objectives</b><br>i. Types of open neural defects<br>ii. embryological basis open neural tube defects   | K                               | KH                               | N                           | Lecture                          | Written/ Viva voce        |   | Obstetrics & Gynaecology, Pediatrics |                               |
| <b>Topic: Epithelium histology</b> <span style="float: right;">Number of competencies: (2)</span> <span style="float: right;">Number of competencies for certification: (01)</span>       |  |                                 |                                  |                             |                                  |                           |   |                                      |                               |
| AN65.1  | Identify epithelium under the microscope & describe the various types that correlate to its function<br><b>Learning Objectives</b><br>i. Identification of the epithelium<br>ii. Types of epithelium   | K/S                             | P                                | Y                           | Lecture, Practical               | Written/ skill assessment | 1   |                                      |                               |
| AN65.2  | Describe the ultrastructure of epithelium<br><b>Learning Objectives</b><br>i. ultrastructure of epithelium   | K                               | KH                               | N                           | Lecture, Practical               | Written                   |   |                                      |                               |
| <b>Topic: Connective tissue histology</b> <span style="float: right;">Number of competencies: (2)</span> <span style="float: right;">Number of procedures for certification: (NIL)</span> |  |                                 |                                  |                             |                                  |                           |   |                                      |                               |
| AN66.1  | Describe & identify various types of connective tissue with functional correlation<br><b>Learning Objectives.</b><br>1. Define connective tissue and enumerate its types.<br>2. Classification and constituents of principal types of connective tissues.<br>3. Identifying feature, distribution and functions of various types of connective tissue.<br>4. Various types of specialized connective tissue. | K/S                             | SH                               | Y                           | Lecture, Practical               | Written/ skill assessment |   |                                      | Physiology                    |
| AN66.2  | Describe the ultrastructure of connective tissue<br><b>Learning Objectives</b><br>1. Various types of fibres and cells seen in different types of connective tissue  | K                               | KH                               | N                           | Lecture, Practical               | Written                   |   | Pathology                            |                               |
| <b>Topic: Muscle histology</b> <span style="float: right;">Number of competencies: (3)</span> <span style="float: right;">Number of procedures for certification: (NIL)</span>            |  |                                 |                                  |                             |                                  |                           |   |                                      |                               |
| <b>Number</b>   | <b>COMPETENCY</b><br><b>The student should be able to</b>  | <b>Domain</b><br><b>K/S/A/C</b> | <b>Level</b><br><b>K/KH/SH/P</b> | <b>Core</b><br><b>(Y/N)</b> | <b>Teaching-Learning Methods</b> | <b>Assessment Methods</b> | <b>Number required to certify</b><br><b>P</b> | <b>Vertical Integration</b>          | <b>Horizontal Integration</b> |
| AN67.1  | Describe & identify various types of muscle under the microscope<br><b>Learning Objectives</b><br>1. Describe microanatomy of various types of muscles<br>2. Identify the muscles under the microscope.  | K/S                             | SH                               | Y                           | Lecture, Practical               | Written/ skill assessment |   |                                      |                               |
| AN67.2  | Classify muscle and describe the structure-function correlation of the Same<br><b>Learning Objectives</b><br>1. classification of muscular tissue  | K                               | KH                               | Y                           | Lecture, Practical               | Written                   |   |                                      | Physiology                    |

|   |  |     |    |   |                    |                           |  |  |            |
|---|--|-----|----|---|--------------------|---------------------------|--|--|------------|
|   | 2.identification features and functions of skeletal, cardiac and smooth musles.  |     |    |   |                    |                           |  |  |            |
| AN67.3  | Describe the ultrastructure of muscular tissue<br><b>Learning objectives</b><br>1.Ultrastructure of striated muscle.<br>2.Structure and of myofibril, myofilaments.<br>3, Intercalated disc and its function?                                    | K   | KH | N | Lecture, Practical | Written                   |  |  |            |
| <b>Topic: Nervoustissuehistology</b> <b>Number ofcompetencies:(3)</b> <b>Number of procedures for certification:(NIL)</b> |  |     |    |   |                    |                           |  |  |            |
| AN68.1  | Describe & Identify multipolar & unipolar neuron, ganglia, peripheral nerve<br><b>Learning objectives</b><br>1._structure of peripheral nerve.<br>2, list the differences between sympathetic and sensory ganglion.                              | K/S | SH | Y | Lecture, Practical | Written/ skill assessment |  |  |            |
| AN68.2  | Describe the structure-function correlation of neuron<br><b>Learning objectives</b><br>1.Cells body and processes of neuron.<br>2.Classification of neurons with functional correlation  | K   | KH | Y | Lecture, Practical | Written                   |  |  | Physiology |
| AN68.3  | Describe the ultrastructure of nervous tissue<br><b>Learning Objectives</b><br>1 Neuroglial cells and their function<br>2. Nissl’s Granules<br>3 Node od Ranvier<br>4. Satellite cell.<br>5. Schwann cell.                                       | K   | KH | N | Lecture, Practical | Written                   |  |  |            |
| <b>Topic:BloodVessels</b> <b>Number ofcompetencies:(3)</b> <b>Number of procedures for certification:(NIL)</b>            |  |     |    |   |                    |                           |  |  |            |
| AN69.1  | Identify elastic & muscular blood vessels, capillaries under the microscope<br><b>Learning Objectives</b><br>1. General features of blood vessels<br>2. Differences between elastic and muscular artery<br>3. Difference between artery and vein | K/S | SH | Y | Lecture, Practical | Skill assessment          |  |  |            |
| AN69.2  | Describe the various types and structure-function correlation of blood vessel<br><b>Learning Objectives</b><br>1 .Large and medium size artery.<br>2. Arteriole and capillary<br>3. Vein and venules   | K   | KH | Y | Lecture, Practical | Written                   |  |  | Physiology |
| AN69.3  | Describe the ultrastructure of blood vessels<br><b>Learning Objectives</b><br>1.Difference between capillary and sinusoid<br>2. Internal and external elastic lamina.  | K   | KH | Y | Lecture, Practical | Written                   |  |  |            |



|  |  |                                  |    |   |   |                           |  |           |  |
|--|--|----------------------------------|----|---|---|---------------------------|--|-----------|--|
|  | 3. Different types of capillary with functional correlation.<br>4. Vasa vasorum<br>5. Arteriovenous anastomosis  |                                  |    |   |   |                           |  |           |  |
| <b>Topic: Glands &amp;Lymphoidtissue</b> |  | <b>Number ofcompetencies:(2)</b> |    |   | <b>Number of procedures for certification:(NIL)</b> |                           |  |           |  |
| AN70.1                                   | Identify exocrine gland under the microscope & distinguish between serous, mucous and mixed acini<br><b>Learning Objectives</b><br>1.Types of exocrine Gland according to morphology.<br>2. Classification of exocrine gland on the basis of secretion.<br>3.Microscopic structure of serous, mucus and mixed acini.<br>4. Difference between serous , mucous acini.<br>5.Serous demilune  | K/S                              | SH | Y | Lecture, Practical                                  | Written/ skill assessment |  | Pathology |  |
| AN70.2                                   | Identify the lymphoid tissue under the microscope & describe microanatomy of lymph node, spleen, thymus, tonsil and correlate the structure with function<br><b>Learning Objectives</b><br>1.Structure of lymph node and functional correlation<br>2.Structure of lymphatic nodule<br>3. Circulationof lymph through lymph node.<br>4.Microanatomy of spleen- white pulp, red pulp , cords of Billroth, malpighian body with functional correlation<br>5.Theories of splenic circulation.<br>6. Microanatomy of Thymus- Hassall’s corpuscles.<br>7. Microscopic anatomy of Palatine Tonsil with functional correlation | K/S                              | SH | Y | Lecture, Practical                                  | Written/ skill assessment |  | Pathology |  |
| <b>Topic: Bone&amp;Cartilage</b>         |  | <b>Number ofcompetencies:(2)</b> |    |   | <b>Number of procedures for certification:(NIL)</b> |                           |  |           |  |

| Number | COMPETENCY<br>The student should be able to  | Domain<br>K/S/A/C | Level<br>K/KH/<br>SH/P | Core<br>(Y/N) | Teaching-Learning Methods | Assessment<br>Methods     | Number<br>required to<br>certify<br>P | Vertical<br>Integration | Horizontal<br>Integration |
|--------|--|-------------------|------------------------|---------------|---------------------------|---------------------------|---------------------------------------|-------------------------|---------------------------|
| AN71.1 | Identify bone under the microscope; classify various types and describe the structure-function correlation of the same<br><b>Learning Objectives</b><br>1 Describe the constituents of bone.<br>2.Structure of compact and cancellous bone with functional correlation.<br>3.Haversian system-Lamellae,canaliculi, Lacuna.<br>4. Differences between Volkmann’s and haversian canal<br>5. Define Ossification and its types. | K/S               | SH                     | Y             | Lecture, Practical        | Written/ skill assessment |                                       | Pathology               |                           |
| AN71.2 | Identify cartilage under the microscope & describe various types and structure- function correlation of the same<br><b>Learning Objectives</b><br>1.Define Cartilage and enumerate its type.<br>2. Microscopic Features , distribution and function of various type of cartilage.  | K/S               | SH                     | Y             | Lecture, Practical        | Written/ skill assessment |                                       | Pathology               |                           |

|  |  |     |    |   |                    |                           |  |                              |  |
|--|--|-----|----|---|--------------------|---------------------------|--|------------------------------|--|
|  | 3. Perichondrium and its function.   |     |    |   |                    |                           |  |                              |  |
| <b>Topic: Integumentary System</b> <b>Number ofcompetencies:(1)</b> <b>Number of procedures for certification:(NIL)</b>  |  |     |    |   |                    |                           |  |                              |  |
| AN72.1   | Identify the skin and its appendages under the microscope and correlate the structure with function<br><b>Learning Objective</b><br>1.Layers of skin with functional correlation.<br>2. Stucture of epidermis.<br>3. Difference between thick and thin skin.<br>4. Skin derivatives<br>4. Structure of hair follicle.<br>4. Keratin and its function<br>5. Skin receptors. | K/S | SH | Y | Lecture, Practical | Written/ skill assessment |  |                              |  |
| <b>Topic:Chromosomes</b> <b>Number ofcompetencies:(3)</b> <b>Number of procedures for certification:(NIL)</b>            |  |     |    |   |                    |                           |  |                              |  |
| AN73.1   | Describe the structure of chromosomes with classification<br><b>Learning Objective</b><br>i. morphology of chromosomes<br>ii. structure of chromosomes<br>iii. chemical composition of chromosomes   | K   | KH | Y | Lecture            | Written                   |  |                              |  |
| AN73.2   | Describe technique of karyotyping with its applications<br><b>Learning Objective</b><br>i. protocol for karyotyping<br>ii. FISH<br>iii. Application of FISH  | K   | KH | Y | Lecture            | Written                   |  |                              |  |
| AN73.3   | Describe the Lyon's hypothesis<br><b>Learning Objective</b><br>i. Lyoniaation<br>ii. Methylation   | K   | KH | Y | Lecture            | Written                   |  |                              |  |
| <b>Topic: PatternsofInheritance</b> <b>Number ofcompetencies:(4)</b> <b>Number of procedures for certification:(NIL)</b> |  |     |    |   |                    |                           |  |                              |  |
| AN74.1   | Describe the various modes of inheritance with examples<br><b>Learning Objective</b><br>i. Mendelian inheritance<br>ii. Law of dominance<br>iii. Law of segregation  | K   | KH | Y | Lecture            | Written                   |  | General Medicine, Pediatrics |  |
| AN74.2   | Draw pedigree charts for the various types of inheritance & give examples of diseases of each mode of inheritance<br><b>Learning Objective</b><br>i. Single gene inheritance -<br>Autosomal dominant<br>Autosomal recessive<br>X-linked dominant   | K   | KH | Y | Lecture            | Written                   |  | General Medicine, Pediatrics |  |

|        |   |   |    |   |         |         |  |                              |  |
|--------|---|---|----|---|---------|---------|--|------------------------------|--|
|        | X-linked recessive<br>Y-linked disorder<br>ii. Pedigree Provides family information in an easily readable chart   |   |    |   |         |         |  |                              |  |
| AN74.3 | Describe multifactorial inheritance with examples<br><b>Learning Objective</b><br>i. A group of genes interact with each other to produce a disease<br>ii. Cleft lip, cleft palate<br>iii. Congenital heart defects<br>iv. Neural tube defects  | K | KH | Y | Lecture | Written |  | General Medicine             |  |
| AN74.4 | Describe the genetic basis & clinical features of Achondroplasia, Cystic Fibrosis, Vitamin D resistant rickets, Haemophilia, Duchene's muscular dystrophy & Sickle cell anaemia<br><b>Learning Objective</b><br>i. Autosomal dominant disorder<br>ii. Autosomal recessive<br>iii. Visit to pediatric ward and general medicine ward | K | KH | N | Lecture | Written |  | General Medicine, Pediatrics |  |

| Number  | COMPETENCY<br>The student should be able to   | Domain<br>K/S/A/C | Level<br>K/KH/<br>SH/P | Core<br>(Y/N) | Teaching-Learning Methods | Assessment<br>Methods | Number<br>required to<br>certify<br>P | Vertical<br>Integration | Horizontal<br>Integration |
|---|---|-------------------|------------------------|---------------|---------------------------|-----------------------|---------------------------------------|-------------------------|---------------------------|
| <b>Topic: Principle of Genetics, Chromosomal Aberrations &amp; Clinical Genetics</b> <span style="float: right;">Number of when the chromosomal stc competencies:(5)      Number of procedures for certification:(NIL)</span> |   |                   |                        |               |                           |                       |                                       |                         |                           |
| AN75.1  | Describe the structural and numerical chromosomal aberrations<br><b>Learning Objective</b><br>i. When the chromosomal structure is altered, it produces structural aberrations.<br>ii. Any deviations in total number of chromosome are known as numerical chromosomal aberration<br>iii. Example Dawn syndrome and turner syndrome | K                 | KH                     | Y             | Lecture                   | Written               |                                       | Pediatrics              |                           |
| AN75.2  | Explain the terms mosaics and chimeras with example<br><b>Learning Objective</b><br>i. Karyotyping 45,X or mosaicism<br>ii. Visit to pediatric ward to show clinical sign and centum for these types of patient   | K                 | KH                     | N             | Lecture                   | Written               |                                       | Pediatrics              |                           |
| AN75.3  | Describe the genetic basis & clinical features of Prader Willi syndrome, Edward syndrome & Patau syndrome<br><b>Learning Objective</b><br>i. Numerical chromosomal aberrations<br>ii. Visit to pediatric ward to show clinical sign and centum for these types of patient   | K                 | KH                     | N             | Lecture                   | Written               |                                       | Pediatrics              |                           |
| AN75.4  | Describe genetic basis of variation: polymorphism and mutation<br><b>Learning Objective</b><br>i. polymorphism and mutation are found in different allele   | K                 | KH                     | Y             | Lecture                   | Written               |                                       | Pediatrics              |                           |

|  |  |   |    |   |         |         |  |                                      |  |
|--|--|---|----|---|---------|---------|--|--------------------------------------|--|
| AN75.5   | Describe the principles of genetic counselling<br><b>Learning Objective</b><br>i. aims or goals of genetic counseling<br>ii. indicators for genetic counseling<br>iii. steps of genetic counseling   | K | KH | Y | Lecture | Written |  | Pediatrics, Obstetrics & Gynaecology |  |
| <b>Topic: Introduction to embryology</b> <span style="float: right;">Number of competencies:(2)</span> <span style="float: right;">Number of procedures for certification:(NIL)</span>     |  |   |    |   |         |         |  |                                      |  |
| AN76.1   | Describe the stages of human life<br><b>Learning Objective</b><br>i. embryonic period<br>ii. fetal period<br>iii. neonatal period  | K | KH | Y | Lecture | Written |  |                                      |  |
| AN76.2   | Explain the terms- phylogeny, ontogeny, trimester, viability<br><b>Learning Objective</b><br>i. 3 trimester for pregnancy period<br>ii. Phylogeny repeats<br>iii. ontogeny   | K | KH | Y | Lecture | written |  |                                      |  |
| <b>Topic: Gametogenesis and fertilization</b> <span style="float: right;">Number of competencies 06)</span> <span style="float: right;">Number of procedures for certification@NIL)</span> |  |   |    |   |         |         |  |                                      |  |
| AN77.1   | Describe the uterine changes occurring during the menstrual cycle<br><b>Learning Objective</b><br>i. increase in thickness of endometrium<br>ii. increase in dimensions of uterine glands<br>iii. change in epithelial lining of glands  | K | KH | Y | Lecture | Written |  | Obstetrics & Gynaecology             |  |
| AN77.2   | Describe the synchrony between the ovarian and menstrual cycles<br><b>Learning Objective</b><br>i. The menstrual cycle is also divided into the follicular phase (in which changes are produced mainly by estrogens), and the luteal phase (in which effects of progesterone predominate) in correlation with ovarian follicular development.<br>ii. The uterine cycle is dependent on ovarian cycle.<br>iii. The uterine endometrium shows cyclic changes, which are dependent on the hormones secreted by developing ovarian follicles and corpus luteum of the ovary. | K | KH | Y | Lecture | Written |  | Obstetrics & Gynaecology             |  |
| AN77.3   | Describe spermatogenesis and oogenesis along with diagrams<br><b>Learning Objective</b><br>i. Oogenesis is the process whereby oogonia differentiate into mature oocytes.<br>ii. Maturation of oocytes begins before birth<br>iii. Maturation of oocytes continues at puberty<br>iv. Maturation of sperm begins at puberty<br>v. Spermiogenesis  | K | KH | Y | Lecture | Written |  | Obstetrics & Gynaecology             |  |
| AN77.4   | Describe the stages and consequences of fertilization<br><b>Learning Objective</b><br>i. Fertilization, the process by which male and female gametes fuse, occurs in the ampullary region of the uterine tube.<br>ii. Spermatozoa must undergo<br>1. Capacitation  | K | KH | Y | Lecture | Written |  | Obstetrics & Gynaecology             |  |

|      |   |  |  |  |  |  |  |  |  |
|------|---|--|--|--|--|--|--|--|--|
|      | 2. Acrosome reaction                                      |  |  |  |  |  |  |  |  |
| iii. | Phase – I Penetration of the corona radiata               |  |  |  |  |  |  |  |  |
| iv.  | Phase –II penetration of the zona pellucida               |  |  |  |  |  |  |  |  |
| v.   | Phase – III fusion of the oocyte and sperm cell membranes |  |  |  |  |  |  |  |  |

| Number  | COMPETENCY<br>The student should be able to   | Domain<br>K/S/A/C | Level<br>K/KH/<br>SH/P | Core<br>(Y/N) | Teaching-Learning Methods | Assessment<br>Methods | Number<br>required to<br>certify<br>P | Vertical<br>Integration     | Horizontal<br>Integration |
|---|---|-------------------|------------------------|---------------|---------------------------|-----------------------|---------------------------------------|-----------------------------|---------------------------|
| AN77.5  | Enumerate and describe the anatomical principles underlying contraception<br><b>Learning Objective</b><br>i. Barrier techniques<br>ii. The contraceptive pill<br>iii. Depo-Provera<br>iv. A male pill<br>v. The intrauterine device (IUD)<br>vi. Vasectomy and tubal ligation   | K                 | KH                     | Y             | Lecture                   | Written               |                                       | Obstetrics &<br>Gynaecology |                           |
| AN77.6  | Describe teratogenic influences; fertility and sterility, surrogate motherhood, social significance of “sex-ratio”.<br><b>Learning Objective</b><br>i. Infertility is a problem for 15 % to 30% of couples male infertility may be a result of insufficient numbers of sperm and/or poor motility<br>ii. In vitro fertilization (IVF) | K                 | KH                     | N             | Lecture                   | Written               |                                       | Obstetrics &<br>Gynaecology |                           |
| <b>Topic: Second week of development</b> <div> <div>Number of competenciesⓈ5)</div> <div>Number of procedures for certificationⓈNIL)</div> </div> |   |                   |                        |               |                           |                       |                                       |                             |                           |
| AN78.1  | Describe cleavage and formation of blastocyst<br><b>Learning Objective</b><br>i. Definition it is a process of repeated mitotic divisions if zygote within zona pellucida in rapid succession, giving rise to increasing number of smaller cells is called blastomeres<br>ii.   | K                 | KH                     | Y             | Lecture                   | Written               |                                       |                             |                           |
| AN78.2  | Describe the development of trophoblast<br><b>Learning Objective</b><br>i. Formation of trophoblast<br>ii. Stages in development of trophoblast   | K                 | KH                     | Y             | Lecture                   | Written               |                                       |                             |                           |
| AN78.3  | Describe the process of implantation & common abnormal sites of implantation<br><b>Learning Objective</b><br>i. Process of implantation<br>ii. Describe the common abnormal sites of implantation   | K                 | KH                     | Y             | Lecture                   | Written               |                                       | Obstetrics &<br>Gynaecology |                           |
| AN78.4  | Describe the formation of extra-embryonic mesoderm and coelom, bilaminar disc and prochordal plate<br><b>Learning Objective</b><br>i. Describe the formation of extra-embryonic mesoderm<br>ii. Describe the formation of coelom, bilaminar disc<br>iii. Describe the formation of prochordal plate                                   | K                 | KH                     | Y             | Lecture                   | Written               |                                       |                             |                           |
| AN78.5  | Describe in brief abortion; decidual reaction, pregnancy test<br><b>Learning Objective</b><br>i. Describe the abortion<br>ii. Describe the decidual reaction<br>iii. Describe the pregnancy test  | K                 | KH                     | Y             | Lecture                   | Written               |                                       | Obstetrics &<br>Gynaecology |                           |

| Toic: 3rd to 8th weekofdevelopment |   | Number ofcompetencies:(6) |    |   | Number of procedures for certification:(NIL) |         |  |                          |  |
|------------------------------------|---|---------------------------|----|---|--|---------|--|--------------------------|--|
| AN79.1                             | Describe the formation & fate of the primitive streak<br><b>Learning Objective</b><br>i. Describe the formation of primitive streak<br>ii. Describe its fate  | K                         | KH | Y | Lecture                                      | Written |  |                          |  |
| AN79.2                             | Describe formation & fate of notochord<br><b>Learning Objective</b><br>i. Describe the formation of notochord<br>ii. Describe the formation fate  | K                         | KH | Y | Lecture                                      | Written |  |                          |  |
| AN79.3                             | Describe the process of neurulation<br><b>Learning Objective</b><br>i. Describe the process of neurulation  | K                         | KH | Y | Lecture                                      | Written |  |                          |  |
| AN79.4                             | Describe the development of somites and intra-embryonic coelom<br><b>Learning Objective</b><br>i. Describe the development of somites<br>ii. Describe the development of intra-embryonic coelom   | K                         | KH | Y | Lecture                                      | Written |  | Obstetrics & Gynaecology |  |
| AN79.5                             | Explain embryological basis of congenital malformations, nucleus pulposus, sacrococcygeal teratomas, neural tube defects<br><b>Learning Objective</b><br>i. Explain embryological basis of congenital malformations<br>ii. Explain embryological basis of nucleus pulposus, sacrococcygeal teratomas<br>iii. Explain embryological basis of neural tube defects | K                         | KH | N | Lecture                                      | Written |  | Obstetrics & Gynaecology |  |
| AN79.6                             | Describe the diagnosis of pregnancy in first trimester and role of teratogens, alpha-fetoprotein<br><b>Learning Objective</b><br>i. Describe the diagnosis of pregnancy in first trimester<br>ii. Role of teratogens, alpha-fetoprotein in first trimester of pregnancy   | K                         | KH | N | Lecture                                      | Written |  | Obstetrics & Gynaecology |  |

| Number               | COMPETENCY<br>The student should be able to  | Domain<br>K/S/A/C         | Level<br>K/KH/<br>SH/P | Core<br>(Y/N) | Teaching-Learning Methods                    | Assessment<br>Methods | Number<br>required to<br>certify<br>P | Vertical<br>Integration | Horizontal<br>Integration |
|----------------------|--|---------------------------|------------------------|---------------|--|-----------------------|---------------------------------------|-------------------------|---------------------------|
| Topic:Fetalmembranes |  | Number ofcompetencies:(7) |                        |               | Number of procedures for certification:(NIL) |                       |                                       |                         |                           |
| AN80.1               | Describe formation, functions & fate of-chorion: amnion; yolk sac; allantois & deciduas<br><b>Learning Objective</b><br>i. Formation of chorion: amnion; yolk sac; allantois & deciduas<br>ii. Function of chorion: amnion; yolk sac; allantois & deciduas<br>iii. Fate of chorion: amnion; yolk sac; allantois & deciduas | K                         | KH                     | Y             | Lecture                                      | Written               |                                       |                         |                           |
| AN80.2               | Describe formation & structure of umbilical cord<br><b>Learning Objective</b><br>i. Formation of umbilical cord<br>ii. Structure of umbilical cord   | K                         | KH                     | Y             | Lecture                                      | Written               |                                       |                         |                           |

| AN80.3   | Describe formation of placenta, its physiological functions, foetomaternal circulation & placental barrier<br><b>Learning Objective</b><br>i. formation of placenta<br>ii. physiological functions of placenta<br>iii. Describe foetomaternal circulation & placental barrier | K                 | KH                     | Y             | Lecture                   | Written               |                                       | Obstetrics & Gynaecology |                           |
|--|---|-------------------|------------------------|---------------|---------------------------|-----------------------|---------------------------------------|--------------------------|---------------------------|
| AN80.4   | Describe embryological basis of twinning in monozygotic & dizygotic twins<br><b>Learning Objective</b><br>i. embryological basis of monozygotic twins<br>ii. embryological basis of dizygotic twins   | K                 | KH                     | Y             | Lecture                   | Written               |                                       | Obstetrics & Gynaecology |                           |
| AN80.5   | Describe role of placental hormones in uterine growth & parturition<br><b>Learning Objective</b><br>i. role of placental hormones in uterine growth<br>ii. role of placental hormones in parturition  | K                 | KH                     | Y             | Lecture                   | Written               |                                       | Obstetrics & Gynaecology |                           |
| AN80.6   | Explain embryological basis of estimation of fetal age.<br><b>Learning Objective</b><br>i. embryological basis of estimation of fetal age   | K                 | KH                     | N             | Lecture                   | Written               |                                       | Obstetrics & Gynaecology |                           |
| AN80.7   | Describe various types of umbilical cord attachments<br><b>Learning Objective</b><br>i. Anatomy of umbilical cord<br>ii. Types of umbilical cord attachment   | K                 | KH                     | N             | Lecture                   | Written               |                                       | Obstetrics & Gynaecology |                           |
| <b>Topic:PrenatalDiagnosis</b> <div> <div>Number ofcompetencies:(3)</div> <div>Number of procedures for certification:(NIL)</div> </div> |   |                   |                        |               |                           |                       |                                       |                          |                           |
| AN81.1   | Describe various methods of prenatal diagnosis<br><b>Learning Objective</b><br>i. Name various methods of prenatal diagnosis<br>ii. Describe various methods of prenatal diagnosis  | K                 | KH                     | Y             | Lecture                   | Written               |                                       | Obstetrics & Gynaecology |                           |
| AN81.2   | Describe indications, process and disadvantages of amniocentesis<br><b>Learning Objective</b><br>i. Indications of amniocentesis<br>ii. process and disadvantages of amniocentesis  | K                 | KH                     | Y             | Lecture                   | Written               |                                       | Obstetrics & Gynaecology |                           |
| AN81.3   | Describe indications, process and disadvantages of chorion villus biopsy<br><b>Learning Objective</b><br>i. indications of chorion villus biopsy<br>ii. process of chorion villus biopsy<br>iii. disadvantages of chorion villus biopsy                                       | K                 | KH                     | Y             | Lecture                   | Written               |                                       | Obstetrics & Gynaecology |                           |
| <b>Topic: EthicsinAnatomy</b> <div> <div>Number ofcompetencies:(1)</div> <div>Number of procedures for certification:(NIL)</div> </div>  |   |                   |                        |               |                           |                       |                                       |                          |                           |
| Number   | COMPETENCY<br>The student should be able to   | Domain<br>K/S/A/C | Level<br>K/KH/<br>SH/P | Core<br>(Y/N) | Teaching-Learning Methods | Assessment<br>Methods | Number<br>required to<br>certify<br>P | Vertical<br>Integration  | Horizontal<br>Integration |



|                    |  |                                 |                                  |                             |                                  |                           |   |                             |                               |
|--------------------|--|---------------------------------|----------------------------------|-----------------------------|----------------------------------|---------------------------|---|-----------------------------|-------------------------------|
| AN 82.1            | Demonstrate respect and follow the correct procedure when handling cadavers and other biologic tissue<br><b>Learning Objective</b><br>i. Demonstrate the respect the cadaver and biologic tissue<br>ii. Demonstrate correct procedure when handling cadavers and other   | S                               | SH                               | Y                           | Group Activity                   | NIL                       |   | AETCOM                      |                               |
|                    | <b>Column C: K- Knowledge, S – Skill, A - Attitude / professionalism, C- Communication. Column D: K – Knows, KH - Knows How, SH - Shows how, P- performs independently, Column F: DOAP session – Demonstrate, Observe, Assess, Perform.</b><br><b>Column H: If entry is P: indicate how many procedures must be done independently for certification/ graduation</b> |                                 |                                  |                             |                                  |                           |   |                             |                               |
| <b>Integration</b> |  |                                 |                                  |                             |                                  |                           |   |                             |                               |
| <b>Physiology</b>  |  |                                 |                                  |                             |                                  |                           |   |                             |                               |
| PY3.1              | Describe the structure and functions of a neuron and neuroglia; Discuss Nerve Growth Factor & other growth factors/cytokines   | K                               | KH                               | Y                           | Lecture, Small group discussion  | Written/Viva voce         |   |                             | Human Anatomy                 |
| PY3.7              | Describe the different types of muscle fibres and their structure  | K                               | KH                               | Y                           | Lecture, Small group discussion  | Written/Viva voce         |   |                             | Human Anatomy                 |
| PY3.13             | Describe muscular dystrophy: myopathies  | K                               | KH                               | Y                           | Lecture, Small group discussion  | Written/Viva voce         |   | General Medicine            | Human Anatomy                 |
| PY4.1              | Describe the structure and functions of digestive system   | K                               | KH                               | Y                           | Lecture, Small group discussion  | Written/Viva voce         |   |                             | Human Anatomy                 |
| PY5.1              | Describe the functional Anatomy of heart including chambers, sounds; and Pacemaker tissue and conducting system.   | K                               | KH                               | Y                           | Lecture, Small group discussion  | Written/Viva voce         |   |                             | Human Anatomy                 |
| PY5.6              | Describe abnormal ECG, arrhythmias, heart block and myocardial Infarction  | K                               | KH                               | Y                           | Lecture, Small group discussion  | Written/Viva voce         |   | General Medicine            | Human Anatomy                 |
| PY9.1              | Describe and discuss sex determination; sex differentiation and their abnormalities and outline psychiatry and practical implication of sex determination.   | K                               | KH                               | Y                           | Lecture, Small group discussion  | Written/Viva voce         |   |                             | Human Anatomy                 |
| PY10.1             | Describe and discuss the organization of nervous system  | K                               | KH                               | Y                           | Lecture, Small group discussion  | Written/Viva voce         |   |                             | Human Anatomy                 |
| <b>Number</b>      | <b>COMPETENCY</b><br><b>The student should be able to</b>  | <b>Domain</b><br><b>K/S/A/C</b> | <b>Level</b><br><b>K/KH/SH/P</b> | <b>Core</b><br><b>(Y/N)</b> | <b>Teaching-Learning Methods</b> | <b>Assessment Methods</b> | <b>Number required to certify</b><br><b>P</b> | <b>Vertical Integration</b> | <b>Horizontal Integration</b> |

|              |   |                   |                        |               |                                  |                                     |                                       |                             |                           |
|--------------|---|-------------------|------------------------|---------------|----------------------------------|-------------------------------------|---------------------------------------|-----------------------------|---------------------------|
| PY10.2       | Describe and discuss the functions and properties of synapse, reflex, receptors   | K                 | KH                     | Y             | Lecture, Small group discussion  | Written/Viva voce                   |                                       |                             | Human Anatomy             |
| PY10.3       | Describe and discuss somatic sensations & sensory tracts  | K                 | KH                     | Y             | Lecture, Small group discussion  | Written/Viva voce                   |                                       |                             | Human Anatomy             |
| PY10.4       | Describe and discuss motor tracts, mechanism of maintenance of tone, control of body movements, posture and equilibrium & vestibular apparatus  | K                 | KH                     | Y             | Lecture, Small group discussion  | Written/Viva voce                   |                                       |                             | Human Anatomy             |
| PY10.5       | Describe and discuss structure and functions of reticular activating system, autonomic nervous system (ANS)   | K                 | KH                     | Y             | Lecture, Small group discussion  | Written/Viva voce                   |                                       |                             | Human Anatomy             |
| PY10.6       | Describe and discuss Spinal cord, its functions, lesion & sensory disturbances  | K                 | KH                     | Y             | Lecture, Small group discussion  | Written/Viva voce                   |                                       |                             | Human Anatomy             |
| PY10.7       | Describe and discuss functions of cerebral cortex, basal ganglia, thalamus, hypothalamus, cerebellum and limbic system and their abnormalities  | K                 | KH                     | Y             | Lecture, Small group discussion  | Written/Viva voce                   |                                       | Psychiatry                  | Human Anatomy             |
| PY10.11      | Demonstrate the correct clinical examination of the nervous system: Higher functions, Sensory system, motor system, reflexes, Cranial Nerves in a normal volunteer or simulated environment | S                 | P                      | Y             | DOAP sessions                    | Skill assessment / Viva voce / OSCE | 1each (total5)                        |                             | Human Anatomy             |
| Biochemistry |   |                   |                        |               |                                  |                                     |                                       |                             |                           |
| BI6.13       | Describe the functions of the kidney, liver, thyroid and adrenal glands   | K                 | KH                     | Y             | Lecture, Small group discussions | Written/ Viva voce                  |                                       | Pathology, General Medicine | Physiology, Human Anatomy |
| BI6.14       | Describe the tests that are commonly done in clinical practice to assess the functions of these organs (kidney, liver, thyroid and adrenal glands).   | K                 | KH                     | Y             | Lecture, Small group discussions | Written/ Viva voce                  |                                       | Pathology, General Medicine | Physiology, Human Anatomy |
| BI6.15       | Describe the abnormalities of kidney, liver, thyroid and adrenal glands   | K                 | KH                     | Y             | Lecture, Small group discussions | Written/ Viva voce                  |                                       | Pathology, General Medicine | Physiology, Human Anatomy |
| Pathology    |   |                   |                        |               |                                  |                                     |                                       |                             |                           |
| Number       | COMPETENCY<br>The student should be able to   | Domain<br>K/S/A/C | Level<br>K/KH/<br>SH/P | Core<br>(Y/N) | Teaching-Learning Methods        | Assessment<br>Methods               | Number<br>required to<br>certify<br>P | Vertical<br>Integration     | Horizontal<br>Integration |

|   |   |                                 |                                  |                             |  |                                     |   |  |                               |
|---|---|---------------------------------|----------------------------------|-----------------------------|--|-------------------------------------|---|--|-------------------------------|
| PA28.10                                   | Describe the etiology, pathogenesis, pathology, laboratory findings, distinguishing features progression and complications of acute and chronic pyelonephritis and reflux nephropathy   | K                               | KH                               | Y                           | Lecture, Small group discussion                                | Written/ Viva voce                  |   | Human Anatomy, General Surgery                               |                               |
| PA31.1                                    | Classify and describe the types, etiology, pathogenesis, pathology and hormonal dependency of benign breast disease   | K                               | KH                               | Y                           | Lecture, Small group   | Written/ Viva voce                  |   | Human Anatomy, General Surgery                               |                               |
| PA32.1                                    | Enumerate, classify and describe the etiology, pathogenesis, pathology and iodine dependency of thyroid swellings   | K                               | KH                               | Y                           | Lecture, Small group discussion                                | Written/ Viva voce                  |   | Human Anatomy Physiology, General Medicine, General Surgery  |                               |
| PA32.9                                    | Describe the etiology, pathogenesis, manifestations, laboratory and morphologic features of adrenal neoplasms   | K                               | KH                               | N                           | Lecture, Small group discussion                                | Written/ Viva voce                  |   | Human Anatomy, Physiology, General Medicine, General Surgery |                               |
| PA33.1                                    | Classify and describe the etiology, pathogenesis, manifestations, radiologic and morphologic features and complications of osteomyelitis  | K                               | KH                               | Y                           | Lecture, Small group discussion                                | Written/ Viva voce                  |   | Human Anatomy, Orthopedics                                   | Microbiology                  |
| <b>Forensic Medicine &amp; Toxicology</b> |   |                                 |                                  |                             |  |                                     |   |  |                               |
| FM2.28                                    | Describe and discuss signs of intrauterine death, signs of live birth, viability of foetus, age determination of foetus, DOAP session of ossification centres, Hydrostatic test, Sudden infants death syndrome and Munchausen's syndrome by proxy.                                    | K                               | KH                               | Y                           | Lectures, Small group discussion, Autopsy, DOAP session        | Written/ Viva voce/ OSCE            |   | Pediatrics, Human Anatomy                                    |                               |
| FM3.1                                     | Identification<br>Define and describe Corpus Delicti, establishment of identity of living persons including race, Sex, religion, complexion, stature, age determination using morphology, teeth-eruption, decay, bite marks, bones ossification centres, medico-legal aspects of age. | K                               | KH                               | Y                           | Lectures, Small group discussion, Bedside clinic, DOAP session | Written/ Viva voce/skill assessment |   | Human Anatomy  |                               |
| <b>Number</b>                             | <b>COMPETENCY</b><br><b>The student should be able to</b>   | <b>Domain</b><br><b>K/S/A/C</b> | <b>Level</b><br><b>K/KH/SH/P</b> | <b>Core</b><br><b>(Y/N)</b> | <b>Teaching-Learning Methods</b>                               | <b>Assessment Methods</b>           | <b>Number required to certify</b><br><b>P</b> | <b>Vertical Integration</b>                                  | <b>Horizontal Integration</b> |

| Anesthesiology |   |   |    |   |   |                                     |  |                          |  |
|----------------|---|---|----|---|---|-------------------------------------|--|--------------------------|--|
| AS4.2          | Describe the Anatomy of the airway and its implications for general anaesthesia   | K | KH | Y | Lecture, Small group discussion               | Written/ Viva voce                  |  | Human Anatomy            |  |
| AS5.2          | Describe the correlative Anatomy of the brachial plexus, subarachnoid and epidural spaces   | K | KH | Y | Lecture, Small group discussion               | Written/ Viva voce                  |  | Human Anatomy            |  |
| AS5.3          | Observe and describe the principles and steps/ techniques involved in peripheral nerve blocks   | S | KH | Y | Lecture, Small group discussion, DOAP session | Written/ Viva voce                  |  | Human Anatomy            |  |
| AS8.1          | Describe the anatomical correlates and physiologic principles of pain   | K | KH | Y | Lecture, Small group discussion, DOAP session | Written/ Viva voce                  |  | Human Anatomy Physiology |  |
| ENT            |   |   |    |   |   |                                     |  |                          |  |
| EN1.1          | Describe the Human Anatomy & physiology of ear, nose, throat, head & neck.  | K | KH | Y | Lecture, Small group discission, DOAP session | Written/ Viva voce/Skill assessment |  | Human Anatomy            |  |
| Ophthalmology  |   |   |    |   |   |                                     |  |                          |  |
| OP2.1          | Enumerate the causes, describe and discuss the aetiology, clinical presentations and diagnostic features of common conditions of the lid and adnexa including Hordeolum externum/ internum, blepharitis, preseptal cellulitis, dacryocystitis, hemangioma, dermoid, ptosis, entropion, lid lag, lagophthalmos | K | KH | Y | Lecture,Small group discussion                | Written/ Viva voce                  |  | Human Anatomy            |  |
| OP4.1          | Enumerate describe and discuss the types and causes of corneal ulceration   | K | KH | Y | Lecture,Small group discussion                | Written/ Viva voce                  |  | Human Anatomy            |  |
| OP6.7          | Enumerate and discuss the aetiology, the clinical distinguishing features of various glaucomas associated with shallow and deep anterior chamber. Choose appropriate investigations and treatment for patients with above conditions.   | K | KH | Y | Lecture, Small group discussion               | Written/ Viva voce                  |  | Human Anatomy            |  |

| Number                   | COMPETENCY<br>The student should be able to  | Domain<br>K/S/A/C | Level<br>K/KH/<br>SH/P | Core<br>(Y/N) | Teaching-Learning Methods       | Assessment<br>Methods        | Number<br>required to<br>certify<br>P | Vertical<br>Integration                | Horizontal<br>Integration |
|--------------------------|--|-------------------|------------------------|---------------|---------------------------------|------------------------------|---------------------------------------|--|---------------------------|
| OP7.1                    | Describe the surgical anatomy and the metabolism of the lens   | K                 | KH                     | Y             | Lecture,Small group discussion  | Written/ Viva voce           |                                       | Biochemistry, Human Anatomy            |                           |
| OP8.1                    | Discuss the aetiology, pathology, clinical features and management of vascular occlusions of the retina  | K                 | KH                     | Y             | Lecture,Small group discussion  | Written/ Viva voce           |                                       | Human Anatomy, Pathology               |                           |
| Dentistry                |  |                   |                        |               |                                 |                              |                                       |  |                           |
| DE1.1                    | Enumerate the parts of the tooth   | K                 | K                      | N             | Lecture,Small group discussion  | Viva voce                    |                                       | Human Anatomy                          |                           |
| DE5.1                    | Enumerate the parts of the tooth and supporting structures   | K                 | K                      | N             | Lecture, Small group discussion | Viva voce                    |                                       | Human Anatomy                          |                           |
| General Medicine         |  |                   |                        |               |                                 |                              |                                       |  |                           |
| IM3.1                    | Define discuss describe and distinguish community acquired pneumonia, nosocomial pneumonia and aspiration pneumonia                                      | K                 | K                      | Y             | Lecture, Small Group discussion | short note/ Viva voce        |                                       | Human Anatomy, Pathology, Microbiology |                           |
| IM13.9                   | Demonstrate in a mannequin the correct technique for performing breast exam, rectal examination and cervical examination and pap smear                   | S                 | K                      | Y             | Bedside clinic                  | Skill assessment/ short case |                                       | Human Anatomy                          | General Surgery           |
| IM17.1                   | Define and classify headache and describe the presenting features, precipitating factors, aggravating and relieving factors of various kinds of headache | K                 | KH                     | Y             | Lecture, Small group discussion | short note/ Viva voce        |                                       | Human Anatomy                          |                           |
| IM18.1                   | Describe the functional and the vascular anatomy of the brain  | K                 | KH                     | Y             | Lecture, Small Group discussion | Written/ Viva voce           |                                       | Human Anatomy                          |                           |
| IM19.1                   | Describe the functional anatomy of the locomotor system of the brain   | K                 | KH                     | Y             | Lecture, Small group discussion | Written/Viva voce            |                                       | Human Anatomy, Physiology              |                           |
| Obstetrics & Gynaecology |  |                   |                        |               |                                 |                              |                                       |  |                           |

| Number                 | COMPETENCY<br>The student should be able to   | Domain<br>K/S/A/C | Level<br>K/KH/<br>SH/P | Core<br>(Y/N) | Teaching-Learning Methods                                     | Assessment<br>Methods                | Number<br>required to<br>certify<br>P | Vertical<br>Integration | Horizontal<br>Integration |
|------------------------|---|-------------------|------------------------|---------------|---|--------------------------------------|---------------------------------------|-------------------------|---------------------------|
| OG2.1                  | Describe and discuss the development and anatomy of the female reproductive tract, relationship to other pelvic organs, applied anatomy as related to Obstetrics and Gynaecology. | K                 | KH                     | Y             | Lecture, Small group discussion                               | Written/ Viva voce/ Skill assessment |                                       | Human Anatomy           |                           |
| OG4.1                  | Describe and discuss the basic embryology of fetus , factors influencing fetal growth and development, anatomy and physiology of placenta, and teratogenesis                      | K                 | K                      | Y             | Lecture, Small group discussion                               | Theory                               |                                       | Human Anatomy           |                           |
| OG14.1                 | Enumerate and discuss the diameters of maternal pelvis and types  | K                 | KH                     | Y             | Lecture, Small group discussion, Bedside clinic, DOAP session | Written/ Viva voce/ skill assessment |                                       | Human Anatomy           |                           |
| <b>General Surgery</b> |   |                   |                        |               |   |                                      |                                       |                         |                           |
| SU19.1                 | Describe the etiology and classification of cleft lip and palate  | K                 | KH                     | Y             | Lecture, Small group discussion, Bedside clinic               | Written/ Viva voce/ OSCE             |                                       | Human Anatomy           |                           |
| SU19.2                 | Describe the Principles of reconstruction of cleft lip and palate   | K                 | KH                     | Y             | Lecture, Small group discussion, Bedside clinic               | Written/ Viva voce/ OSCE             |                                       | Human Anatomy           |                           |
| SU22.1                 | Describe the Applied anatomy, and physiology of thyroid   | K                 | KH                     | Y             | Lecture, Small group discussion, Bedside clinic               | Written/ Viva voce/ OSCE             |                                       | Human Anatomy           |                           |
| SU22.5                 | Describe the applied anatomy of parathyroid.  | K                 | KH                     | Y             | Lecture, Small group discussion, Bedside clinic               | Written/ Viva voce/ OSCE             |                                       | Human Anatomy           |                           |
| SU23.1                 | Describe the applied anatomy of adrenal glands  | K                 | KH                     | Y             | Lecture, Small group discussion, Bedside clinic               | Written/ Viva voce/ OSCE             |                                       | Human Anatomy           |                           |
| SU24.1                 | Describe the clinical features, principles of investigation, prognosis and management of pancreatitis.  | K                 | KH                     | Y             | Lecture, Small group discussion, Bedside clinic               | Written/ Viva voce/ OSCE             |                                       | Human Anatomy           |                           |

| Number  | COMPETENCY<br>The student should be able to  | Domain<br>K/S/A/C | Level<br>K/KH/<br>SH/P | Core<br>(Y/N) | Teaching-Learning Methods                          | Assessment<br>Methods    | Number<br>required to<br>certify<br>P | Vertical<br>Integration         | Horizontal<br>Integration |
|---------|--|-------------------|------------------------|---------------|--|--------------------------|---------------------------------------|---------------------------------|---------------------------|
| SU25.1  | Describe applied anatomy appropriate investigations for breast disease   | K                 | KH                     | Y             | Lecture, Small group discussion,<br>Bedside clinic | Written/ Viva voce/ OSCE |                                       | Human Anatomy                   |                           |
| SU28.2  | Describe the clinical features, investigations and principles of management of congenital anomalies of Genitourinary system.   | K                 | KH                     | Y             | Lecture, Small group discussion,<br>Bedside clinic | Written/ Viva voce/ OSCE |                                       | Human Anatomy                   |                           |
| SU28.5  | Describe the applied anatomy and physiology of esophagus   | K                 | K                      | Y             | Lecture, Small group discussion,<br>Bedside clinic | Written/ Viva voce       |                                       | Human<br>Anatomy,<br>Physiology |                           |
| SU28.7  | Describe the applied anatomy and physiology of stomach.  | K                 | KH                     | Y             | Lecture, Small group discussion,<br>Bedside clinic | Written/ Viva voce/ OSCE |                                       | Human Anatomy                   |                           |
| SU28.10 | Describe the applied anatomy of liver. Describe the Clinical features, Investigations and principles of management of Liver abscess, hydatid disease, Injuries and Tumors of the liver.        | K                 | KH                     | Y             | Lecture, Small group discussion,<br>Bedside clinic | Written/ Viva voce/ OSCE |                                       | Human Anatomy                   |                           |
| SU28.11 | Describe the applied anatomy of Spleen. Describe the clinical features, Investigations and principles of management of splenic injuries.<br>Describe the Post-splenectomy sepsis- prophylaxis. | K                 | KH                     | Y             | Lecture, Small group discussion,<br>Bedside clinic | Written/ Viva voce/ OSCE |                                       | Human Anatomy                   |                           |
| SU28.12 | Describe the applied anatomy of biliary system. Describe the clinical features, investigations and principles of management of diseases of biliary system.                                     | K                 | KH                     | Y             | Lecture, Small group discussion,<br>Bedside clinic | Written/ Viva voce/ OSCE |                                       | Human Anatomy                   |                           |
| SU28.13 | Describe the applied anatomy of small and large intestines   | K                 | KH                     | Y             | Lecture, Small group discussion,<br>Bedside clinic | Written/ Viva voce/ OSCE |                                       | Human Anatomy                   |                           |
| SU28.16 | Describe applied anatomy including congenital anomalies of the rectum and anal canal   | K                 | KH                     | Y             | Lecture, Small group discussion,<br>Bedside clinic | Written/ Viva voce/ OSCE |                                       | Human Anatomy                   |                           |

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|--------------|--|-------------------|------------------------|---------------|---|--------------------------|---------------------------------------|-------------------------|---------------------------|
| SU30.2       | Describe the applied anatomy, clinical features, investigations and principles of management of Undescended testis.  | K                 | KH                     | Y             | Lecture, Small group discussion, Bedside clinic | Written/ Viva voce/ OSCE |                                       | Human Anatomy           |                           |
| SU30.3       | Describe the applied anatomy, clinical features, investigations and principles of management of Epididymo-orchitis   | K                 | KH                     | Y             | Lecture, Small group discussion, Bedside clinic | Written/ Viva voce/ OSCE |                                       | Human Anatomy           |                           |
| SU30.4       | Describe the applied anatomy, clinical features, investigations and principles of management of Varicocele   | K                 | KH                     | Y             | Lecture, Small group discussion, Bedside clinic | Written/ Viva voce/ OSCE |                                       | Human Anatomy           |                           |
| SU30.5       | Describe the applied anatomy, clinical features, investigations and principles of management of Hydrocele  | K                 | KH                     | Y             | Lecture, Small group discussion, Bedside clinic | Written/ Viva voce/ OSCE |                                       | Human Anatomy           |                           |
| Orthopaedics |  |                   |                        |               |   |                          |                                       |                         |                           |
| OR2.1        | Describe and discuss the mechanism of Injury, clinical features, investigations and plan management of fracture of clavicle  | K/S               | KH/SH                  | Y             | Lecture, Small group discussion, Bedside clinic | Written/ Viva voce/ OSCE | 1                                     | Human Anatomy           |                           |
| OR2.2        | Describe and discuss the mechanism of Injury, clinical features, investigations and plan management of fractures of proximal humerus   | K                 | K/KH/SH                | Y             | Lecture, Small group discussion, Bedside clinic | Written/ Viva voce/ OSCE |                                       | Human Anatomy           |                           |
| OR2.3        | Describe and discuss the mechanism of Injury, clinical features, investigations and plan management of supra condylar fracture of humerus  | K                 | KH/SH                  | Y             | Lecture, Small group discussion, Bedside clinic | Written/ Viva voce/ OSCE |                                       | Human Anatomy           |                           |
| OR2.4        | Describe and discuss the mechanism of injury, clinical features, investigations and principles of management of fracture of shaft of humerus and intercondylar fracture humerus with emphasis on neurovascular deficit | K/S               | K/KH                   | Y             | Lecture, Small group discussion, Bedside clinic | Written/ Viva voce/ OSCE |                                       | Human Anatomy           |                           |
| OR2.5        | Describe and discuss the aetiopathogenesis, clinical features, mechanism of injury, investigation & principles of management of fractures of both bones forearm and Galeazzi and Monteggia injury                      | K                 | K/KH                   | Y             | Lecture, Small group discussion, Bedside clinic | Written/ Viva voce/ OSCE |                                       | Human Anatomy           |                           |



| Number | COMPETENCY<br>The student should be able to  | Domain<br>K/S/A/C | Level<br>K/KH/<br>SH/P | Core<br>(Y/N) | Teaching-Learning Methods                       | Assessment<br>Methods    | Number<br>required to<br>certify<br>P | Vertical<br>Integration | Horizontal<br>Integration |
|--------|--|-------------------|------------------------|---------------|---|--------------------------|---------------------------------------|-------------------------|---------------------------|
| OR2.6  | Describe and discuss the aetiopathogenesis, mechanism of injury, clinical features, investigations and principles of management of fractures of distal radius  | K                 | KH                     | Y             | Lecture, Small group discussion, Bedside clinic | Written/ Viva voce/ OSCE |                                       | Human Anatomy           |                           |
| OR2.7  | Describe and discuss the aetiopathogenesis, mechanism of injury, clinical features, investigations and principles of management of pelvic injuries with emphasis on hemodynamic instability  | K                 | K/KH/SH                | Y             | Lecture, Small group discussion, Bedside clinic | Written/ Viva voce/ OSCE |                                       | Human Anatomy           |                           |
| OR2.8  | Describe and discuss the aetiopathogenesis, mechanism of injury, clinical features, investigations and principles of management of spine injuries with emphasisi on mobilisation of the patient  | K                 | K/KH                   | Y             | Lecture, Small group discussion, Bedside clinic | Written/ Viva voce/ OSCE |                                       | Human Anatomy           |                           |
| OR2.9  | Describe and discuss the mechanism of injury, Clinical features, investigations and principle of management of acetabular fracture   | K                 | K/KH                   | Y             | Lecture, Small group discussion, Bedside clinic | Written/ Viva voce/ OSCE |                                       | Human Anatomy           |                           |
| OR2.10 | Describe and discuss the aetiopathogenesis, mechanism of injury, clinical features, investigations and principles of management of fractures of proximal femur   | K/S/A/C           | KH                     | Y             | Lecture, Small group discussion, Bedside clinic | Written/ Viva voce/ OSCE |                                       | Human Anatomy           |                           |
| OR2.11 | Describe and discuss the aetiopathogenesis, mechanism of injury, clinical features, investigations and principles of management of (a) Fracture patella (b) Fracture distal femur © Fracture proximal tibia with special focus on neurovascular injury and compartmentsyndrome | K                 | K/KH                   | Y             | Lecture, Small group discussion, Bedside clinic | Written/ Viva voce/ OSCE |                                       | Human Anatomy           |                           |
| OR2.12 | Describe and discuss the aetiopathogenesis, clinical features, Investigation and principles of management of Fracture shaft of femur in all age groups and the recognition and management of fat embolism as a complication  | K                 | K/KH                   | Y             | Lecture, Small group discussion, Bedside clinic | Written/ Viva voce/ OSCE |                                       | Human Anatomy           |                           |
| OR2.13 | Describe and discuss the aetiopathogenesis, clinical features, Investigation and principles of management of:<br>(a) Fracture both bonesleg<br>(b) Calcaneus<br>(c) Small bones offoot   | K                 | K/KH                   | Y             | Lecture, Small group discussion, Bedside clinic | Written/ Viva voce/ OSCE |                                       | Human Anatomy           |                           |
| OR2.14 | Describe and discuss the aetiopathogenesis, clinical features, Investigation and principles of management of ankle fractures   | K/S/C             | K/KH                   | Y             | Lecture, Small group discussion, Bedside clinic | Written/ Viva voce/ OSCE |                                       | Human Anatomy           |                           |

| Number  | COMPETENCY<br>The student should be able to   | Domain<br>K/S/A/C | Level<br>K/KH/<br>SH/P | Core<br>(Y/N) | Teaching-Learning Methods                        | Assessment<br>Methods    | Number<br>required to<br>certify<br>P | Vertical<br>Integration | Horizontal<br>Integration         |
|---|---|-------------------|------------------------|---------------|--|--------------------------|---------------------------------------|-------------------------|-----------------------------------|
| OR2.15  | Plan and interpret the investigations to diagnose complications of fractures like malunion, non-union, infection, compartmental syndrome  | K/S               | SH                     | Y             | Lecture, Small group discussion, Bedside clinic  | Written/ Viva voce/ OSCE | 2                                     | Human Anatomy           |                                   |
| OR2.16  | Describe and discuss the mechanism of injury, clinical features, investigations and principles of management of open fractures with focus on secondary infection, prevention and management   | K                 | K/KH                   | Y             | Lecture, Small group discussion, Bedside clinic  | Written/ Viva voce/ OSCE |                                       | Human Anatomy           |                                   |
| OR11.1  | Describe and discuss the aetiopathogenesis, Clinical features, Investigations and principles of management of peripheral nerve injuries in diseases like foot drop, wrist drop, claw hand, palsies of Radial, Ulnar, Median, Lateral Popliteal and Sciatic Nerves                               | K                 | K/H                    | Y             | Lecture, Small Group discussion, case discussion | Written/ Viva voce/ OSCE |                                       | Human Anatomy           | General Medicine, General surgery |
| OR12.1  | Describe and discuss the Clinical features, Investigations and principles of management of Congenital and acquired malformations and deformities of:<br>a. limbs and spine - Scoliosis and spinal bifida<br>b. Congenital dislocation of Hip, Torticollis,<br>c. congenital talipes equinovarus | K                 | KH                     | Y             | Lecture, Small group discussion                  | Written/ Viva voce/ OSCE |                                       | Human Anatomy           |                                   |
| <b>Physical Medicine &amp; Rehabilitation</b> |   |                   |                        |               |  |                          |                                       |                         |                                   |
| PM2.1   | Describe the causes of disability in the patient with a cerebrovascular accident  | K                 | KH                     | Y             | Lecture, Small group discussion                  | Written/ Viva voce       |                                       | Human Anatomy           | General Medicine                  |
| PM3.1   | Describe and discuss the clinical features, types, evaluation, diagnosis and management of cerebral palsy   | K                 | KH                     | Y             | Lecture, Small group discussion                  | Written/ Viva voce       |                                       | Human Anatomy           | Pediatrics                        |
| <b>Pediatrics</b>                             |   |                   |                        |               |  |                          |                                       |                         |                                   |
| PE32.1  | Discuss the genetic basis, risk factors, complications, prenatal diagnosis, management and genetic counselling in Down's Syndrome   | K                 | KH                     | Y             | Lecture, Small group discussion                  | Written/ Viva voce       |                                       | Human Anatomy           |                                   |

