



**AMREF INTERNATIONAL UNIVERSITY
SCHOOL OF MEDICAL SCIENCES
DEPARTMENT OF NURSING AND MIDWIFERY SCIENCES
BSC.NURSING AND BSC MIDWIFERY PROGRAMS
END OF SEPTEMBER-DECEMBER TRIMESTER 2022 EXAMINATIONS**

BSN 123: MEDICAL PHYSIOLOGY II

DATE: 29TH NOVEMBER 2022

TIME: 2:00 PM TO 4:00 PM

INSTRUCTIONS

1. This exam is out of **70 Marks**
2. This Examination comprises **THREE** Sections. Section A: Multiple Choice Questions Section B: Short Answer Questions and Section C: Long Answer Question
3. Answer **ALL** Questions.
4. Do Not write anything on the question paper -use the back of your booklet for rough work if need be

SECTION A: MULTIPLE CHOICE QUESTIONS

(20 MARKS)

1. The pharyngeal phase of swallowing:
 - A. Is partially voluntary
 - B. Includes opening of the upper esophageal sphincter
 - C. Includes the peristaltic activity of the upper third of the esophagus
 - D. Is associated with the opening of the glottis

2. The false statement about reflexes in the GI tract is:
 - A. Short reflexes are provoked by nerves near the GI tract
 - B. Short reflexes are mediated by the enteric nervous system
 - C. Food that distends the stomach initiates long reflexes
 - D. Long reflexes can be provoked by stimuli originating outside the GI tract

3. The physiological actions of Cholecystokinin include:
 - A. Closing the sphincter of Oddi
 - B. Increased bile synthesis
 - C. Contraction of pancreatic acini
 - D. Increased enzyme secretion from the pancreas

4. The following is true of gastrin:
 - A. Is only made in gastric antral G cells
 - B. Is inactivated in liver
 - C. Stimulates insulin secretion after a protein meal
 - D. Secretion reduces with gastric distension

5. The enzyme that is activated by enteropeptidase is:
 - A. Trypsin
 - B. Chymotrypsin
 - C. Carboxypeptidase
 - D. Aminopeptidases

6. The following is most likely to produce the greatest increase in insulin secretion:
 - A. Amino acids
 - B. Amino acids and glucose
 - C. Amino acids and somatostatin
 - D. Glucose and somatostatin

7. The largest volume is:
 - A. Total blood volume
 - B. Volume of urine produced each day
 - C. Fluid filtered into Bowman's capsule each day
 - D. Volume reabsorbed across proximal tubule into blood each day

8. With respect to the counter-current system:
 - A. The loops of Henle act as counter-current exchangers
 - B. Solutes diffuse out of vessels conducting blood towards the cortex
 - C. Water diffuses out of ascending vessels
 - D. Counter-current exchange is passive and can operate even if counter-current multiplication ceases

9. Regarding absorption of Na^+ in the proximal tubule:
 - A. It reabsorbs 80% of the filtered Na^+ load
 - B. Absorption of Na^+ causes increasing hypertonicity in the tubule lumen
 - C. Absorption is powered by the Na^+/H^+ ATPase
 - D. Shares a common carrier with glucose

10. The nephron segment that reabsorbs the highest amount of water under normal conditions is:
 - A. Proximal tubule
 - B. Ascending limb
 - C. Distal tubule
 - D. Collecting ducts

11. Glomerular filtrate rate would be increased by:
 - A. Constriction of the afferent arteriole
 - B. A decrease in afferent arteriolar pressure
 - C. A decrease in the concentration of plasma protein
 - D. A decrease in renal blood flow

12. Full development and function of the seminiferous tubules require:
 - A. Somatostatin
 - B. Luteinizing hormone
 - C. Follicle stimulating hormone
 - D. Androgens and Follicle stimulating hormone

13. The primary spermatocytes form secondary spermatocytes by:
 - A. Mitosis
 - B. S phase
 - C. Meiosis I
 - D. Meiosis II

14. The result of meiosis in males is production of:
- A. One spermatid and three polar bodies
 - B. One spermatid and two polar bodies
 - C. Two primary spermatocytes
 - D. Four spermatids
15. Basal body temperature should be highest during:
- A. Proliferative phase
 - B. Secretory phase
 - C. Menses
 - D. Myometrial phase
16. Oogonia undergo mitosis:
- A. Before birth
 - B. At puberty
 - C. At the beginning of each menstrual cycle
 - D. During fertilization
17. Antidiuretic hormone secretion is increased by:
- A. Alcohol
 - B. Increased extracellular fluid volume
 - C. Angiotensin I
 - D. Fear and pain
18. A patient is brought into the emergency room with very low blood pressure and irregular electrolyte levels (sodium and potassium). The region of the adrenal gland directly or indirectly is causing these signs and symptoms is:
- A. Hypersecretion by the zona glomerulosa
 - B. Hypersecretion by the zona fasciculata
 - C. Hypersecretion by the zona reticularis
 - D. Hyposecretion by the zona glomerulosa
19. The function of aldosterone is it:
- A. Produces its effect by activating camp
 - B. Produces its effect by increasing membrane permeability to potassium
 - C. Causes an increased reabsorption of hydrogen ion
 - D. Has its main effect on the proximal tubule
20. The following is produced only by large amounts of glucocorticoids:
- A. Normal responsiveness of fat depots to norepinephrine
 - B. Maintenance of normal vascular reactivity
 - C. Inhibition of the inflammatory response
 - D. Inhibition of Adrenocorticotrophic hormone secretion

SECTION B: SHORT ANSWER QUESTIONS

(30 MARKS)

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1. Describe the digestion and absorption of lipids. **(5 marks)**
 2. Describe the tubule-glomerular feedback mechanism in the renal system **(5 marks)**
 3. Describe the renin-angiotensin aldosterone system in the control of blood pressure. **(5 marks)**
 4. Explain five (5) effects of anterior pituitary gland hormones. **(5 marks)**
 5. Describe the processes of reabsorption and secretion at the distal convoluted tubule. **(5 marks)**
 6. Describe five (5) effects of the anterior pituitary hormones. **(5 marks)**

SECTION C: LONG ANSWER QUESTIONS

(20 MARKS)

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1. The reproductive system is important for production gametes and hormones. With the aid of well-labeled diagrams:
 - a) Discuss the ovarian cycle **(4 marks)**
 - b) Discuss the menstrual cycle **(4 marks)**
 - c) Explain hormone regulation of the female reproductive system. **(12 marks)**