

## **Advisory Core Anatomy Syllabus for Undergraduate Nursing**

### **Anatomical Terminology**

1. Define the following terms relative to the anatomical position: Anterior/ventral, posterior/dorsal, superior, inferior, medial, median, lateral, proximal, distal, superficial, deep, prone, supine, palmar & plantar.
2. Describe the following anatomical planes: Axial/transverse/horizontal, sagittal'/vertical plane and the coronal/frontal' plane.
3. Define and demonstrate the terms used to describe movement: Flexion, extension, abduction, adduction, medial rotation, lateral rotation, inversion, eversion, supination, pronation, plantar-flexion, dorsi-flexion, and circumduction.
4. Compare and contrast the systematic changes associated with growth and ageing in children, adults and the elderly
5. Identify the major surface and bony landmarks in each body region  
  
(e.g. occipital protuberance, orbital ridge, nasal bones, mastoid process, cervical to sacrococcygeal vertebrae and associated joints, shoulder girdle and upper limb, sternal region, ribs and costal margin, pelvic girdle and lower limb).

### **Histological Overview**

6. Identify and describe the components of a basic cell.
7. Identify and describe the features of epithelial tissues (simple squamous, stratified squamous, transitional, cuboidal, columnar and ciliated)
8. Identify and describe the general structure of a neuron
9. Describe and contrast different types of cartilage (hyaline, fibrocartilage and elastic cartilage)

10. Compare and contrast the structural features of skeletal, smooth and cardiac muscle.

11. Describe the role of connective tissues.

### **Nervous System and Special Senses**

12. Define and describe the major divisions of the central nervous system (CNS), peripheral nervous system (PNS) and autonomic nervous system (ANS).

13. Identify the major divisions of the brain: The forebrain (cerebral hemispheres), The midbrain (amygdala, thalamus, hypothalamus, hippocampus, pituitary gland, pineal gland and crus cerebri), the brainstem/hindbrain (pons, medulla oblongata and cerebellum).

14. Describe the difference between grey matter (e.g. nuclei, cortex, and basal nuclei/ganglia) and white matter (association, commissural and projection fibres and the corpus callosum).

15. Identify the position of the frontal, parietal, temporal and occipital lobes and the major sulci/landmarks that separate them

16. Identify and briefly describe the cerebral cortex in relation to its functions, namely: motor; sensory; visual; auditory; speech; memory and emotion; decision making, social behaviour.

17. Describe the structural differences between the 3 layers of meninges (dura, arachnoid and pia) and their relationship to the brain and spinal cord.

18. Name the twelve cranial nerves and summarise their major functions in relation to PNS innervation

19. Describe the ventricular system and the formation, circulation, drainage and role of cerebrospinal fluid.

20. Describe the general organisation of the outer, middle and inner ear.

21. Describe the structure of the eye, eyelid, conjunctiva, and lacrimal gland. Explain their importance for the maintenance of corneal integrity.

22. Describe the structure of the spinal cord, a typical spinal nerve and a reflex arc and its relation to the vertebral column.

### **Musculoskeletal System**

23. Identify the major bones that make up the axial and appendicular skeleton and summarise their main differences.

24. Outline the main differences between compact and cancellous bone.

25. Describe and contrast different types of joints (synovial, fibrous and cartilaginous) and their associated structures (cartilage, tendons, ligaments, bursa) in relation to movement and stability.

26. Name and describe the major muscles groups of the head, neck, thorax, abdomen, pelvis, upper limb and lower limb

27. Identify the main curvatures and features of the vertebral column, individual vertebrae (cervical, thoracic, lumbar, sacral and coccygeal) and intervertebral joints.

### **Integumentary System**

28. Describe the epidermis, dermis & subcutaneous layers of the skin and appendages (hair follicles, sweat glands, nails).

29. Summarise the contribution of the dermatomes in sensory perception and referred pain.

### **Cardiovascular System**

30. Identify and describe the position of the heart in the mediastinum relative to the associated structures

31. Describe the four chambers of the heart (external and internal features), its specialised conduction network and the fibrous and serous layers of the pericardium.
32. Compare and contrast the structure and location of the valves of the heart.
33. Describe the origin, course and main branches of the left and right coronary arteries and describe their location relative to the heart, and the general area of the heart that they supply.
34. Distinguish the structural differences between arteries, veins and capillaries.
35. Define and demonstrate the structures of the pulmonary and systematic circulation.
36. Identify and describe the course and important relationships of the major arteries and veins of the trunk, with emphasis on the aorta, superior vena cava and inferior vena cava, their major branches and associated pulse points.
37. Define the deep and superficial veins and outline the course of the main veins of the upper limb and lower limb.
38. Identify and describe the blood supply and venous drainage of the brain and its association to the great vessels of the heart and neck.
39. Identify and describe the hepatic portal-venous system

### **Respiratory System**

40. Identify the associated joints and muscles of respiration (accessory and intercostals muscles and thoracic joints i.e. components of the sternum, ribs and costal cartilage articulations), and examine their contribution to the mechanism of breathing.

41. Identify and describe the major features of the external nose, the nasal cavity, the pharynx, the larynx and the trachea

42. Describe the major features of the diaphragm, pleural layers and the lungs (lobes and fissures of the right and left lungs; bronchi, bronchioles, alveoli; and surface landmarks).

43. Identify and describe the course and role of the phrenic nerve in maintaining normal breathing.

### **Gastrointestinal System**

44. Describe the major features of the oral cavity including the teeth, tongue, soft and hard palate.

45. Describe the salivary glands (parotid, submandibular and sublingual) and their relationship to the oral cavity for digestion

46. Identify and describe the structure of the oesophagus and explain the role of the epiglottis in demarcating the respiratory and digestive tracts.

47. Describe the relationship of the abdominal organs to the peritoneum (parietal and visceral layers) and the intestinal mesenteries.

48. Identify and describe the regions of the stomach.

49. Identify and describe the major sphincters of the gastrointestinal system in relation to their associated structures (oesophageal sphincter, cardiac sphincter, pyloric sphincter, ileocaecal sphincter, hepato-pancreatic sphincter, anal sphincters).

50. Identify and describe the constituent parts of the small intestine (duodenum, jejunum, and ileum) and the large intestine (caecum, ascending colon, transverse colon, descending colon, sigmoid colon, rectum and anus).

51. Compare and contrast the composition of the walls of the small and large intestines.

52. Identify and describe the lobes and major ligaments of the liver, the anatomy of the gallbladder, the anatomy of the pancreas and its associated ducts, and their position relative to the intestines.

53. Identify the four quadrants and nine descriptive regions of the abdomen in relation to underlying organs

### **Urinary System**

54. Identify and describe the main differences between the male and female urinary systems.

55. Describe the position of the kidneys and adrenal glands in relation to adjacent structures.

56. Identify and describe the external and internal structure of the kidney and the relationship to the associated structures.

57. Describe the position of the bladder relative to associated structures in males and females (including during pregnancy).

### **Reproductive System**

58. Identify and describe the differences between the male and female reproductive systems (organs, glands, external genitalia and pelvic characteristics).

59. Describe the anatomy of the pelvic diaphragm and perineum and their relationship to the neurovascular structures that supply these regions in males and females.

60. Describe the structure and composition of the breast.

61. Describe the anatomical changes that occur during pregnancy.

### **Lymphatic System**

62. Describe the drainage of lymph throughout the body

63. Identify the primary (bone marrow & thymus) and secondary lymphoid (lymph nodes, spleen, tonsils and appendix) organs and tissues of the lymphatic system.

### **Endocrine**

64. Identify the major endocrine structures (hypothalamus, anterior and posterior lobes of the pituitary gland, pineal gland thyroid gland and parathyroid glands, thymus, adrenal gland, pancreas, gonads, skin, heart, kidneys, gastrointestinal tract and liver).