



Seat No. _____

HAK-003-1015010
B. Sc. (Sem.-V) (CBCS)
(W.E.F. 2016) Examination
May - 2023
Microbiology : Paper-502
(Prokaryotic Metabolism)
(Old Course)

Faculty Code : 003
Subject Code : 1015010

Time : $2\frac{1}{2}$ Hours / Total Marks : 70

Instructions :

- (1) All questions are compulsory.
- (2) Right side figures indicate mark of the question.
- (3) Draw the figure wherever necessary.
- (4) Write answers of all the questions in main answer sheet.

1 Answer briefly : 20

- (1) What do you mean by Allosteric enzyme ?
- (2) Give full form of FAD and NADP.
- (3) Give examples of two energy rich molecules.
- (4) What is Michaelis-Menten constant ?
- (5) What is metabolism ?
- (6) Name regulatory enzymes of Glycolysis.
- (7) Give example of bacteria which use ED pathway?
- (8) What is decarboxylation ?
- (9) Define biochemical mutant.
- (10) What are Quinones ?
- (11) Give two examples of photosynthetic pigments.
- (12) What is the importance of Isotopic Labelling ?
- (13) Define autotrophs.

- (14) Give two examples of Nitrifying bacteria.
- (15) What are hydrogen bacteria ?
- (16) What do you mean by Methylophils ?
- (17) Define active transport.
- (18) Define pinocytosis.
- (19) What is quorum sensing ?
- (20) Give full form of PEP-PTS.

- 2** (a) Answer in short : (3 out of 6) **6**
- (1) Explain Bioenergetics.
 - (2) What is the outcome of Pentose Phosphate Pathway?
 - (3) Explain anaerobic respiration with one example.
 - (4) What are Flavo proteins ?
 - (5) Explain simple diffusion.
 - (6) What are G proteins ?
- (b) Answer specifically : (3 out of 6) **9**
- (1) Discuss Substrate Level Phosphorylation.
 - (2) Explain Iron bacteria.
 - (3) Explain Transamination.
 - (4) What do you mean by facilitated diffusion ?
 - (5) Explain the role of precursor metabolites in metabolism.
 - (6) Explain ED pathway and its significance.
- (c) Write short notes on : (2 out of 5) **10**
- (1) Derivation of Michaelis-Menten equation for the enzymatic reaction.
 - (2) Glycolysis.
 - (3) Bacterial Photosynthesis.
 - (4) Methanogens.
 - (5) Signal transduction.
- 3** (a) Answer in short : (3 out of 6) **6**
- (1) Give concept of Gibbs free energy.
 - (2) How many ATPs are produced from glucose under aerobic condition ? Calculate it.
 - (3) Explain the role of reducing power in metabolism.
 - (4) Enlist membrane lipids with examples.
 - (5) Explain deamination with one example.
 - (6) What are Halobacteria ?

- (b) Answer specifically : (3 out of 6) **9**
- (1) Explain Photo phosphorylation.
 - (2) Explain role of ATP in metabolism.
 - (3) Explain Stickland reaction.
 - (4) Discuss physical properties of the enteric group of bacteria.
 - (5) Discuss Photophosphorylation in Halobacterium.
 - (6) Explain Quorum sensing.
- (c) Write short notes on : (2 out of 5) **10**
- (1) Conformational changes in regulatory enzymes.
 - (2) Citric Acid cycle.
 - (3) Components of ETC.
 - (4) Pattern of Carbohydrate fermentation in lactic acid bacteria.
 - (5) Active transport mechanism.
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