



(Knowledge for Development)

KIBABII UNIVERSITY

UNIVERSITY EXAMINATIONS 2021/2022

ACADEMIC YEAR

FIRST YEAR SECOND TRIMESTER

SUPPLEMENTARY EXAMINATION

**FOR BACHELOR OF SCIENCE IN
NURSING DEGREE**

COURSE CODE: NUR 122

COURSE TITLE: MEDICAL PHYSIOLOGY II

DATE: 22/09/2022

TIME: 9.00am – 12.00pm

INSTRUCTIONS TO CANDIDATES

Answer ALL Section one (1) MULTIPLE CHOICE QUESTIONS and ALL Section two (2) SHORT ANSWER QUESTIONS and any one (1) section THREE (3) LONG ANSWER QUESTION.

TIME: 3 Hours

This paper consists of 9 printed pages. Please Turn Over



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PART ONE: MULTIPLE CHOICE QUESTIONS (ANSWER ALL)

1. The name given to the iron-containing protein that gives red blood cells their colour is:
 - A. Hemocyanin
 - B. Pyrite
 - C. Hemoglobin
 - D. Myoglobin
2. The area concerned with maintaining proper position of the body in space and subconscious coordination of motor activity is:
 - a) The vermin.
 - b) Internal capsule.
 - c) Cereberum.
 - d) Cerebellum.
3. The gall bladder does not:-
 - A. Produce bile
 - B. Concentrate bile
 - C. Store bile
 - D. All of the above
4. Gastric secretions
 - A. Increase in response to chewing of food in the mouth after vagus nerves to the stomach have been cut
 - B. Are prevented from digesting gastric mucosal by pepsin activator
 - C. Contain a substance which aids absorption of vitamin B₁₂
 - D. Decrease when a hungry person anticipates a meal
5. Saliva
 - A. Contains a starch -digesting enzyme
 - B. Can break starch down to monosaccharide
 - C. Has no important antiseptic action
 - D. Is not necessary for normal swallowing
6. In the small intestines
 - A. The concentration of digestive enzymes in the lumen is lower in the ileum than in the jejunum
 - B. Vitamin B₁₂ is absorbed mainly in the jejunum
 - C. Water absorption is independent of absorption of sodium and glucose
 - D. Glucose absorption is dependent of sodium absorption
7. Peristalsis in the lower esophagus is
 - A. Increased in pregnancy
 - B. Increased by gastric acid
 - C. A major factor in preventing heartburn
 - D. Is higher than in the middle esophagus
8. The area that receives impulses from sensory receptors of sensory nerves and interprets them as sensations is:
 - a) Somato-sensory.
 - b) Pre-frontal area.
 - c) Primary-sensory cortex.

- d) Motor cortex.
9. Which of the following are parts of the human respiratory system?
- A. Trachea
 - B. Diaphragm
 - C. The lung
 - D. All of the above
10. Name the gland that is located at the base of the throat, just inferior to the laryngeal prominence (Adam's apple) .
- A. Pituitary.
 - B. Pineal gland.
 - C. Hypothalamus.
 - D. Thyroid
11. Which of the following gas is released out during the process of respiration?
- A. Oxygen
 - B. Hydrogen
 - C. Carbon dioxide
 - D. None of the above
12. The tiny air sacs present in human lungs is called _____.
- A. Alveoli
 - B. Bronchus
 - C. Bronchioles
 - D. All of the above
13. What gland is located just superior to the kidneys?
- A. Pituitary.
 - B. Adrenal.
 - C. Pancreas.
 - D. ovaries
14. The tongue is innervated by the following nerves except
- A. Facial nerve
 - B. Hypoglossal nerve
 - C. Glossopharyngeal nerve
 - D. Oculomotor nerve

15. The process of blood cell formation takes place in the bone marrow, this process is called
- Homeostasis
 - Haemopoiesis
 - Hematocritic
 - Erythropoietin
16. The cell in the alveolus that secretes surfactant is called a
- Alveolar Macrophages
 - Type I cell
 - Type II cell
 - Pluripotent cell
17. Activity in the reflex arc starts in a sensory receptor with a receptor potential whose magnitude is proportionate to:
- The strength of the stimulus.
 - The forces exerted.
 - Number of receptors.
 - Stimulus potential.
18. Autonomic sensory impulses carried to the autonomic reflex centers in the hypothalamus, brain stem or the spinal cord causes:
- Contraction of muscles and joints to take place.
 - Facilitate information to be received and interpreted.
 - Enhance motor impulses to be carried to the effector organ.
 - Autonomic motor impulses to be carried to the effectors through cranial and spinal nerves.
19. The preganglionic fibers carry impulse from the CNS to an autonomic ganglion (a mass of neuron cell bodies). The cell body of the preganglionic neuron is located in:
- Spinal cord.
 - Brain.
 - The central nervous system (brain or spinal cord).
 - The peripheral nervous system.
20. This about second heart sound is incorrect
- it is occasionally split
 - it is due to the closure of semilunar valves
 - indicates the commencement of diastole
 - it has a longer duration than the first sound
21. The reason for the dicrotic notch on the aortic pressure curve is
- contraction of aorta
 - closure of the aortic valve
 - rapid filling of the left ventricle
 - closure of the pulmonary valve

22. Which of these is true of the endocrine system?
- A. secretes hormones that are transported to target cells by blood
 - B. causes changes in metabolic activities
 - C. effects are prolonged
 - D. All of above are true.
23. The rise in the carotid sinus pressure leads to
- A. reflex hypercapnia
 - B. reflex hyperpnea
 - C. reflex bradycardia
 - D. reflex tachycardia
24. All of the following are hormones of the anterior pituitary except:
- A. Human growth hormone (GH).
 - B. Follicle-stimulating hormone (FSH).
 - C. Parathyroid hormone(PTH)
 - D. Thyroid-stimulating hormone (TSH).
25. The secretions from which of these glands differs between males and females?
- A. Adrenal.
 - B. Parathyroid.
 - C. Gonadal.
 - D. Pancreas.
26. The absorption of fructose by intestinal mucosa is
- A. co-transport mechanism
 - B. simple diffusion
 - C. facilitated transport
 - D. active transport
27. This artery passes blood to the kidney
- A. common iliac
 - B. cystic
 - C. renal
 - D. coeliac
28. This is the functional unit of the kidney
- A. Hilum
 - B. Neurons
 - C. Nephrons
 - D. Medulla
29. On the heart, the impact of adrenaline is all of these except that
- A. it increases the uptake of oxygen by the heart
 - B. it increases the contraction force
 - C. it decreases the myocardial irritability
 - D. it increases the heart rate

30. A sensory nerve that conveys sensory information, sense of smell, from the olfactory mucosa of the nasal cavity to the brain is:
- Optic nerve.
 - Olfactory nerve.
 - Oculomotor nerve.
 - Vagus nerve.
31. The ventricle that is located in the brainstem and is continuous with the central canal of the spinal cord is:
- First ventricle.
 - Second ventricle.
 - Third ventricle.
 - Fourth ventricle.
32. The nerve that relay impulse related to swallowing, salivation and taste is:
- Vagus nerve (X).
 - Glossopharyngeal (IX).
 - Accessory (XI).
 - Hypoglossal (XII).
33. The maintenance of the homeostasis, regulation of Body temperature; Heart rate and BP; Mineral and water balance; Appetite and digestive processes; Sleep and wakefulness; Emotions of fear, rage and the Secretion of hormones by the pituitary gland is accomplished by:
- Midbrain.
 - Hypothalamus.
 - Reticular formation
 - Cerebrum.
34. Part of the brain that control brainstem reflexes, Cardiovascular control, respiratory control is:
- Hypothalamus.
 - Cerebral cortex.
 - The pons.
 - Medulla.
35. A structure which receives afferent sensory axons from different sources especially from the sensory nerves of the face and connects fibres to the centres in the cerebellum, hypothalamus and cerebrum is:
- Reticular formation.
 - Wennicker's area.
 - Brocas' area.
 - Pons varolli.

36. The structure involved with sleep- wake cycle and learning- memory is:
- Hypothalamus.
 - Reticular activating system.
 - Thalamus.
 - Midbrain.
37. The bridge connecting the spinal cord and the brain is formed by:
- Midbrain.
 - The Vermis.
 - The Pons.
 - Reticular formation.
38. The PH range of blood is
- 7.35-7.45
 - 2.25-3.45
 - 7.45-8.45
 - 4.5-7.5
39. Ciliated columnar epithelium lines which organ
- Respiratory tract
 - Vagina
 - Skin
 - Urinary bladder
40. Plasma without clotting factors is called
- Albumin
 - Globulin
 - Fibrinogen
 - Serum
41. The part of the brain that contains the ascending and descending tracts that communicate between the spinal cord and parts of the brain is:
- Medulla oblongata.
 - The pons.
 - Midbrain.
 - The pyramids.
42. A part of the brain that control the rate of and depth of breathing is:
- Cerebellum.
 - The pons.
 - Nuclei of midbrain.
 - Pyramids.
43. Part of the brain which controls many homeostatic functions important in maintaining stability of internal environment is:
- Thalamus.
 - Cerebellum.
 - Hypothalamus.
 - Reticular formation.
44. The specific area concerned with maintaining proper position of the body in space and subconscious coordination of motor activity is:
- Cerebrum.
 - Motor area.
 - Pre-frontal area.

- d) Cerebellum.
45. All twelve cranial nerves pass through the foramina of the skull to innervate structures in the head, neck, and facial region, except;
- a) Vestibulocochlear nerve.
 - b) Trigeminal nerve.
 - c) Optic nerve.
 - d) Vagal nerve.
46. This pressure facilitates filtration while urine is being formed
- A. filtrate hydrostatic pressure
 - B. osmotic blood pressure
 - C. capillary hydrostatic pressure
 - D. all of these
47. The Glucagon is:
- A. accelerates the conversion of glycogen into glucose.
 - B. slows down glucose formation from lactic acid.
 - C. decreases the conversion of glycogen into glucose.
 - D. speeds up protein synthesis within cells.
48. Most hormones of the endocrine system are regulated by a:
- A. Negative feedback mechanism.
 - B. Positive feedback mechanism.
 - C. Hormone-receptor complex.
 - D. Hormone-gene complex.
49. Which of the following functions by filtering and keeping the mucus and dirt away from our lungs?
- A. Cilia
 - B. Bronchioles
 - C. Hairs in the lungs
 - D. All of the above
50. The type of autonomic that is naturally a peace maker "rest and digest" allowing restoration processes to occur peacefully after the crisis of the flight and fight is:
- a) Parasympathetic division.
 - b) Sympathetic division.
 - c) Sympathetic nervous system.
 - d) Parasympathetic nervous system.

PART TWO SHORT ANSWER QUESTIONS (SAQ) (ANSWER ALL)

1. Describe the physiology of hearing (5 Marks)
2. Explain the components of the peripheral nervous system (5 Marks)
3. Describe the composition of saliva (5 Marks)
4. State five (5) structures that protect the eye (5 Marks)
5. State at least five functions of the liver (5 Marks)
6. Discuss the hormones that regulate blood calcium levels and their actions (5 Marks)

PART THREE: LONG ANSWER QUESTIONS (LAQ) (ANSWER ONE)

1. Explain the 12 pairs of cranial nerves, indicating whether sensory or motor, and where they emerge from the brain (20 marks)
2. Describe the different ways in which the skin regulates body temperature (20 marks)