TECHNICAL UNIVERSITY OF MOMBASA

FACULTY OF APPLIED AND HEALTH SCIENCES
DEPARTMENT OF MEDICAL SCIENCES
UNIVERSITY EXAMINATION FOR:
DIPLOMA IN PHARMACEUTICAL TECHNOLOGY
AMD 2106 : MEDICAL PHYSIOLOGY II
SPECIAL SUPPLEMENTARY EXAMINATION
SERIES: AUGUST 2017
TIME: 2 HOURS
DATE: Pick Date Sep 2017

Instructions to Candidates

You should have the following for this examination

-Answer Booklet, examination pass and student ID

This paper consists of three Section(s). Attempt All questions in section A and B and any two questions in section C.

Circle the correct answer in section A.

SECTION A (40MARKS)

1. Given these structures of the conduction system of the heart:
    1. atrioventricular bundle
    2. AV node
    3. bundle branches
    4. Purkinje fibres
    5. SA node

    Choose the arrangement that lists the structures in the order an action potential passes through them.
    a. 2,5,1,3,4 c.
    b. 2,5,4,1,3
    c. 2,5,3,1,4
    d. d. 5,2,1,3,4

2. Choose the statement that most accurately predicts the long-term effect of a substance that prevents the active transport of iodide by the thyroid gland.
    a. Large amounts of T3 and T4 accumulate within the thyroid follicles, but little is released.
    b. b. The person exhibits hypothyroidism.
    c. c. The anterior pituitary secretes smaller amounts of TSH.

d. d. The circulating levels of T3 and T4 increase.

3. The ampulla of the uterine tube
    a. is the opening of the uterine tube into the uterus.
    b. has long, thin projections called the ostium.
    c. is connected to the isthmus of the uterine tube.
    d. is lined with ciliated columnar epithelium.
4. Which of the following organs is not considered part of the digestive system?
   A.pancrease
   B.spleen
   C.tongue
   D.gallbladder
5. The terminal (end) portion of the small intestine is the:
   A.ileum
   B.cecum
   C.duodenum
   D.jejeunum
6. Which of these conditions observed in an electrocardiogram suggests that the AV node is not conducting action potentials?
    a. a complete lack of the QRS complex
    b. more QRS complexes than P waves
    c. a prolonged PR interval
    d. P waves and QRS complexes that are not synchronized
7. Pressure in the aorta is at its lowest
    a. at the time of the first heart sound.
    b. at the time of the second heart sound.
    c. just before the AV valves open.
    d. just before the semilunar valves open.

8. Which of the following lists the layers of the digestive tract in the correct order, from the interior outward?
   A.serosa, mucularis externa, submucosa, mucosa
   B.serosa, mucularis externa, mucosa, submucosa
   C.mucosa, submucosa, mucularis externa, serosa
   D.submucosa, mucosa, mucularis externa, serosa
9. The spermatic cord contains which of the following?
   A.ductus deferens
   B.testicular artery and vein
   C.ilioinguinal and genitofemoral nerves
   D.all of the above
10. What is the body Responses to increased osmolarity
    a. Thirst via stimulation of SFO and OVLT via Angiotensin II in
    b. Baroreceptors afferents to the Posterior Pituitary
    c. Increased ADH levels

d. Aldosterone

11. Gas composition of air? PO_2 ,PCO_2 ,PN_2, P other gases

a. 20,98 ,O.4, 58, 0.78
b. 20,98, 0.4 ,69, 0,77
c. 20,98, 0.04, 78. 0.42
d. 20,98, 0.04, 78.2 ,0.98

12. The effect of PTH on the kidney is to:
    a. Increase Ca excretion and increase phosphate excretion
    b. Increase Ca excretion and decrease phosphate excretion
    c. Decrease Ca excretion and increase phosphate excretion
    d. Decrease Ca excretion and decrease phosphate excretion

13. An increase in mean arterial pressure can result from
    a. an increase in peripheral resistance.
    b. an increase in heart rate.
    c. an increase in stroke volume.
    d. all of the above.

14. Absolute refractory period in the heart
    a. corresponds to the duration of relaxation
    b. lasts till half of cardiac contraction
    c. shorter than refractory period in skeletal muscle
    d. lasts till cardiac contraction

15. Herring-Breur inflation reflex in human being
    a. decreases the rate of respiration
    b. is not activated until the tidal volume increases above 1.5 lit
    c. is an important factor in normal control of ventilation
    d. is activated only when tidal volume is les than 1 lit.

16. Man is unable to digest
    a. dextrin
    b. glucose
    c. cellulose
    d. glycogen

17. Gastrin secretion is increased by
    a. acid in the lumen of stomach
    b. distension of stomach
    c. increased circulating levels of secretin
    d. vagotomy

18. Which of these phases of stomach secretion is correctly matched?
    a. cephalic phase—the largest volume of secretion is produced
    b. gastric phase—gastrin secretion is inhibited by distension of the stomach
    c. gastric phase—initiated by chewing, swallowing, or thinking of food
    d. gastrointestinal phase—stomach secretions are inhibited

19. Which of these is not a general function of the kidneys?
    a. regulation of blood volume
    b. regulation of solute concentration in the blood

c. regulation of the pH of the extracellular fluid
d. regulation of vitamin A synthesis

20. The amount of plasma that enters Bowman's capsule per minute is the
    a. GFR.
    b. renal fraction.
    c. renal plasma flow.
    d. renal blood flow.
21. Reabsorption of most solute molecules from the proximal convoluted tubule is linked to the active transport of Na_
    a. across the apical membrane and out of the cell.
    b. across the apical membrane and into the cell.
    c. across the basal membrane and out of the cell.
    d. across the basal membrane and into the cell.
22. Oxytocin is responsible for
    a. preventing milk release from the mammary glands.
    b. preventing goiter.
    c. causing contraction of the uterus.
    d. maintaining normal calcium levels.
23. Hypersecretion of growth hormone
    a. results in giantism if it occurs in children.
    b. causes acromegaly in adults.
    c. increases the probability that one will develop diabetes.
    d. all of the above.
24. Parathyroid hormone secretion increases in response to
    a. decrease in blood calcium levels.
    b. increased production of parathyroid-stimulating hormone from the anterior pituitary.
    c. increased secretion of parathyroid-releasing hormone from the hypothalamus.
    d. increased secretion of calcitonin.

25. The greatest amount of ventricular filling occurs during
    a. the first one-third of diastole.
    b. the middle one-third of diastole.
    c. the last one-third of diastole.
    d. ventricular systole.
26. The pressure within the left ventricle fluctuates between
    a. 120 and 80 mm Hg.
    b. 80 and 0 mm Hg.
    c. 120 and 0 mm Hg.
    d. 20 and 0 mm Hg.
27. Action potentials pass from one cardiac muscle cell to another……..
    a. through gap junctions.
    b. by a special cardiac nervous system.
    c. because of the large voltage of the action potentials.
    d. because of the plateau phase of the action potentials.

28. Because of the baroreceptor reflex, when normal arterial blood pressure decreases, the
    a. heart rate decreases.
    b. stroke volume decreases.

c. frequency of afferent action potentials from baroreceptors decreases.
d. cardioregulatory center stimulates parasympathetic neurons.

29. Blood oxygen levels……..
    a. are more important than carbon dioxide levels in the regulation of respiration.
    b. need to change only slightly to cause a change in respiration.
    c. are detected by sensory receptors in the carotid and aortic bodies.
    d. all of the above.
30. Which of the following is true regarding T3 and T4?
    a. require iodine for their production.
    b. are made from the amino acid tyrosine.
    c. are transported in the blood bound to thyroxine-binding globulin.
    d. all of the above.
31. The terminal (end) portion of the small intestine is the:
    A.ileum
    B.cecum
    C.duodenum
    D.jejeunum
32. What do the T waves on an ECG represent?
    a. depolarization of the ventricles.
    b. repolarization of the ventricles.
    c. depolarization of the atria.
    d. repolarization of the atria.
33. If aldosterone secretions increase …
    a. blood potassium levels increase.
    b. blood hydrogen levels increase.
    c. blood sodium levels decrease.
    d. blood volume increases.

34. Which of the following best gives the role of Glucocorticoids (cortisol)
    a. increase the breakdown of fats.
    b. increase the breakdown of proteins.
    c. decrease inflammation.
    d. all of the above.

35. Which of these is not a hormone produced by the ovaries?
    a. estrogen
    b. prolactin
    c. relaxin
    d. progesterone
36. The three pairs of salivary glands that secrete into the oral cavity are:
    a. alpha, beta, gamma
    b. parotid, sublingual, submandibular
    c. palatal, lingual, mesial
    d. gastric, parietal, chief
37. Which selection does NOT correctly pair a type of tooth with its description?
    A.incisors - one or two roots and spoon-shaped

B.cuspids - one root and conical with a pointed tip
C.bicuspids - one or two roots and flattened crowns
D.molars - three or more roots and very large, flattened crowns

38. Which of the following lists the layers of the digestive tract in the correct order, from the interior outward?
A.serosa, mucularis externa, submucosa, mucosa
B.serosa, mucularis externa, mucosa, submucosa
C.mucosa, submucosa, mucularis externa, serosa
D.submucosa, mucosa, mucularis externa, serosa
39. Obligatory water loss from body:
    a. 400 mls in faeces
    b. 300 mls from lung
    c. Loss from skin & lung
    d. 500ml in Urine
40. The normal Type II pneumocytes:
    a. Develop from type I pneumocytes
    b. Are macrophages
    c. Are very flat and practically devoid of organelles
    d. produce and recycle surfactant

SECTION B (40 marks) @ 4 mks

41. Which are the four main factors determining the heart rate
42. List the actions of adrenaline and noradrenaline
43. Outline the actions of melatonin
44. Identify the functions of pleura
45. Explain the physio significance of the layers of the stomach wall.
46. list the phases of gastric juice secretion
47. List any four functions of the liver
48. Outline the changes that occur in the female body at puberty
49. Describe sympathetic nervous control of the glomerular filtrate rate
50. Which two purposes does tubular secretion serve?

SECTION C (40 MARKS)

51. Outline the heart conducting system (20)
52. Describe the menstrual cycle in the female (20)
53. a.Outline the main activities in the alimentary tract (10)
    b.Explain the mechanism s involved in swallowing and the route taken by the bolus (10)