



**AMREF INTERNATIONAL UNIVERSITY
SCHOOL OF MEDICAL SCIENCES
DEPARTMENT OF NURSING & MIDWIFERY SCIENCES
END OF AUGUST 2026 EXAMINATIONS**

COURSE CODE: BSN 123 TITLE: MEDICAL PHYSIOLOGY II

DATE: 6TH AUGUST 2026

Duration: 2 HOURS START: 9AM STOP: 11AM

INSTRUCTIONS

1. This exam is out of 70 marks
2. This Examination comprises THREE Sections. Section I: Multiple Choice Questions (20 marks), Section II: Short Answer Questions (30 marks) and Section III: Long Answer Questions (20 marks)
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 I: MULTIPLE CHOICE QUESTIONS**(20 MARKS)**

1. Pancreatic beta cells secrete
 - A. Glucagon
 - B. Somatostatin
 - C. Insulin
 - D. Incretin

2. The maternal growth hormone of pregnancy is: -
 - A. HGH
 - B. HCS
 - C. Estriol
 - D. HCG

3. An enzyme that initiates carbohydrate digestion in the mouth:-
 - A. Pepsin
 - B. Salivary amylase
 - C. Lipase
 - D. Trypsin

4. Spermatogenesis takes place in:-
 - A. Epididymis
 - B. Seminiferous tubules
 - C. Vas deferens
 - D. Prostate gland

5. If fertilisation does not occur, the corpus luteum:-
 - A. It persists and hormone levels continue to rise
 - B. It degenerates, and progesterone and estrogen levels fall
 - C. It converts immediately to a corpus albicans with no change in hormone level
 - D. It converts into the corpus luteum of pregnancy

6. A woman presents with amenorrhea and is found to have low FSH and LH levels. At which level is the defect most likely located
 - A. The ovary
 - B. The hypothalamus
 - C. The uterus
 - D. The Pituitary

7. Glomerular filtration primarily occurs at?
 - A. Loop of Henle
 - B. Glomerulus / Bowman's capsule
 - C. Collecting duct
 - D. Distal convoluted tubule

8. The hormone responsible for lowering blood calcium levels is?
- A. Parathyroid hormone
 - B. Calcitonin
 - C. Cortisol
 - D. Insulin
9. Testicular cells primarily responsible for testosterone production are:-
- A. Sertoli cells
 - B. Leydig (interstitial) cells
 - C. Spermatogonia
 - D. Epithelial lining cells
10. The part of the gastrointestinal tract that is the principal site of nutrient absorption is:-
- A. Stomach
 - B. Jejunum
 - C. Colon
 - D. Rectum
11. The functional unit of the kidney is the:
- A. Ureter
 - B. Nephron
 - C. Glomerulus
 - D. Collecting duct
12. Aldosterone increases:
- A. Potassium reabsorption
 - B. Sodium reabsorption
 - C. Calcium excretion
 - D. Glucose secretion
13. The hormone responsible for uterine contractions during labour is:-
- A. Oxytocin
 - B. Progesterone
 - C. FSH
 - D. Prolactin
14. The primary function of gastric mucus is to:
- A. Digest proteins
 - B. Neutralize bile
 - C. Protect gastric mucosa
 - D. Absorb nutrients

15. A reduced glomerular filtration rate would initially result in:
- A. Increased urine output
 - B. Reduced waste excretion
 - C. Increased insulin secretion
 - D. Increased bile secretion
16. Patients with renal disease and dialysis are normally anemic. The anemia is a result of:-
- A. Reduced production of erythropoietin
 - B. Reduced production of thrombopoietin
 - C. Reduced vitamin D absorption
 - D. Absence of renal prostaglandins.
17. In the micturition reflex, the parasympathetic nervous system: -
- A. It is for emptying of the bladder
 - B. It is filling the bladder
 - C. Causes relaxation of the detrusor muscle
 - D. Causes contraction of the sphincter muscle
18. A patient has obstruction of the common bile duct. The nutrient digestion mostly affected is:-
- A. Carbohydrates
 - B. Proteins
 - C. Lipids
 - D. Nucleic acids
19. A ten-year-old boy has high levels of the growth hormone. He is likely to develop:
- A. Acromegaly
 - B. Hyperglycemia
 - C. Mental retardation
 - D. Gigantism
20. Which of the following is a primary physiological function of antidiuretic hormone (ADH)
- A. Stimulates milk production
 - B. Increases gastric acid secretion
 - C. Promotes water reabsorption in the kidneys
 - D. Increases blood glucose concentration

SECTION II: SHORT ANSWER QUESTIONS (30 MARKS)

1. Explain the phases of the menstrual cycle and the hormones involved in each cycle. (6 marks)
2. Describe the major sites of tubular reabsorption in the nephron and identify the main substances reabsorbed at each site. (5 marks)
3. State the two (2) major hormones responsible for glucose homeostasis and their roles. (4 marks)
4. Outline five (5) functions of the kidney (5 marks)
5. Explain the mechanisms involved in gastric secretion under the:
 - a. Cephalic phase (2 marks)
 - b. Gastric phase (2 marks)
 - c. Intestinal phase (2 marks)
6. Outline hormonal regulation of spermatogenesis. (4 marks)

SECTION III: LONG ANSWER QUESTION (20 MARKS)

1. Describe the digestion and absorption of carbohydrates, proteins and fats in the gastrointestinal tract, highlighting the enzymes involved, their sources and their sites of action. (20 marks)
 - a) Carbohydrates (6 marks)
 - b) Proteins (7 marks)
 - c) Fats/Lipids (7 marks)