

# GREAT ZIMBABWE UNIVERSITY



SIMON MAZORODZE SCHOOL OF MEDICAL AND HEALTH SCIENCES

DEPARTMENT OF BIOMEDICAL SCIENCES: ANATOMY

BACHELOR OF SCIENCE/BACHELOR OF SCIENCE HONOURS DEGREE IN  
BIOMEDICAL SCIENCES

LEVEL 2 SEMESTER 2

SUPPLEMENTARY PROFESSIONAL EXAMINATION

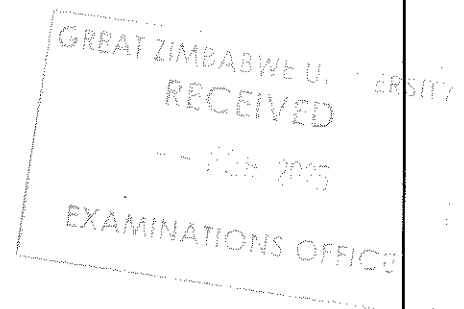
MODULE CODE: BMS103  
MODULE NARRATION: ANATOMY  
DATE: November 2024  
DURATION: 3 HOURS

INSTRUCTION TO CANDIDATES:

Answer all questions

A correct answer is +1 mark and a wrong answer is -1 mark

Clearly state True (T) or False (F)



**1. Regarding the osteology of the upper limb:**

- ....a) the clavicle articulates with the sternum through a secondary cartilaginous joint.
- ....b) the head of the humerus forms two thirds of a sphere.
- ....c) the wrist joint is a synovial ellipsoid joint.
- ....d) the ulnar bone is broader above than below.
- ....e) winging of the scapular results from damage of the thoracodorsal nerve.

**2. The pectoralis major:**

- ....a) originates from the clavicle, sternum, ribs and external oblique fascia.
- ....b) is inserted into the medial lip of the bicipital groove.
- ....c) its clavicular fibres are strong flexors of shoulder joint.
- ....d) it adducts and internally rotates the humerus
- ....e) it is supplied by the medial and lateral pectoral nerves.

**3. Regarding the biceps brachii muscle:**

- ....a) the long head originates from the supraglenoid tubercle.
- ....b) the short head originates from the coracoid process.
- ....c) its tendon inserts on the radial tuberosity.
- ....d) it flexes the elbow joint.
- ....e) it is a powerful supinator of the forearm.

**4. Regarding the cubital fossa:**

- ....a) the brachioradialis muscle forms the lateral border.
- ....b) it is a triangular shaped depression.
- ....c) the floor has brachialis and supinator muscles.
- ....d) the median nerve lies lateral to the brachial artery.
- ....e) the tendon of the biceps is lateral to the radial nerve.

**5. The median nerve supplies the following muscles:**

- ....a) flexor carpi ulnaris.
- ....b) flexor carpi radialis.
- ....c) flexor digitorum superficialis.
- ....d) medial half of flexor digitorum profundus.
- ....e) pronator teres.

**6. The following are branches of the radial artery:**

- ....a) radial recurrent artery.
- ....b) common interosseous artery.
- ....c) palmar carpal artery.
- ....d) dorsal carpal artery.
- ....e) deep palmar arch artery.

**7. The following structures pass superficial to the flexor retinaculum:**

- ....a) palmar cutaneous branches of the median and ulnar nerves.
- ....b) palmaris longus tendon.
- ....c) flexor digitorum superficialis.
- ....d) flexor pollicis longus.
- ....e) ulnar artery and nerve.

**8. The distal end of the radius bone:**

- ....a) has a lateral styloid process.
- ....b) has a medial ulnar notch.
- ....c) articulates with the scaphoid and lunate bones.
- ....d) has a posteromedial groove for tendon of extensor carpi radialis muscle.
- ....e) is prone to fracture with falls when hand is outstretched.

**9. Basilic vein:**

- .....a) is a large superficial vein of the upper limb.
- .....b) is on the lateral side of forearm.
- .....c) is easily visible as it is in the subcutaneous tissue.
- .....d) pierces the brachial fascia in middle third of arm.
- .....e) joins the brachial veins to form the axillary vein.

**10. The distal row of carpal bones consists of the:**

- .....a) capitate.
- .....b) trapezoid.
- .....c) trapezium.
- .....d) pisiform.
- .....e) triquetral.

**11. The thoracic duct:**

- .....a) commences at the T10 level.
- .....b) enters the point of confluence of the left internal jugular and axillary vein.
- .....c) receives left jugular lymph trunks.
- .....d) receives lymph from right thoracic wall.
- .....e) passes in front of the oesophagus.

**12. Regarding the intercostal nerves:**

- .....a) the 7<sup>th</sup> intercostal nerve is typical.
- .....b) they end as anterior cutaneous nerves.
- .....c) the 2<sup>nd</sup> supplies skin of axilla (lateral branch).
- .....d) they communicate with sympathetic trunk through rami communicantes.
- .....e) they are located below the intercostal arteries.

**13. Regarding the arch of the aorta:**

- .....a) it is located in the superior mediastinum.
- .....b) it is located below the brachiocephalic vein.
- .....c) it is connected to the pulmonary trunk by the ligamentum arteriosum.
- .....d) it arches over the left main bronchus.
- .....e) the right recurrent laryngeal nerve hooks around it.

**14. Concerning the lungs:**

- .....a) visceral pleura is sensitive to pain.
- .....b) bronchial arteries are branches of ascending aorta.
- .....c) the vagus nerve provides parasympathetic innervation to it.
- .....d) the serratus posterior superior and inferior are accessory muscles of respiration.
- .....e) parietal and visceral pleura are continuous at the hilum of the lung.

**15. The following structures are found within the superior mediastinum:**

- .....a) trachea.
- .....b) thymus.
- .....c) oesophagus.
- .....d) left brachiocephalic vein.
- .....e) vagus nerve.

**16. Regarding the right ventricle:**

- .....a) it has three papillary muscles.
- .....b) it has a moderator band.
- .....c) it has a pectinate muscle, anteriorly.
- .....d) it is approximately 3 to 5mm thick.
- .....e) its infundibulum has smooth walls.

**17. Regarding right main pulmonary bronchus:**

- .....a) it is wider than the left.
- .....b) it is longer than the left.
- .....c) it is more vertical than the left.
- .....d) it gives off the right superior lobe bronchus before entering the hilum
- .....e) it is easily blocked by an aspirated foreign body.

**18. The thoracic sympathetic trunk:**

- .....a) enters the behind lateral arcuate ligament.
- .....b) gives off the greater splanchnic nerve from 3<sup>rd</sup> to 7<sup>th</sup> cervical ganglia.
- .....c) its 1<sup>st</sup> thoracic ganglion fuses with the inferior cervical ganglion.
- .....d) crosses 1<sup>st</sup> rib lateral to the superior intercostal artery.
- .....e) gives fibres to the oesophageal plexus.

**19. The inferior gluteal nerve:**

- .....a) exits the pelvis through the greater sciatic foramen.
- .....b) innervates the gluteus maximus.
- .....c) innervates the gluteus medius.
- .....d) is solely motor.
- .....e) has L5, S1 and S2 as its nerve roots of origin.

**20. The femoral triangle:**

- .....a) has the inguinal ligament as a superior border.
- .....b) has sartorius muscle as a medial border.
- .....c) contains the femoral nerve most laterally.
- .....d) contains no branches of the femoral artery.
- .....e) has no relation to the adductor longus muscle.

**21. The adductor canal:**

- .....a) transmits nerve to the vastus lateralis muscle.
- .....b) begins at the apex of the femoral triangle.
- .....c) ends at the adductor hiatus.
- .....d) contains no blood vessels.
- .....e) contains the saphenous nerve.

**22. Regarding the patella:**

- .....a) it is a sesamoid bone.
- .....b) it is triangular in shape.
- .....c) it has a rough posterior surface..
- .....d) it protects the knee.
- .....e) it provides additional leverage to muscles during knee extension and flexion.

**23. Regarding the knee joint:**

- .....a) it is a synovial hinge joint.
- .....b) only flexion and extension occur at this joint.
- .....c) it has one meniscus.
- .....d) the suprapatellar bursa is its largest bursa.
- .....e) its main blood supply is from the genicular anastomoses around it.

**24. The soleus muscle:**

- .....a) arises from the condyles of the femur.
- .....b) is superficial to the gastrocnemius muscle.
- .....c) is innervated by the superficial peroneal nerve.
- .....d) assists in flexing the knee.
- .....e) is an important plantar flexor of the foot.

**25. The iliofemoral ligament:**

- .....a) is attached to the anterior inferior iliac spine.
- .....b) is also attached to the rim of the acetabulum.
- .....c) is attached to the intertrochanteric line inferiorly.
- .....d) its shape is in the form of an inverted Y.
- .....e) it strongly resists hip flexion.

**26. The deep fascia of the gluteal region:**

- .....a) is continuous with the fascia lata of the thigh.
- .....b) blends with the iliotibial band.
- .....c) is thin over the gluteus maximus.
- .....d) has no attachment to the sacrotuberous ligament
- .....e) is thicker over the anterior two-thirds of the gluteus medius.

**27. Regarding the rectum:**

- .....a) it commences in front of the 1st sacral vertebra.
- .....b) its posterior surface is retroperitoneal.
- .....c) it measures 12-15 cms.
- .....d) it lies posterior to the seminal vesicles and prostate in males.
- .....e) it lies posterior to the cervix in females.

**28. The following are contents of the urogenital triangle:**

- .....a) urethra.
- .....b) scrotum.
- .....c) vulva.
- .....d) anus.
- .....e) penis.

**29. Vessels of the pelvis and perineum:**

- .....a) the superior rectal artery is the terminal branch of the inferior mesenteric artery.
- .....b) the external iliac vessels form a superior boundary of the ovarian fossa.
- .....c) the uterine artery supplies the vagina.
- .....d) the middle rectal artery supplies the prostate.
- .....e) the superficial inguinal lymph nodes drain the perineum.

**30. Concerning the urinary bladder:**

- .....a) it stores more urine in women.
- .....b) an empty bladder is pyramidal in shape.
- .....c) blood supply is from superior and inferior vesical arteries.
- .....d) lymph drainage is into the internal and external iliac nodes.
- .....e) untreated benign prostatic hypertrophy results in urine retention in males.

**31. Concerning the deep perineal pouch:**

- .....a) the inferior portion of obturator internus fascia forms the lateral boundary.
- .....b) the external urethral sphincter is found here.
- .....c) the perineal membrane forms its inferior boundary.
- .....d) it contains the deep transverse perineal muscle.
- .....e) it contains the vagina.

**32. Regarding the stomach:**

- .....a) it is an intraperitoneal organ.
- .....b) it is posteriorly related to the pancreas.
- .....c) its blood supply is from the celiac trunk.
- .....d) its sympathetic nerve supply arises from T6 to T9 segments.
- .....e) it is prone to hiatus hernias.

**33. With respect to the testicle:**

- .....a) the tunica albuginea overlies the tunica vaginalis.
- .....b) the head of the epididymis is attached to the lower pole of the testis.
- .....c) the appendix testis is attached to the upper pole of the testicle.
- .....d) scrotal lymph drains to superficial inguinal nodes.
- .....e) torsion of the testis causes severe pain.

**34. Concerning the kidneys:**

- .....a) the left renal vein receives blood from the gonadal and suprarenal veins.
- .....b) they are retroperitoneal organs.
- .....c) they extend from T12 to L3.
- .....d) the arrangement of structures at the hilum of the kidney is fixed.
- .....e) accessory renal arteries are not encountered.

**35. Concerning the porta hepatis:**

- .....a) it has the caudate lobe anterior and quadrate lobe posterior.
- .....b) the portal vein lies posterior to the hepatic artery.
- .....c) the hepatic artery lies anterior and lateral to the hepatic duct.
- .....d) it allows the hepatic artery and portal vein to enter the liver.
- .....e) blockage results in jaundice.

**36. Concerning the anterior abdominal wall:**

- .....a) cutaneous nerves are from anterior rami of lower 6 thoracic nerves and the first lumbar nerves.
- .....b) internal oblique muscle fibres run down and backward.
- .....c) the arcuate line marks entry of superior epigastric artery into rectus sheath.
- .....d) lymph vessels above the umbilicus drain into anterior axillary lymph nodes.
- .....e) below arcuate line, posterior rectus sheath wall is formed by the transversalis fascia only.

**37. Regarding the gall bladder:**

- .....a) it is a pear shaped sac.
- .....b) it can distend to 500mls.
- .....c) its blood supply is from the cystic artery.
- .....d) it stores and releases bile.
- .....e) it develops gallstones which cause inflammation and pain.

**38. The following are branches of the celiac trunk:**

- .....a) left gastric artery.
- .....b) left colic artery.
- .....c) splenic artery.
- .....d) common hepatic artery.
- .....e) gastroduodenal artery.

**39. Structures lying behind the pancreas include:**

- .....a) the lesser sac.
- .....b) the inferior vena cava
- .....c) aorta.
- .....d) the portal vein
- .....e) the splenic vein

**40. Regarding the parotid gland:**

- .....a) it is the largest salivary glands in humans.
- .....b) it is a serous gland.
- .....c) it is a well organised, regular gland, clearly divided into lobes.
- .....d) it drains into the parotid duct on its posteromedial surface.
- .....e) mumps causes it to enlarge on both sides.

**41. The nasal septum consists of:**

- .....a) the maxilla.
- .....b) the vomer.
- .....c) ethmoid bone.
- .....d) the triangular cartilage.
- .....e) palatine bone

**42. The digastric triangle contains the following:**

- .....a) submandibular salivary gland.
- .....b) parotid gland.
- .....c) facial artery and vein.
- .....d) lingual artery and vein.
- .....e) hypoglossal nerve.

**43. Sensory innervation of the ear's auricle includes:**

- .....a) auriculotemporal nerve.
- .....b) great auricular nerve.
- .....c) facial nerve.
- .....d) auricular branch of the vagus nerve.
- .....e) glossopharyngeal nerve.

**44. The following muscles depress the mandible:**

- .....a) medial pterygoid.
- .....b) inferior head of lateral pterygoid.
- .....c) mylohyoid.
- .....d) temporalis.
- .....e) anterior digastric.

**45. The ophthalmic artery:**

- .....a) is a major source of blood supply to the orbit.
- .....b) enters orbit through superior orbital fissure.
- .....c) does not penetrate the meninges of the optic nerve.
- .....d) forms anastomoses with external carotid artery and internal carotid artery.
- .....e) is an end artery.

**46. The following muscles abduct the vocal folds:**

- .....a) cricothyroid.
- .....b) oblique arytenoid.
- .....c) posterior cricoarytenoid.
- .....d) lateral cricoarytenoid.
- .....e) thyroepiglottic.

**47. With regard to the retina:**

- .....a) the retina is light sensitive everywhere except at the corneal area.
- .....b) the optic disc is completely free of blood vessels.
- .....c) the optic disc and fovea are of similar size.
- .....d) the fovea contains a high concentration of rods.
- .....e) blindness occurs in retinal detachment.

**48. Concerning the meninges:**

- .....a) they are 3 of them.
- .....b) the pia matter is adherent to the surface of the central nervous system.
- .....c) the filum terminale is formed by the pia matter.
- .....d) cerebrospinal fluid is found in the subarachnoid space.
- .....e) a bleed in the subarachnoid space is called a subdural haemorrhage.

**49. Cerebrospinal fluid:**

- .....a) is normally clear and colourless.
- .....b) has more than five lymphocytes per millilitre (ml).
- .....c) has a specific gravity of 1.067.
- .....d) has a total volume of about 700mls produced over 24hours.
- .....e) is cloudy in bacterial meningitis.

**50. The prefrontal cortex is connected to the following:**

- .....a) hippocampus.
- .....b) amygdala.
- .....c) hypothalamus.
- .....d) midbrain.
- .....e) posterior association cortex.

**51. The following nuclei are found in the suprachiasmatic zone of the hypothalamus:**

- .....a) posterior hypothalamus.
- .....b) arcuate.
- .....c) paraventricular.
- .....d) suprachiasmatic.
- .....e) medial preoptic

**52. The following arteries are part of the circle of Willis:**

- .....a) anterior cerebral.
- .....b) anterior communicating.
- .....c) anterior choroidal.
- .....d) posterior cerebral.
- .....e) vertebral artery.

**53. Damage to the midbrain can result in the following:**

- .....a) an upward gaze paralysis.
- .....b) eyes turned down and medially.
- .....c) ptosis.
- .....d) constricted pupils.
- .....e) hydrocephalus.

**54. Concerning cranial nerves:**

- .....a) CN III exits the brain through the interpeduncular fossa.
- .....b) CN V starts in the pons.
- .....c) CN VII hooks around CNVI.
- .....d) CN IX exits the brainstem via the anterolateral sulcus of the medulla oblongata.
- .....e) CN X and XI are briefly joined in the cranium.

**55. Concerning the cerebellum:**

- .....a) each hemisphere influences muscular activity of the same side of the body.
- .....b) it has three functional zones.
- .....c) the hemispheres are connected to the dentate gyrus.
- .....d) the vermis is connected to the emboliform and globose nuclei.
- .....e) the flocculonodular lobe is connected to the fastigial nucleus.

**56. The following tracts are found in the ventral white column of the spinal cord:**

- .....a) vestibulospinal.
- .....b) tectospinal.
- .....c) rubrospinal.
- .....d) reticulospinal.
- .....e) dorsal spinocerebellar.

**57. Blockage of cerebrospinal fluid flow occurs at the following sites:**

- .....a) interventricular foramen of Monro.
- .....b) cerebral aqueduct of Sylvius.
- .....c) foramen of Megendie.
- .....d) foramina of Luschka.
- .....e) superior sagittal sinus.

**58. The following can occur in Spina Bifida:**

- .....a) stool incontinence.
- .....b) urine incontinence.
- .....c) weakness of lower limbs.
- .....d) brisk reflexes.
- .....e) presence of a birth mark or cyst in the lower back area.

**59. Concerning the development of the liver:**

- .....a) it develops from the hepatic diverticulum.
- .....b) development starts during the 4<sup>th</sup> week.
- .....c) haematopoiesis begins during the 6<sup>th</sup> week.
- .....d) bile formation by hepatic cells begins during the 12<sup>th</sup> week.
- .....e) biliary atresia is common.

**60. The events of the third week of embryonic development include:**

- .....a) development of the notochord.
- .....b) gastrulation.
- .....c) development of the primitive streak.
- .....d) development of the neural tube.
- .....e) implantation.

**61. The following bones develop through membranous ossification:**

- .....a) body of ethmoid.
- .....b) body of sphenoid.
- .....c) lesser wing of sphenoid.
- .....d) greater wing of sphenoid.
- .....e) petrous part of temporal bone.

**62. Concerning the development of limbs:**

- .....a) it is mesodermal in origin.
- .....b) the upper limb buds appear on day 26.
- .....c) the lower limb buds appear on day 28.
- .....d) limb muscles are derivatives of the paraxial mesoderm.
- .....e) malformations lead to diseases like muscular dystrophy.

**63. The following embryonic vessels carry purely oxygenated blood:**

- .....a) ductus venosus
- .....b) umbilical arteries.
- .....c) dorsal aortae.
- .....d) vitelline veins.
- .....e) umbilical veins.

**64. Concerning the development of the urinary system:**

- .....a) kidneys attain adult position by the 9<sup>th</sup> week.
- .....b) the bladder develops from the urogenital sinus.
- .....c) the glans penis urethra develops from endoderm.
- .....d) the metanephric system starts functioning by the 9<sup>th</sup> week.
- .....e) a urachal sinus can cause recurrent urinary tract infections.

**65. Concerning the development of the respiratory system:**

- .....a) it starts around the 4<sup>th</sup> week.
- .....b) visceral pleura develops from splanchnic mesenchyme.
- .....c) in the canalicular stage, lung tissue is highly vascular.
- .....d) endoderm gives rise to cartilage of the trachea.
- .....e) mesoderm of the laryngotracheal diverticulum gives rise to epithelium and glands.

**66. Concerning continuous capillaries:**

- .....a) they have the largest intercellular clefts.
- .....b) they are typically found in endocrine glands.
- .....c) tight junctions join their endothelial cells.
- .....d) they are typically found in the liver.
- .....e) they have pericytes enclosed by the endothelial basal membrane.

**67. The following cells are differentiated monocytes:**

- .....a) microglia.
- .....b) osteoblast.
- .....c) goblet cell.
- .....d) Kupffer cell.
- .....e) macrophages.

**68. Concerning the hypophyseal portal system:**

- .....a) the capillary network branches from superior hypophyseal artery to infiltrate pituitary gland.
- .....b) its capillaries are narrow and continuous.
- .....c) secondary capillary plexus supplies adenohypophysis.
- .....d) the primary capillary plexus is located in the median eminence.
- .....e) it transports neurohormones from the hypothalamus to the neurohypophysis.

**69. Concerning the gastric mucosa:**

- .....a) gastric pits form its microrelief.
- .....b) it has a simple columnar epithelium.
- .....c) it possesses its own nerve plexus.
- .....d) its lamina propria contains simple tubular glands.
- .....e) its muscularis mucosae consists of four muscle layers.

**70. Concerning the bile canaliculi:**

- .....a) they are hepatocyte intercellular gaps.
- .....b) they drain bile into intra and interlobular ducts.
- .....c) they have their own walls.
- .....d) hepatocyte microvilli project into their lumen.
- .....e) there are isolated from the intercellular compartment by tight junctions.

**71. Concerning the bronchus:**

- .....a) it contains small plates of elastic cartilage.
- .....b) it lacks submucosa glands.
- .....c) it is lined by pseudostratified ciliated columnar epithelium.
- .....d) the mucosa forms large folds.
- .....e) it possesses a well-developed muscularis mucosae.

**72. Regarding Pacinian corpuscles (Vater-Pacini's corpuscles):**

- .....a) they are sensitive to pressure.
- .....b) they are sensitive to high temperature.
- .....c) they are deeply placed within the skin.
- .....d) they are more numerous and tightly grouped in the hands and feet.
- .....e) they are fluid-filled encapsulated structures.

**73. Concerning the renal corpuscle:**

- .....a) it has a double-layered renal capsule.
- .....b) the capsular parietal layer consists of flat cells and surrounds the capsular space.
- .....c) the capsular visceral layer consists of podocytes surrounding the capillary glomerulus.
- .....d) the glomerulus has a continuous type of capillaries.
- .....e) the corpuscle's vascular pole is where afferent and efferent arterioles penetrate the renal capsule.

**74. Concerning spermatogenesis:**

- .....a) stem cells divide into two daughter cells.
- .....b) stem cells undergo meiotic divisions.
- .....c) one daughter cell undergoes mitosis.
- .....d) daughter cells are connected by cytoplasmic bridges.
- .....e) failure of cytoplasmic bridges to form results in formation of symplasts.

**75. Concerning the vagina:**

- .....a) it is less than 7.5cm in length when abnormally small.
- .....b) it is lined by nonkeratinized stratified squamous epithelium.
- .....c) it is lubricated by glands in the submucosa.
- .....d) the muscularis mucosa has inner longitudinal and outer circular muscle bundles.
- .....e) its adventitia has an inner dense irregular connective tissue with elastic fibres.