KISII UNIVERSITY

UNIVERSITY EXAMINATIONS

END OF SECOND YEAR EXAMINATION FOR THE AWARD OF THE DEGREE OF BACHELOR OF MEDICINE AND SURGERY (MBCHB)
ACADEMIC YEAR 2021/2022

MEDS 210: HUMAN ANATOMY II

PAPER 1: MULTIPLE CHOICE QUESTIONS

STREAM: Y2S1 **TIME: 3 HOURS**

DAY: FRIDAY, 9:00 – 12:00 PM **DATE: 09/09/2022**

INSTRUCTIONS

1. ***Do not write anything on this question paper.***
2. ***Answer all questions***
3. ***Choose the most correct response***

1. The spleen:

a) has a lower pole which normally projects forward to the anterior axillary line
b) lies between the 8th and 10th ribs
c) has a long axis lying in the line of the 9th rib
d) as it enlarges, glides in contact with the anterior abdominal wall in front of the splenic flexure of the colon
e) when palpable on abdominal examination, is identified by being resonant to percussion

2. Which is the most common site for the appendix found at appendicectomy?

a) retro-ileal
b) reto-caecal
c) pelvic
d) anterior to terminal ileum
e) below terminal ileum overlying psoas

3. With regard to the duodenum, which is NOT true?

a) the duodenal cap has plicae circulares which are often evident on x-ray
b) the third part may be compressed by the superior mesenteric artery
c) the second part lies at level of 2nd lumbar vertebra in cadavers
d) the duodenal cap lies upon bile duct, hepatic artery and portal vein
e) the accessory pancreatic duct opens into it proximal to the ampulla of Vater

4. The ejaculatory ducts:

a) are formed by the union of the prostatic ducts and the ducts of the seminal vesicle
b) lie on the superior surface of the bladder
c) open into the membranous urethra
d) contract with parasympathetic stimulation
e) have none of the above properties

5. The transversalis fascia contributes to which of the following structures on the anterior abdominal wall?

a) superficial inguinal ring
b) deep inguinal ring
c) inguinal ligament
d) sac of an indirect inguinal hernia
e) anterior wall of the inguinal canal

6. With regard to the usual vasculature of the abdomen, which is NOT true?

a) the splenic vein mainly drains into the inferior vena cava
b) the portal vein drains nearly all of the gastrointestinal tract and unpaired abdominal glands except liver
c) the left gastroepiploic artery and the short gastric arteries are branches of the splenic artery
d) the right gastric artery is a branch of the hepatic artery
e) the right gastroepiploic artery is a branch of the common hepatic artery

7. Which is NOT related to the kidneys as indicated:

a) the pleura posteriorly
b) the second part of the duodenum, anterior to the right kidney
c) the tail of the pancreas, anterior to the left kidney
d) the peritoneum of the lesser sac, anterior to the left kidney
e) the splenic artery, anterior to the lower pole of the left kidney

8. With regard to the urethra in the young adult male, which is NOT true?

a) the prostatic urethra is narrower than the membranous urethra
b) it is approximately 20cm long
c) has a short dilated region just proximal to the external urethral meatus
d) it is horizontal in cross-section when empty
e) the bulbous part is part of the spongy urethra

9. A patient presents with a deep stab wound high up in the costovertebral angle beneath the 12th rib on theleft side. The most likely internal injury is?

a) laceration of the infra-renal aorta
b) laceration of the right renal vascular pedicle
c) puncture of the 3rd part of the duodenum
d) puncture of the 4th part of the duodenum
e) pneumothorax of the left lung

10. All of the following are true regarding the pancreas EXCEPT:

a) the neck and body of the pancreas lie anterior to the first lumbar vertebrae
b) the neck of the pancreas lies over the right and left renal veins at the level of L2 vertebra
c) the splenic artery supplies all of the pancreas
d) parasympathetic vagal fibres stimulate the exocrine secretion from the gland
e) the uncinate process drains via an accessory pancreatic duct into the duodenum

11. The testicular blood supply:

a) is mainly from the ductal artery
b) the right drains directly into the inferior vena cava
c) venous drainage does not have valves
d) a varicocoele is more common on the right than the left
e) none of the above

12. Regarding the anterior abdominal wall:

a) the arcuate lines lie midway between the symphysis pubis and umbilicus
b) between the umbilicus and the lateral margin transversus aponeurosis lies posterior the rectus
c) the inferior epigastric artery originates from the internal iliac
d) it gives support to the liver and spleen
e) the ilioinguinal nerve passes through the deep inguinal ring

13. TRUE regarding perineum:

a) the lymphatic drainage from the scrotum goes to para-aortic nodes
b) lymphatic drainage from the rectum passes to internal iliac nodes from the upper part and to superficialinguinal group from the lower part
c) superior rectal branches of the pudendal nerves supply the external and sphincter
d) the internal anal sphincter is composed of skeletal muscle
e) the anal canal consists of inner circular muscle fibres and outer longitudinal fibres

14. Within the anal canal are anal cushions are located at which of the following positions

a) 3, 7 and 11 o'clock
b) 2, 6, and 10 o'clock
c) 3, 6 and 11 o'clock
d) 1, 7 and 12 o'clock
e) 1, 7 and 9 o'clock

15. Contents of the spermatic cord include all of the following EXCEPT

a) Ductus deferens
b) Testicular artery
c) Pampiniform plexus
d) Ilioinguinal nerve
e) Genital branch of the genitofemoral nerve

16. Lymph drainage of the testes are to

a) The deep inguinal nodes
b) The mediastinal nodes
c) The para-aortic nodes
d) The pectoral group of axillary nodes
e) The external iliac nodes

17.The oesophageal opening in the diaphragm transmits all except:

a) Vagal nerve trunk
b) Oesophageal branches of gastric artery
c) Lymphatics
d) Right phrenic nerve
e) Veins – oesophageal branches of gastric veins

18. Regarding the descending part of the thoracic aorta

a) It is a component of the middle mediastinum
b) It begins at the level of T3 vertebra
c) It passes through the diaphragm behind the lateral arcuate ligament
d) It begins at the beginning of the arch of the aorta
e) It passes to the abdomen at the level of T12

19. In the chest wall

a) The intercostal artery is more superficial than the vein
b) The intercostal artery lies between the intercostal nerve and vein
c) The transverses muscle lies between the external and internal intercostals
d) The neurovascular bundle lies between the external and internal intercostals
e) All of the above

20. The diaphragm

a) Has the oesophageal opening opposite T8 vertebra
b) Is supplied by the 5th, 6th and 7th cervical nerve roots
c) Has a major role in expiration
d) Has a vena caval foramen opposite T10 vertebra
e) Has an aortic opening opposite T12 vertebra

21. Phrenic nerve supplies the sensation to all but

a) Diaphragm
b) Mediastinal pleura
c) Peritoneum
d) Left ventricle
e) Pericardium

22. The thoracic duct

a) Commences level with the body of T10
b) Enters the point of confluence of the left internal jugular and axillary vein
c) Receives the left jugular and subclavian lymph trunks
d) Receives lymph from the right thoracic wall
e) Passes in front of the oesophagus

23. The major arterial supply to the interventricular septum originates from the

a) Circumflex artery
b) Marginal artery
c) Posterior descending
d) Anterior descending
e) Conus artery

24. The posterior mediastinum contains all but which of the following?

a) thoracic aorta
b) oesophagus
c) accessory hemiazygous vein
d) the azygous vein
e) the sympathetic trunks

25. The middle meningeal artery is a branch of the:

a) internal carotid artery
b) middle cerebral artery
c) maxillary artery
d) deep temporal artery
e) facial artery

26. The parotid gland:

a) is the largest of the major salivary glands
b) is a mainly mucons gland
c) is a well organised, regular gland, clearly divided into lobes
d) drains into the parotid duct on its posteromedial surface
e) extends from the zygomatic arch to the lower level of the earlobe

27. The facial nerve:

a) marginal mandibular branch supplies muscles of the upper and lower lips
b) emerges through the stylomastoid foramen
c) has four main branches that exit the parotid gland
d) supplies the anterior belly of digastric
e) divides into temporofacial and cervicofacial divisions just after it enters the parotid gland

28. The oculomotor nerve:

a) does not enter the cavernous sinus
b) supplies the ciliary muscle
c) emerges from the pons
d) contains sympathetic fibres from the Edinger-Westphal nucleus
e) does not pass through the tendinous ring

29. Which is NOT a content of the posterior triangle of the neck?

a) subclavian artery
b) lymph nodes
c) transverse cervical vein
d) omohyoid muscle
e) sternocleidomastoid muscle

30. Regarding the cervical spine:

a) all seven cervical vertebrae have spinous processes
b) rotatory movements of the head occur mostly at the atlanto-occipital joints
c) the odontoid process (peg) is encased by a bony canal in the axis
d) all seven cervical vertebrae have foramina transversaria for the vertebral artery to pass through it
e) spinous processes, where present, are all bifid except for C7

31. the septum of the nasal cavity is innervated by

a) nasopalatine nerve from cranial nerve V2
b) posterior ethmoidal nerve from V1
c) greater palatine nerve from V2
d) lesser palatine nerve from V2
e) none of the above

32. What runs through the foramen spinosum?

a) Internal carotid artery
b) Maxillary branch of the trigeminal nerve
c) Mandibular branch of the trigeminal nerve
d) Middle meningeal artery
e) Meningeal nerve

33. One of the following is not derived from the neural crest:

a) Dorsal root ganglia.
b) Suprarenal cortex.
c) Geniculate ganglion of the facial nerve.
d) Gracile tract.
e) Sympathetic chain.

34. These cranial nerve nuclei are present in the floor of the 4th ventricle EXCEPT:

a. Abducent nucleus.
b. Facial nucleus in the facial colliculus.
c. Dorsal motor nucleus of the vagus.
d. Hypoglossal nucleus.
e. Vestibular nuclei.

35. Regarding the cerebellar arteries, one of the following is INCORRECT:

a. The superior cerebellar artery supplies the superior cerebellar peduncle.
b. The anterior inferior cerebellar artery supplies the middle cerebellar peduncle.
c. The posterior inferior cerebellar artery supplies the inferior cerebellar peduncle.
d. The anterior inferior cerebellar artery is a branch of the vertebral artery.
e. The posterior inferior cerebellar artery may give the posterior spinal artery.

36. The primary fissure of the cerebellum separates the:

a. Superior surface from the inferior surface.
b. Anterior lobe from the posterior lobe.
c. Posterior lobe from the flocculonodular lobe.
d. Paleocerebellum from the neocerebellum.
e. None of the above.

37. The medulla is supplied by all of the following EXCEPT:

a. Anterior spinal artery.
b. Posterior spinal artery.
c. Anterior inferior cerebellar artery.
d. Posterior inferior cerebellar artery.

e. Branches from the vertebral artery.

38. The medulla contains all the following features EXCEPT:

a. Hypoglossal trigone.
b. Clava.
c. Area postrema.
d. Facial colliculus.
e. Pyramidal decussation.

39. The most common site of fracture of the clavicle is:

a. Medial end.
b. Lateral end.
c. Midpoint of the clavicle.
d. Junction of the medial two-thirds and the lateral third.
e. Junction of the lateral two-thirds and the medial third.

40. The surgical neck of the humerus is related to the:

a. Radial nerve.
b. Axillary nerve.
c. Ulnar nerve.
d. Median nerve.
e. None of the above.

41. Paralysis of the serratus anterior muscle causes:

a. Winging of the scapula.
b. Claw hand.
c. Ape hand.
d. Wrist drop.
e. Policeman's tip position.

42. The root value of the long thoracic nerve is:

a. C5.
b. C6.
c. C7.
d. C5, 6 & 7
e. C5, 6, 7 & 8

43. Lymphatics from the nipple and areola drain into the:

a. Pectoral group of the axillary lymph nodes.
b. Subscapular group of the axillary lymph nodes.
c. Central group of the axillary lymph nodes.
d. Apical group of the axillary lymph nodes.
e. Parasternal lymph nodes.

44. Triangle of auscultation is associated with all of the following EXCEPT:

a. Latissimus dorsi.
b. Teres major.
c. Rhomboid major.
d. Trapezius.
e. Medial border of the scapula.

45. Tibialis anterior:

a) is supplied by the tibial nerve
b) inserts into the second metatarsal bone
c) is pierced by the posterior tibial artery
d) tendon perforates the superior extensor retinaculum
e) does not arise from the interosseous membrane

46. The great saphenous vein:

a) joins the femoral vein above the inguinal ligament
b) begins as the upward continuation of the lateral marginal vein of the foot
c) travels with the saphenous nerve along its course
d) runs behind the medial malleolus
e) enters the femoral vein on its anteromedial side

47. Regarding the popliteal vessels:

a) the tibial nerve lies between the popliteal artery and vein
b) the sural arteries supply soleus
c) the middle genicular artery supplies the cruciate ligaments
d) lymph nodes lie alongside the popliteal artery
e) the popliteal artery enters the fossa on the lateral side of the femur

48. Regarding nerve supply of the lower limb:

a) superficial peroneal nerve supplies the muscles in the anterior compartment of the leg
b) the cruciate ligaments are supplied by the tibial nerve
c) the obturator nerve supplies obturator internus muscle
d) the sciatic nerve does not make contact with bone
e) the tibial part of the sciatic nerve is the sole supply to muscles in the hamstring compartment

49. Slipped upper femoral epiphysis:

a) is more common in girls than boys
b) usually occurs in the 5-8 year age group
c) may present as referred pain in the knee
d) the limb may be internally rotated and shortened
e) can be treated conservatively

50. At the ankle:

a) the capsule is attached to the posterior tibiofibular ligament
b) the deltoid ligament has three parts
c) the joint is a simple hinge joint
d) the joint undergoes dorsiflexion, plantar flexion, inversion and eversion
e) nerve supply is deep and superficial peroneal nerves and tibial nerves

51. Aqueous humor drains from the eye by passing

a) Into the ciliary processes.
b) From the anterior chamber into the posterior chamber.
c) Through the canal of schlemm.
d) Into the vitreous body.
e) Through the pupil

52. Which of the following cells in the inner ear are involved in detecting movements of the head?

a) Hair cells in the maculae
b) Outer pillar cells
c) Inner pillar cells
d) Cells of Hensen
e) Hair cells in the organ of Corti

53. In the hypothalamus

a) The feeding center is in the medial zone
b) The medial zone is divided into an anterior, chiasmatic and posterior region
c) The median eminence is a circumventricular organ
d) The suprachiasmatic nucleus is involved in thermoregulation
e) The mammillothalamic tract begins in the tuberal region

54. ACTH is produced by which of the following cells?

a) Chromophobes in the pars distalis
b) Neurosecretory cells in the median eminence
c) Basophils in the pars distalis
d) Neurons of the paraventricular nucleus in the hypothalamus
e) Basophils in the pars intermedia

55. Characteristics of pinealocytes include which one of the following?

a) They produce melatonin.
b) They resemble astrocytes.
c) They contain calcified concretions of unknown function.
d) They act as postganglionic sympathetic cells.
e) They are unaffected by dark and light cycles

56. The histological appearance of a thyroid gland being stimulated by TSH would show which of the following?

a) Decreased numbers of follicular cells
b) Increased numbers of parafollicular cells
c) Column-shaped follicular cells
d) An abundance of colloid in the lumen of the follicle
e) Decreased numbers of parafollicular capillaries

57. The following is true of the olfactory epithelium

a) It is located in the inferior region of the nasal cavity.
b) It is classified as stratified columnar.
c) It has mucous glands in the submucosa.
d) It has modified cilia, which act as receptors for odor.
e) It is unable to regenerate

58. In the pharynx

a) Nasopharynx is lined by respiratory epithelium
b) Oropharynx is lined by respiratory epithelium
c) Laryngopharynx is lined by respiratory epithelium
d) A muscular layer is only present in the oropharynx
e) Lamina propria and submucosa are devoid of glands

59. Which type of epithelium is external at the vermillion border

a) Stratified squamous nonkeratinized.
b) Pseudostratified ciliated columnar.
c) Stratified squamous keratinized.
d) Stratified cuboidal.
e) Stratified columnar

60. In order for oxygen in the inspired air to reach hemoglobin, it must diffuse across all of the following structures except

a) Layer of surfactant
b) An endothelial cell
c) A Type I pneumocyte
d) One or more smooth muscle cells
e) The plasma membrane of the erythrocyte

61. The trachea possesses which one of the following components?

a) Irregular cartilage plates in its wall
b) Skeletal muscle in its wall
c) An epithelium containing only two cell types
d) A thick basement membrane underlying its epithelium
e) Bowman glands in its lamina propria

62. Which of the following is incorrectly matched?

a. Pneumocyte (alveolar cell) type I--cytoplasm through which gaseous exchange occurs
b. Pneumocyte type II--secretes pulmonary surfactant
c. Pneumocyte type II--stem cell for more pneumocyte types I & II
d. Pulmonary surfactant--increases surface tension within alveoli
e. Alveolar macrophage--removes inhaled particulates that reach the alveolus

63. In a section of lung tissue consisting predominantly of alveoli, a tubule about 2 mm in diameter is observed that contains smooth muscle and cartilage in its wall. The tubule is which one of the following?

a. Alveolar duct
b. Alveolar sac
c. Bronchiole
d. Bronchus
e. Trachea

64. In the circulation

a. Simple squamous endothelial cells are protein synthetic cells
b. Vascular smooth myocytes deposit extracellular matrix
c. Pericytes have mechanoceptor and stem cell roles
d. Arteriolar smooth myocyte contraction influences systemic blood pressure
e. All the above

65. Where are the coronary arteries located?

a. Epicardium
b. Pericardium
c. Myocardium
d. Endocardium
e. Endomysium

66. Which one of the following possesses a distinct internal elastic lamina?

a. Aorta
b. Brachiocephalic trunk
c. Great saphenous vein
d. Radial artery
e. Inferior vena cava

67. In the heart

a. Cardiac myocytes are perpendicular to the ventricular equator
b. Only intercellular attachments of myocytes prevent cardiac rupture
c. Cardiac myocytes may contain secretory granules
d. Lipid droplets are the primary storage form of energy

e. The epicardium contains a stratified epithelium

68. The small intestine has three histologically distinct regions. Which of the following statements concerning the histological differences in the three regions is true?

a. Peyer patches are present only in the ileum.
b. Goblet cells are present only in the epithelium of the duodenum.
c. Brunner glands are located in the duodenum and jejunum but not the ileum.
d. Lacteals are present only in the lamina propria of the ileum.
e. The muscularis mucosae contains three layers of smooth muscle in the ileum and two layers in the duodenum and jejunum.

69. In the large intestine

a. The longitudinal muscularis externa is present over the whole circumference
b. Microfold cells improve nutrient absorption by increasing surface area
c. The density of goblet cells remains constant from caecum to rectum
d. Neuroendocrine cells are absent
e. Appendices epiploicae are important in maintenance of the gut microbiome

70. Which of the following statements concerning liver sinusoids is true?

a. They are continuous with bile canaliculi.
b. They are surrounded by a well-developed basal lamina.
c. They are lined by nonfenestrated endothelial cells.
d. They deliver blood to the central vein.
e. They deliver blood to the portal vein.

71. In the production of saliva

a. Capsular smooth muscle contracts to increase saliva secretion
b. Only mixed seromucous glands are involved
c. Submucosal glands are not involved
d. Excretory ducts are involved in alkalinization
e. The parotid gland produces mucinous saliva

72. After maturation in the thymus and release into the circulation, T lymphocytes migrate preferentially to which of the following sites?

a. Paracortex of lymph nodes
b. Cortical lymphoid nodules of lymph nodes
c. Hilum of lymph nodes
d. Lymphoid nodules of the tonsils
e. Lymphoid nodules of the spleen

73. Which of the following statements concerning adrenal parenchymal cells is true?

a. Those of the zona fasciculata produce androgens.
b. Those of the adrenal medulla produce epinephrine and norepinephrine.
c. Those of the zona glomerulosa produce glucocorticoids.
d. Those of the cortex contain numerous secretory granules.
e. Those of the zona reticularis produce mineralocorticoids

74. Which one of the following structures is located in the renal cortex?

a. Vasa recta
b. Thin limbs of the loops of Henle
c. Afferent arterioles
d. Interlobar veins
e. Area cribrosa

75. In the urinary system

a. The detrusor muscle is organized in two layers like the gut muscularis externa
b. Urothelial plaques are present in the penile urethral epithelium
c. Vesical smooth muscle forms the internal urinary sphincter
d. The epithelium of the bladder trigone is of simple cuboidal type
e. All the outer covering of the urinary bladder is adventitia

76. The facial nerve (cranial nerve VII) supplies muscles derived from which pharyngeal arch?

a. First
b. Second
c. Third
d. Fourth
e. Sixth.

77. The second pharyngeal arch contributes to the development of:

a. Cochlea and ear lobe.
b. Stapes and ear lobe.
c. Auditory tube and incus
d. Auditory tube and stapes.
e. Otic vesicle and stapes.

78. Which of the following develop from the third pharyngeal pouch?

a) Superior parathyroid and thymus.
b) Inferior parathyroid and thymus.
c) Superior parathyroid and ultimobranchial body.
d) Inferior parathyroid and ultimobranchial body.
e) Superior and inferior parathyroid.

79. The following structures develop from the mandibular process except:

a. The chin.
b. Lower lip
c. Secondary palate
d. Lower cheek
e. Mandible.

80. Unilateral cleft lip results from lack of fusion of the:

a. Nasomedial and nasolateral processes
b. Nasolateral and maxillary processes
c. Nasomedial and maxillary processes
d. Nasolateral and mandibular processes
e. Nasomedial and mandibular processes.

81. Neural crest-derived cells constitute a significant component of which tissue of the eye.

a. Neural retina
b. Lens.
c. Cornea
d. Optic nerve.
e. Iris.

82. The optic vesicles develop from the wall of the:

a. Telencephalon.
b. Rhombencephalon
c. Metencephalon.
d. Diencephalon.
e. Mesencephalon.

83. Surface ectoderm is induced to become corneal epithelium by an inductive event originating in the:

a. Optic cup
b. Chordamesoderm
c. Optic vesicle
d. Lens vesicle
e. Neural retina.

84. Rathke's pouch arises from the:

a. Diencephalon
b. Mesencephalon
c. Pharyngeal endoderm
d. Stomedial ectoderm
e. Infundibulum.

85. Pars nervosa (posterior lobe of pituitary) develop from

a. Rathke's pouch
b. 1st pharyngeal pouch
c. 2nd pharyngeal pouch
d. Downgrowth from floor of the fourth ventricle.
e. Down growth arising from floor of the 3rd ventricle

86. Adrenal gland medulla derives from:

a. Neural tube
b. Intermediate mesoderm.
c. Splanchnic mesoderm.
d. Somatic mesoderm.
e. Neural crest cell

87. The cell bodies of the motoneurones of a spinal nerve arise from:

a. Marginal zone
b. Floor plate
c. Roof plate
d. Basal plate
e. Alar plate.

88. An infant was found with a tuft of hair over the lumbar region of the vertebral column. At surgery it was found that the Dura and arachnoid layers over the spinal cord were complete but neural arches of vertebrae were missing. What condition did the infant have?

a. Spina bifida occulta.
b. Meningomyelocele.
c. Encephaocele
d. Meningocele
e. Rachischisis.

89. Folic acid deficiency is now believed to be a major cause of what class of malformation?

a. Neural tube defects.
b. Trisomies.
c. Ambiguous genitalia
d. Polyploidy
e. Anal defects.

90. Phocomelia is most likely to be seen after maternal exposure to which agent during the first trimester of pregnancy?

a. Thalidomide.
b. Alcohol
c. Aminopterin
d. Androgens.
e. Ionizing radiations

91. The intermediate mesoderm is the precursor of the:

a. Urogenital system.
b. Heart.
c. Skeletal muscles.
d. Smooth muscles of GIT
e. Vertebral bodies.

92. Ureter develops from

a. Pronephric duct
b. Mesonephric duct
c. Mesonephros
d. Metanephros
e. Nephrogenic cord.

93. The principal inductor in neural plate development is the :

a. Hypoblast.
b. Notochord process
c. Primitive streak
d. Extraembryonic mesoderm
e. Embryonic ectoderm.

94. Which layer of the bilaminar embryo gives rise to all the embryonic tissues proper?

a. Hypoblast
b. Epiblast.
c. Primitive notch
d. Notochord
e. Ectoblast.

95. Female urethra is derived from

a. Vesical part of urogenital sinus
b. Phallic part of urogenital sinus
c. Pelvic part of urogenital sinus
d. Partial vesical and pelvic part of urogenital sinus.
e. Partial pelvic and phallic part of urogenital sinus.

96. Primordial sex cells arise from

a. Amniotic sac
b. Chorionic cavity
c. Yolk sac
d. Allantois.
e. None of the above.

97. Uterine tubes are derived from

a. Mesonephric duct
b. Para metanephric duct
c. Para mesonephric duct
d. Ureteric bud
e. pronephric duct

98. The following brain vesicles form the pons and medulla oblongata.

a. Diencephalon and metencephalon.
b. Mesencepalon and metencephalon.
c. Metencephalon and mesencephalon.
d. Metencephalon and myelencephalon.
e. Mesencephalon and myelencephalon.

99. The stomach is derived from:

a. Hindgut.
b. Midgut
c. Midgut and hindgut
d. Foregut
e. Foregut and midgut.

100. The following statements are correct with regards to development of the liver and biliary apparatus except:

a. The liver and gallbladder arise as a ventral outgrowth from the distal part of the foregut.
b. The liver accounts for approximately 10% of the total weight of the fetus by the ninth week.
c. Formation and development of various types of blood cells begins in the liver during the sixth week.
d. The hepatic diverticulum enlarges and divides as it grows between the layers of the dorsal mesentery.
e. Kupffer cells of the liver are derived from mesenchyme.