



THE CATHOLIC UNIVERSITY OF EASTERN AFRICA

A. M. E. C. E. A

REGINA PACIS INSTITUTE OF HEALTH SCIENCES

MAIN EXAMINATION

AUGUST – DECEMBER 2017 TRIMESTER

FACULTY OF SCIENCES

DEPARTMENT OF NURSING

REGULAR PROGRAMME

NUR 209: MEDICAL BIOCHEMISTRY II

P.O. Box 62157
00200 Nairobi - KENYA
Telephone: 891601-6
Fax: 254-20-891084
E-mail: academics@cuea.edu

Date: DECEMBER 2017

Duration: 3 Hours

INSTRUCTIONS: Answer ALL Questions

PART I MULTIPLE CHOICE QUESTIONS:(MCQS) (20 MARKS)

- Q1. Lactose intolerance is due to-
- a) ADH deficiency
 - b) Deficiency of bile
 - c) Lactase deficiency
 - d) Malabsorption syndrome
- Q2. The nucleic acid base found in mRNA but not in DNA is:
- a) Adenine
 - b) Cytosine
 - c) Guanine
 - d) Uracil
- Q3. Normal range of serum creatinine is:
- a) 0.6–1.5 mg/dl
 - b) 9–11 mg/dl
 - c) 20–45 mg/dl
 - d) 60–100 mg/dl
- Q4. In contrast to eukaryotic mRNA, prokaryotic mRNA
- a) Can be polycistronic
 - b) Is synthesized with introns
 - c) Can only be monocistronic
 - d) Has a poly A tail

- Q5. Which of the following features is predicted by the Nicolson–Singer fluid mosaic model of biological membranes?
- a) Membrane lipids do not diffuse laterally
 - b) Membrane lipid is primarily in a monolayer form
 - c) Membrane lipids do not freely flip-flop
 - d) Membrane proteins may move laterally
- Q6. Translation results in the formation of
- a) mRNA
 - b) tRNA
 - c) rRNA
 - d) A protein molecule
- Q7. The 'rho' (ρ) factor is involved in
- a) Increasing the rate of RNA synthesis
 - b) In binding catabolite repressor to the promoter region
 - c) In proper termination of transcription
 - d) In allowing proper initiation of transcription
- Q8. The anticodon region is an important part of the structure of
- a) rRNA
 - b) tRNA
 - c) mRNA
 - d) hrRNA
- Q9. In *E. coli* the chain initiating amino acid in protein synthesis is
- a) N-formyl methionine
 - b) Methionine
 - c) Serine
 - d) Cysteine
- Q10. Degeneracy of the genetic code denotes the existence of
- a) Base triplets that do not code for any amino acids
 - b) Codons consisting of only two bases
 - c) Codons that include one or more of the unusual bases
 - d) Multiple codons for a single amino acid
- Q11. mRNA is complementary copy of
- a) 5'-3' strand of DNA
 - b) 3'-5' strand of DNA
 - c) Antisense strand of DNA
 - d) tRNA

- Q12. Another name for reverse transcriptase is
- DNA dependent DNA polymerase
 - DNA dependent RNA polymerase
 - RNA dependent DNA polymerase
 - RNA dependent RNA polymerase
- Q13. Which of the following is a component of biological membranes
- Nucleic acids
 - Hormones
 - Neurotransmitters
 - Sterols
- Q14. Water soluble molecular aggregates of lipids are known as
- Micelle
 - Colloids
 - Sphingol
 - Mucin
- Q15. Which of the following is a property of DNA replication:
- Its insoluble in water
 - Its semi-permeable
 - Its fluidy in nature
 - Bi-directional
- Q16. A carbohydrate found in DNA is
- Ribose
 - Deoxyribose
 - Ribulose
 - Mannose
- Q17. Cori cycle is
- Synthesis of glucose
 - Reuse of glucose
 - Uptake of glyucose
 - Uptake of fats
- Q18. Melting temperature of DNA is increased by its
- A and T content
 - G and C content
 - Sugar content
 - Phosphate content
- Q19. Which of the following is the major metabolite produced by the muscle and erythrocytes during anaerobic respiration:
- Ethanol
 - Lactate

- c) Alanine
- d) Glycerol

- Q20. In RNA molecule 'Caps'
- a) Allow tRNA to be processed
 - b) Are unique to eukaryotic mRNA
 - c) Occur at the 3' end of tRNA
 - d) Allow correct translation of prokaryotic Mrna

PART II SHORT ANSWER QUESTIONS(SAQ) (40 MARKS)

- Q1. Describe the relationship between glucose metabolism in the liver and in the muscle **(8marks)**
- Q2. Explain how integration of metabolism prevents haemolysis of red blood cells **(8marks)**
- Q3. Describe how regulation of any four different metabolic pathways lead to control of high blood sugar levels **(8marks)**
- Q4. Describe the types of receptors found in biomembranes **(8marks)**
- Q5. Describe the structural components of biological membranes and their functions **(8marks)**

PART III : LONG ANSWER QUESTIONS: (LAQ)(40 MARKS).

- Q1. Discuss experimental proof that DNA replication is semi-conservative **(20marks)**
- Q2. Discuss the biological properties of membranes **(20marks)**

END