



**UNIVERSITY EXAMINATIONS**  
**FIRST YEAR EXAMINATION FOR THE AWARD OF THE**  
**DEGREE OF BACHELOR OF SCIENCE IN NURSING**  
**SECOND SEMESTER 2022/2023**  
**[JANUARY-APRIL, 2023]**

**NUR 114: HUMAN ANATOMY II**

**STREAM: Y1S2**

**TIME: 3 HOURS**

**DAY: THURSDAY, 9:00 – 12:00 PM**

**DATE: 06/04/2023**

**INSTRUCTIONS**

- 1. Do not write anything on this question paper.***
- 2. Answer ALL Questions***

**SECTION A: MULTIPLE CHOICE QUESTIONS (50 MARKS)**

- The frontal bone does not articulate with this bone:
  - Occipital bone
  - Ethmoid bone
  - Zygomatic bone
  - Sphenoid bone
- Which nerve lies in the substance of parotid gland?
  - Facial
  - Auriculotemporal
  - Glossopharyngeal
  - Vagus
- True of the scalp
  - Wounds have minimal bleeding
  - Veins communicate with intracranial veins
  - Lacks muscular structures
  - Wounds remain small and heal slowly
- This fascia encloses the thyroid and is responsible for its movement during swallowing
  - Prevertebral fascia
  - Pretracheal fascia
  - Investing layer of the deep cervical fascia
  - Superficial fascia

5. The Thyroid gland consists of right and left lobes that are joined to each other by :
  - A. Pyramidal Lobe
  - B. Levator of thyroid gland
  - C. Isthmus
  - D. Accessory thyroid gland
6. Which of the following does not traverse the carotid triangle?
  - A. Internal jugular vein
  - B. External jugular vein
  - C. Common carotid artery
  - D. Vagus nerve
7. Which is not a gross movement of the vertebral column
  - A. Flexion
  - B. Extension
  - C. Dorsiflexion
  - D. Lateral flexion
8. The primary curvature of the spine is preserved in the following sections
  - A. Lumbar and thoracic
  - B. Cervical and Lumbar
  - C. Lumbar and sacral
  - D. Thoracic and sacral
9. Spina bifida occulta is a:
  - A. Bony defect of the vertebral arch in which the meninges protrude through
  - B. Bony defect in which the vertebral arch fail to fuse, and is marked on the back by a dimple or a tuft of hair
  - C. Bony defect of the vertebral arch in which the meninges and spinal cord protrude through
  - D. Bony defect of the vertebral arch in which an open neural plate is visible
10. Which is not a member of erector spinae?
  - A. Longus colli
  - B. Longissimus
  - C. Iliocostalis
  - D. Spinalis
11. Which is not part of the neuron?
  - A. Axon
  - B. Dendrite
  - C. Soma
  - D. Neuromere
12. The main process used in communication between neurons is
  - A. Ion exchange
  - B. Chemical exchange
  - C. Conformational changes

- D. All of the above
13. Which is not a neurotransmitter?
- A. Acetylcholine
  - B. Dopamine
  - C. Substance Y
  - D. Substance P
14. In the 4th week after conception, the neural tube develops three swellings. These are:
- A. Telencephalon, diencephalon and myelencephalon
  - B. Telencephalon, diencephalon and metencephalon
  - C. Cerebral cortex, limbic system and basal ganglia
  - D. Forebrain, midbrain and hindbrain
15. Among the structures listed below, one is not a component of the central nervous system:
- A. Cerebellum
  - B. Spinal cord
  - C. Spinal nerves
  - D. Diencephalon.
16. Which is false concerning the brachial plexus
- A. It may be prefixed or postfixed
  - B. It derives from spinal nerves C5, C6, C7, C8 and T1
  - C. It carries motor fibres only
  - D. Destruction can lead to the phantom limb phenomenon
17. One of the following does not arise from a spinal nerve:
- A. Anterior ramus
  - B. Posterior ramus
  - C. Gray rami communicans
  - D. White rami communicans
18. The dura mater, arachnoid mater and subarachnoid space extend to the vertebral level
- A. L1
  - B. L2
  - C. S1
  - D. S2
19. This ascending tract of the spinal cord carries pain and temperature signals
- A. Spinoolivary tract
  - B. Tractus gracilis
  - C. Lateral spinothalamic tract
  - D. Corticospinal tract
20. The lateral horn is present in the following segment
- A. Sacral
  - B. Cervical
  - C. Coccygeal

- D. Thoracic
21. The anterior horn is involved in the following functions
- A. Motor
  - B. Somatic sensory
  - C. Autonomic
  - D. Visceral sensory
22. Parkinson's disease implicates the following structure
- A. Nucleus cuneatus
  - B. Nucleus tractus solitarius
  - C. Substantia nigra
  - D. Inferior colliculus
23. Where are the vital centres located in the brainstem?
- A. Midbrain
  - B. Pons
  - C. Tectum
  - D. Cerebellum
24. Where is the nucleus for CNIII located?
- A. Midbrain
  - B. Pons
  - C. Medulla
  - D. Cortex
25. Muscle superior oblique is innervated by
- A. CNII
  - B. CNIII
  - C. CNIV
  - D. CNVI
26. One of the following does not contain the reticular formation
- A. Midbrain
  - B. Pons
  - C. Medulla oblongata
  - D. Basal ganglia
27. Which cranial nerve traverses the jugular foramen
- A. CNVII
  - B. CNVIII
  - C. CNVI
  - D. CNIX
28. The following are commissures in the cerebral hemisphere
- A. Corpus callosum
  - B. Commissure of the fornix
  - C. Anterior commissure
  - D. Ventral commissure
29. Which nervous system structure is associated with feeding and satiety
- A. Hypothalamus

- B. Hippocampus
  - C. Cerebellum
  - D. Medulla
30. Primary motor cortex activity results in
- A. Bilateral contraction of antigravity limb muscles.
  - B. Bilateral contraction of limb musculature.
  - C. Contraction of ipsilateral limb musculature.
  - D. Contraction of contralateral limb musculature.
31. Which one of the following brain areas is supplied by branches of the subclavian arteries?
- A. The frontal lobe
  - B. The parietal lobe
  - C. The hypothalamus
  - D. The cerebellum
32. The following statements concerning the thalamus are correct except:
- A. It is the largest part of the diencephalons and serves as a relay station for sensory tracts
  - B. It is separated from the lentiform nucleus by the internal capsule
  - C. It lies inferior to the hypothalamus
  - D. It may be joined to the thalamus on the opposite side
33. Concerning the central sulcus of the cerebral hemisphere, select the incorrect statement:
- A. It is one of the two major sulci found on the lateral surface
  - B. It is also called the fissure of Sylvius
  - C. It separates the motor from the sensory area
  - D. It usually extends for some distance on the medial surface
34. A patient is admitted after a head injury and sinks rapidly into a coma. An MRI scan indicates an extradural haemorrhage because extravasated blood can be detected between the
- A. Skull bones and dura mater.
  - B. Dura mater and arachnoid.
  - C. Arachnoid and pia mater.
  - D. Pia mater and brain surface.
35. Emissary veins connect the intracranial venous sinuses to
- A. Veins draining the scalp.
  - B. Veins draining the eye.
  - C. The pterygoid venous plexus.
  - D. All of the above areas.
36. The basal ganglia comprise
- A. The caudate, putamen and globus pallidus
  - B. The amygdala, hippocampus and cingulate gyrus
  - C. The inferior and superior colliculi
  - D. The thalamus and hypothalamus

37. Cerebrospinal fluid circulates around the brain between the
- Skull and dura mater.
  - Dura mater and arachnoid mater.
  - Arachnoid and pia maters.
  - Pia mater and brain surface.
38. During examination at clinic, it was noted that the size of an infant's head was larger than normal expected for her age. Radiological examination indicated that there is obstruction of the medial foramen draining the fourth ventricle. What is the name of this foramen?
- Interventricular foramen
  - Foramen of Megendie
  - Foramen of Monro
  - Foramen of Luschka
39. What type of somatic receptor lies within tendons close to the point of attachment to muscles and is stimulated by increased muscular tension?
- Golgi tendon organ
  - Muscle spindle
  - Free nerve ending
  - Meissners corpuscle
40. The region on the retina that produces the sharpest vision is called the \_\_\_\_\_.
- Sclera
  - Aqueous humor
  - Fovea centralis
  - Optic disk
41. A sensory receptor capable of detecting changes in hydrogen ion concentration is more accurately described as a \_\_\_\_\_.
- Thermoreceptor
  - Pain receptor
  - Mechanoreceptor
  - Chemoreceptor
42. In comparison to the cones, the rods are more
- Concentrated in the fovea region
  - Sensitive to dim light
  - Important for colour vision
  - Sensitive to detail
43. The sensory receptors in your skin that are specialized to report information about changes in temperature are the
- Free nerve endings.
  - Hair follicle receptors.
  - Meissner's corpuscles.
  - Pacinian corpuscles.
44. Tiny bones called \_\_\_\_\_ transmit vibrations to the inner ear.

- A. Otoliths
  - B. Ventricles
  - C. Ossicles
  - D. Tympana
45. What kind of peripheral nerve fiber carries motor impulses outward to smooth muscles and glands of internal organs?
- A. General somatic efferent fibers
  - B. General visceral efferent fibers
  - C. General somatic afferent fibers
  - D. General visceral afferent fibers
46. The parasympathetic division of the autonomic nervous system is characterized by each of these except which one?
- A. Preganglionic fibers arise from the thoracic and lumbar regions of the spinal cord.
  - B. Terminal ganglia are located close to effector organs.
  - C. Preganglionic fibers are myelinated; postganglionic fibers are not.
  - D. Parasympathetic postganglionic fibers secrete acetylcholine.
47. Which structures would not be innervated by the sympathetic nervous system?
- A. Skeletal muscle
  - B. Glands
  - C. Smooth muscle
  - D. Cardiac muscle
48. Why is the adrenal gland unique in its autonomic innervation?
- A. It is innervated by parasympathetic cholinergic preganglionic neurons.
  - B. The postganglionic neurons are cholinergic rather than noradrenergic despite being part of the sympathetic nervous system.
  - C. The post-synaptic response is mediated via muscarinic acetylcholine receptors.
  - D. It is directly innervated by the spinal cord without passing through ganglia.
49. A bundle of axons in the PNS is called a
- A. Tract.
  - B. Nerve
  - C. Nucleus
  - D. Ganglion
50. Somatic motor neurons have axons that conduct signals from the CNS to \_\_\_\_; and are usually under \_\_\_\_ control.
- A. Skeletal muscle; involuntary
  - B. Hollow organs; voluntary
  - C. Hollow organs; involuntary

D. Skeletal muscle; voluntary

## **SECTION B: SHORT ANSWER QUESTIONS (50 MARKS)**

### **QUESTION ONE**

- a) Identify five arteries that supply blood to the scalp and face. (5 marks)
- b) Outline the anatomical classification of neurons. State a distinguishing feature of each class. (3 marks)
- c) Name the glial cells of the peripheral nervous system and indicate their role (2 marks)

### **QUESTION TWO**

Name the 5 segments of the vertebral column. Indicate the number of vertebrae in each section and state a distinguishing feature of the vertebrae in each section (10 marks)

### **QUESTION THREE**

- a) Describe 3 sources of arterial blood supply to the spinal cord. (3 marks)
- b) Illustrate the formation of a spinal nerve. (3 marks)
- c) For any 4 cranial nerves, identify the site of attachment to the brainstem and state one role for the nerve. (4 marks)

### **QUESTION FOUR**

- a) Locate 5 primary functional areas of the cerebral hemisphere and state the function they mediate. (5 marks)
- b) Outline the production of cerebrospinal fluid, the course it follows to the subarachnoid space and the sites of drainage. (5 marks)

### **QUESTION FIVE**

- a) Outline key stations in the visual sensory pathway from the receptor to the primary functional area in the cortex. (5 marks)
- b) Outline key stations in the path of an upper motor neuron to the lumbar spinal cord. (5 marks)