AMREF INTERNATIONAL UNIVERSITY

SCHOOL OF MEDICAL SCIENCES DEPARTMENT OF NURSING & MIDWIFERY SCIENCES

BACHELOR OF SCIENCE UPGRADING

END OF JANUARY APRIL 2026 EXAMINATIONS

COURSE CODE AND TITLE: BSN 122: Human Physiology II

DATE: 8th April 2026

Duration: 2 HOURS **Start: 9:00 AM** **Finish: 11:00 AM**

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. As menstruation ends estrogen levels in the blood rise rapidly. What is the source of the estrogen?

   a) Corpus luteum
   b) Developing follicles
   c) Endometrium
   d) Stromal cells of the ovaries Gonadotropin-releasing hormone from the embryo's hypothalamus

2. Which of the following reflect a difference in males and females
   A. Hypothalamus has different patterns of hormonal secretion
   B. The pituitary glands secrete different gonadotropic hormones
   C. Blood gonadotropin levels do not raise later in life
   D. Polymorphs show 'drumsticks' of chromatins in their nucleus
3. Which hormone relaxes the myometrium?
   A. HCG
   B. Oxytocin
   C. Progesterone
   D. Estriol

4. Testes removal in an adult lead to
   A. A fall in blood levels of LH and FSH
   B. Loss of ability to copulate
   C. Loss of libido
   D. Voice pitch is raised
5. The correct sequence of spermatogenic stages leading to the formation of sperms in a mature human testis is
   A. Spermatogonia-spermatid-spermatocyte-sperms
   B. Spermatocyte-spermatogonia-spermatid-sperms
   C. Spermatogonia-spermatocyte-spermatid-sperms
   D. Spermatid-spermatocyte-spermatogonia-sperms
6. The following hormone is secreted by the anterior pituitary gland:
   A. TRH
   B. CRH
   C. Vasopressin
   D. TSH

7. 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. Muscle atrophy

8. Stimuli for aldosterone regulation includes:
   a) High sodium in the distal renal tubule
   b) High serum potassium
   c) Hypervolemia
   d) ACTH as a potent stimulator

9. Thyroid hormone actions include:
   a) Augmentation of sympathetic effect on GI motility
   b) Release of insulin
   c) Lipogenesis
   d) Increasing the numbers of Beta-adrenergic receptors

10. The following can be observed in a patient who has Grave's disease (hyperthyroidism):
    a) Drop of the upper eyelid
    b) Intolerance to cold
    c) High systolic blood pressure
    d) Constipation
11. Gastric emptying:
    a) Is slowest if the food is soft and rich in carbohydrates.
    b) Is inhibited by excessive fat.
    c) Is accelerated by presence of hypertonic acidity in the duodenum
    d) Is delayed by distension of the stomach and by vagal stimulation

12. Which of the following dietary components should enhance calcium uptake?
    a) Protein
    b) Oxalates
    c) Iron
    d) Vitamin D
13. Cholecystokinin (CCK) inhibits
    a) Gastric emptying
    b) Pancreatic HCO3 secretion
    c) Pancreatic enzyme secretion
    d) Contraction of the gallbladder
14. Which of the following abolishes “receptive relaxation” of the stomach?
    a) Parasympathetic stimulation
    b) Sympathetic stimulation
    c) Vagotomy
    d) Administration of gastrin
15. Which of the following substances is released from neurons in the GI tract and produces smooth muscle relaxation?
    a) Secretin
    b) Gastrin
    c) Cholecystokinin (CCK)
    d) Vasoactive intestinal peptide (VIP)

16. Glucose reabsorption occurs in the:
    A. Proximal tubule
    B. Loop of Henle
    C. distal tubule
    D. cortical collecting system
17. Which of the following substances is NOT actively secreted into the tubular lumen by the proximal renal tubule?

    a) urate
    b) para-amino hippuric acid
    c) catecholamines
    d) sodium

18. The thin ascending loop of Henle is:

    a) Relatively permeable to water
    b) Relatively impermeable to sodium ion
    c) permeable to both water and sodium ion
    d) relatively impermeable to water

19. Pateints with renal disease and dialysis are normally anemic. Which below explains the anemia.
    a) Reduced production of erythropoietin
    b) Reduced production of thrombopoietin
    c) Reduced vitamin D absorption
    d) Absence of renal prostaglandins.

20. Amino acids are almost completely reabsorbed from the glomerular filtrate via active transport in the:
    a) Proximal tubule
    b) Loop of Henle
    c) Distal tubule
    d) Collecting duct

SECTION II: SHORT ANSWER QUESTION (SAQ) (4O MARKS)

1. State the functions of the Sertoli cells (5 Marks)
2. State nerve supply to the GIT and how each affects GIT function (5 Marks)
3. Briefly discuss hormonal changes during a normal menstrual cycle (10 marks)
4. With examples state three classes of hormones (5 Marks)
5. Explain factors that influence glomerular filtration rate (5marks)

SECTION III: LONG ANSWER QUESTION (LAQ) (2O MARKS)

1) (a) Discuss different enzymes in carbohydrate digestion (10 Marks)
   (b) Outline carbohydrate absorption (5 Marks)
   (c) Explain one carbohydrate digestion clinical corelate (5 Marks