

CHUKA



UNIVERSITY

UNIVERSITY EXAMINATIONS

EXAMINATION FOR THE AWARD OF DEGREE OF BACHELOR OF SCIENCE IN BIOMEDICAL

BMED 316: METABOLISM

STREAMS:

TIME: 2 HOURS

DAY/DATE: TUESDAY 17/04/2018

2.30 P.M – 4.30 P.M

INSTRUCTION:

- **Answer question one and any other two questions**
- **Do write on the question paper**

1. (a) Using specific examples, explain the meaning of the following;
 - (i) Intermediary metabolism [2marks]
 - (ii) Anabolic reaction [2marks]
 - (iii) Biological oxidation [2marks]
 - (iv) Transamination [2marks]

(b) Discuss de novo purine nucleotide catabolism and its regulation. [8marks]

(c) *Thymidylate synthetase* catalyze formation of thymidylate from uridylate (UMP). Give the equation of this reaction and using specific examples discuss the rationale for using anticancer drugs to block synthesis of thymidylate. [6marks]

(d) Name the branched chain amino acids and explain their degradative mechanism. [8marks]
2. (a) Discuss in details the urea cycle, highlighting the genetic defects associated with it. [11marks]

(b) Describe the reactions in citric acid cycle and explain why it is amphibolic. [9marks]

3. Using structural and chemical formulae, describe the following processes of carbohydrate metabolism:
- (a) Glycogenesis [6marks]
 - (b) Cori cycle [4marks]
 - (c) Payoff phases of glycolysis [10marks]
4. (a) Describe Anatomical and biochemical basis of atherosclerosis, highlighting the cholesterol metabolism. [10marks]
- (b) Explain mode of action of drugs used to treat atherosclerosis. [5marks]
- (c) Using an illustration, describe the special transport mechanism of long fatty acids into the mitochondrial matrix. [5marks]
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