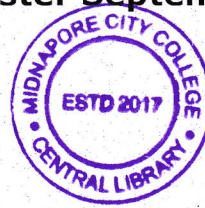


**The West Bengal University of Health Sciences**  
**B.Sc. in Medical Microbiology 2nd Semester September, 2023**  
**Examination**

Subject : Metabolism



Time : 2 hrs.

Full Marks : 50

*Attempt all questions*

1. Answer the following questions : 10 x 1
  - a) Which of the following is not a metabolism pathway of carbohydrates?
    - i) HMP shunt pathway.    ii) Glycolysis.    iii) Krebs cycle.    iv) Ornithine cycle.
  - b) Which is the rate limiting enzyme of glycolysis?
    - i) Phosphofructokinase.    ii) Hexokinase.    iii) Pyruvate kinase.    iv) Aldose.
  - c) Enzymes that is involved in glycolysis is :
    - i) Glucokinase.    ii) Isomerase.    iii) Glycogen synthase.    iv) Debranching enzyme.
  - d) Which of the following glycolytic enzyme is inhibited by an accumulation long chain fatty acid in liver?
    - i) Glucokinase.    ii) Hexokinase.    iii) Pyruvate kinase.    iv) Phosphofructokinase.
  - e)  $\beta$  oxidation of fatty acid occurs in :
    - i) Mitochondria.    ii) Peroxisome.    iii) Lysosomes.    iv) All of the above.
  - f) Lipoprotein that possessing the highest quantity of phospholipid :
    - i) HDL.    ii) LDL.    iii) VLDL.    iv) Chylomicron.
  - g) HMG Co-A is the precursor of :
    - i) Cholesterol.    ii) Ketone bodies.    iii) Lysin.    iv) Valine.
  - h) Transfer of an amino group from an amino acid to a keto acid is known as :
    - i) Transmethylation.    ii) Aminoacylation.    iii) Transamination.    iv) Deamination.
  - i) Amino acids are said to be ketogenic when the carbon skeleton is finally degraded to :
    - i) Succinyl Co-A.    ii) Fumarate.    iii) Acetyl Co-A.    iv) Pyruvate.
  - j) Tyrosin is the precursor for the synthesis of catecholamines; mainly 'dopamine'. Disease that occurs due to decreased production of dopamine :
    - i) PKU.    ii) Parkinson's disease.    iii) Alkaptonuria.    iv) Albinism.
  
2. Answer **any four** of the following questions : 4 x 2
  - a) Why TCA cycle is said to be amphibolic in nature?
  - b) State the metabolic role of HMP pathway.
  - c) What is neoglucogenesis? Explain the reactions
  - d) What is glycogenesis? Explain the reactions and produced.
  - e) What is carnitine? Write its importance in  $\beta$ -oxidation.
  - f) What is orotic acid? How it is formed?
  
3. Answer **any four** of the following questions : 4 x 4
  - a) Discuss the regulation of pyrimidine biosynthesis.
  - b) Write a note on Cori Cycle.
  - c) What is transamination and deamination? Give examples with suitable reaction.
  - d) What are catecholamines? Give an example. What are Ketogenic amino acids? Give an example.
  - e) What is  $\beta$ -oxidation of fatty acid? How many acetyl Co-A are produced from  $\beta$ -oxidation of one molecule of palmitic acid?
  - f) Write down the process of cholesterol synthesis.
  
4. Answer **any two** of the following questions : 2 x 8
  - a) Describe briefly the urea cycle with suitable diagram.
  - b) Briefly describe the salvage pathway of purine metabolism.
  - c) Describe glycogenolysis with suitable diagram.