

B.Sc. Semester - 5 (Remedial) (CBCS) Examination
March/April-2022 (NEW COURSE)
Prokaryotic Metabolism(Core)

Time: 2:30 Hours**Marks: 70****Instructions:**

1. All questions are compulsory.
 2. Figures to the right indicate marks.
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Q.1(A) Objective type questions (04)

1. Lower K_m value of an enzyme indicates _____.
2. Define free energy ΔG .
3. Define K_m .
4. Give full form of NAD & NADP.

Q.1(B) Answer in Brief (any one out of two) (03)

1. Discuss Enzyme Inhibition and enlist & define each mechanism of enzyme inhibition. Differentiate between them only on the basis V_m & K_m .
2. Discuss role of ATP in metabolism and enlist two examples precursor metabolites.

Q.1(C) Write a Note on (any one out of two) (07)

1. Derive Michaelis Menton equation.
2. Regulation of enzyme action.

Q.2(A) Objective type questions (04)

1. Define Substrate level Phosphorylation.
2. Key enzyme in the pentose-phosphate pathway is _____.
3. _____ is a key intermediate compound in Entner-Doudroff pathway.
4. Comment on Glyoxylate cycle.

Q.2(B) Answer in Brief (any one out of two) (03)

1. write note on Glycolysis and its regulation.
2. Discuss in detail catabolism of amino acids.

Q.2(C) Write a Note on (any one out of two) (07)

1. Beta oxidation of fatty acid and calculate number of ATP molecules upon complete breakdown of fatty acid with an example.
2. Explain Citric acid cycle and its regulation with the energetics with an example. Also discuss anaplerotic reactions reaction of citric acid cycle.

Q.3(A) Objective type questions (04)

1. Define Biochemical Mutant.
2. Define chlorosomes.
3. Give examples of two Electron donor modules in case of bacterial ETC.
4. Define Photoreaction center.

- Q.3(B) Answer in Brief (any one out of two) (03)
1. Discuss methods of studying biosynthesis.
 2. Discuss Anaerobic Respiration.
- Q.3(C) Write a Note on (any one out of two) (07)
1. Bacterial photosynthesis.
 2. Different modes of ATP generation.
- Q.4(A) Objective type questions (04)
1. Give an example of sulphur oxidizing bacteria.
 2. Define nitrification & give an example of Nitrifying bacteria.
 3. Name the group of proteins involved in Photophosphorylation in Halophiles.
 4. Comment on Rusticyanin
- Q.4(B) Answer in Brief (any one out of two) (03)
1. Discuss Hydrogen Bacteria.
 2. Discuss patterns of carbohydrate fermentation in lactic acid bacteria.
- Q.4(C) Write a Note on (any one out of two) (07)
1. Energy metabolism and Carbon Assimilation in Methanogens
 2. Enlist fermentative patterns of Gram-negative eubacteria and explain any two in detail.
- Q.5(A) Objective type questions (04)
1. Give an example of secondary messenger in signal transduction.
 2. Give difference between uniport and antiport.
 3. Give function of phosphoenolpyruvate:carbohydrate phospho-transferase system.
 4. Give two functions of Membrane Proteins.
- Q.5(B) Answer in Brief (any one out of two) (03)
1. Write a note on transport system in which transport of molecules across the membrane does not require an input of energy.
 2. Signal transduction.
- Q.5(C) Write a Note on (any one out of two) (07)
1. Quorum sensing.
 2. Enlist the Specific Transport Systems and explain any three in detail.
