THE CATHOLIC UNIVERSITY OF EASTERN AFRICA

A. M. E. C. E. A

P.O. Box 62157

00200 Nairobi - KENYA

Telephone: 891601-6

REGINA PACIS INSTITUTE OF HEALTH SCIENCES

MAIN EXAMINATION

SEPTEMBER – DECEMBER 2019 TRIMESTER

FACULTY OF SCIENCES

DEPARTMENT OF NURSING

REGULAR PROGRAMME

NUR 109: MEDICAL PHYSIOLOGY II

Date: DECEMBER 2019	**Duration: 3 Hours**
INSTRUCTIONS: Answer ALL Questions	

SECTION A: MULTIPLE CHOICE QUESTIONS (20 marks)
ANSWER ALL THE QUESTIONS IN THIS SECTION

Q1. Saliva is necessary for the following:
- A. Normal speech.
- B. Tooth decay
- C. Digestion of starch
- D. Digestion of protein

Q2. Severe diarrhea causes a decrease in the following:
- A. Body potassium(K)
- B. Bloody sodium(Na)
- C. Blood HB
- D. Total peripheral resistance

Q3. Aldosterone secretion tends to raise the volume of one of the following:
- A. Plasma
- B. Intracellular fluid
- C. Urine
- D. Cerebrospinal fluid

Q4. Which of the following is **true** regarding the collecting ducts in the kidney?

A. Can actively transport water molecules in the urine
B. Are the site of most of renal water re-absorption
C. Are rendered impermeable to water by antidiuretic hormone(ADH)
D. Determine to a large extent the final osmolality of urine

Q5. Which of the following organs has the greatest blood flow per 100g tissue?

A. Brain
B. Heart muscle
C. Liver
D. Kidneys

Q6. The main resistance vessels in blood circulation are:

A. Arteries
B. Arterioles
C. Veins
D. Venules

Q7. The natural pacemaker in the heart refers to:

A. Atrioventricular node (AVN)
B. Sinoatrial node (SAN)
C. Purkinje system
D. Bundle of HIS

Q8. Which of the following is increased during exercise?

A. Fluid volume
B. Stroke volume
C. Blood plasma
D. Total peripheral resistance

Q9. Which of the following is a major function of the skin?

A.Thermoregulation
B. Epinephrine
C. Blood storage
D. Substance p

Q10. Which of the following statements is **true** regarding lymph flow from the foot?

A. Increases when an individual rises from the supine to the standing position
B. Increases by massaging the foot
C. Increases when capillary permeability is decreased
D. Decreases when the valves of the leg veins are incompeten

Q11. Which of the following is an excretory organ
A. Ear
B. Skin
C. Liver
D. Thorax

Q12. What is the volume of dead space in an adult man weighing 150lbs?
A. 100 mls
B. 250 mls
C. 300 mls
D. 150 mls

Q13. Actual gas exchange in the respiratory system occurs in one of the following regions:
A. Bronchus
B. Terminal bronchioles
C. Alveoli
D. Trachea

Q14. Which of the following is true regarding the mammary glands?
A. Milk formation is stimulated by oxytocin and progesterone
B. Maintenance of lactation depends on suckling
C. Lactation ceases if the posterior pituitary gland is destroyed
D. Milk ejection ceases if the anterior pituitary gland is destroyed

Q15. State True**(T)** or False**(F)** in the following statements:
Destruction of the anterior pituitary (Simmonds disease) causes:
A. Amenorrhoea_ _ _ _ _ _
B. Diabetes insipidus_ _ _ _ _ _

Q16. Short stature is seen in adults who in childhood suffered the following effects :
A. Castration
B. Chronic malnutrition
C. Premature baby
D. vitamin k deficiency

Q17. The kidney uses one of the following mechanisms to produce hypertonic or hypotonic urine:
A. Tubular reabsorption
B. Counter current mechanism
C. Positive feedback mechanism
D. Negative feedback mechanism

Q18. Which of the following statements are **true** regarding secretion of androgens in the adult female?

A. Is normal
B. Does affect the voice
C. May result in amenorrhoea
D. In large amounts it can cause enlargement of the clitoris

Q19. Which of the following is a plasma protein

A. Fibrinogen
B. Glycogen
C. Hemoglobin
D. Myosin

Q20. Which of the following is **true** regarding lymphocytes?

A. All originate from the bone marrow
B. Are unaffected by hormones
C. Convert to monocytes in response to antigens
D. Interact with eosinophils to produce platelets
E. Are part of the body's defence against cancer

SECTION B: SHORT ANSWER QUESTIONS (40 MARKS)

(40 marks)

Q1. a) Define Gastric motility?

(1 mark)

b) State **three** factors that influence gastric motility

(3 marks)

Q2. Describe a complete cardiac cycle

(4 marks)

Q3. i) State **three** factors that affect glomerular filtration rate (GFR)

(3 marks)

ii) Name **two** hormones produced by the kidney

(1 mark)

Q4. i) List down the components of the conducting zone in the respiratory system **(3 marks)**

Q5. a) Define the following terms:
i) Anatomic dead space
ii) Glycosuria
iii) Polyuria
iv) Polyphagia

(4 marks)

Q6. i) State **three** effects of estrogen in the human body

(3 marks)

ii) Name **two** nitrogenous end products of kidney excretion

(2 marks)

Q7. a) Name **one** disorder associated with each of the following:
i) Hypersecretion of growth hormone (GH)
ii) Inadequate secretion of insulin
iii) Hyposecretion of thyroid hormones

(3 marks)

Q8. b) State **three** forms in which CO_2 is transported from the tissues to the lungs **(3 marks)**

Q9. Match the following items in column A with the most appropriate item in column B

(5 marks)

A	B
a. Insulin	(i) Prevention of dieresis
b. Vitamin B_{12}	(ii) Promotion of sodium and water reabsorption
c. Renin	(iii) Regulation of blood glucose
d. Oxytocin	(iv) Milk expression
e. Prolactin	(v) Milk synthesis
f. Aldosterone	(vi) Pernicious anaemia
g. Vasopressin	(vii) Alpha receptors(α)
h. Epinephrine	(viii) Juxtaglomerular apparatus
i. Intrinsic factor	(ix) Beta receptors(β)
j. Lutenizing hormone	(x) Stomach
	(xi) Ovarian follicle

Q10. State the cellular components of blood and the function of **each** component: **(5 marks)**

SECTION C: LONG ANSWER QUESTION (40 marks)

Q1. a) Outline the digestive events that occur in the mouth, stomach and intestines after a meal of maize and beans (include all the enzymes involved and end products) **(20 marks)**

Q2. a) Discuss with the aid of a diagram the origin of heartbeat and the cardiac conducting system

(10 marks)

b) Use a labeled diagram to show the components of an Electrocardiogram (ECG) and discuss what each component represents.

(10 marks)

END