

B.Sc. Semester - 5 (CBCS) Examination
December - 2020 (Old Course)
PROCARYOTIC METABOLISM (CORE)

Time: 1:30 Hours**Marks: 42****Instructions:**

1. Figures to the right indicate marks.
2. There are five questions in the question paper.
3. Answer any three of the following questions.

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- Q.1(A) Answer the following. (any one out of two) (07)
1. Discuss Lineweaver-Burk plot and its significance.
 2. Role of energy rich compounds in metabolism.
- Q.1(B) Attempt any one. (out of two) (04)
1. Discuss the principles of thermodynamics.
 2. Role of reducing power in metabolism.
- Q.1(C) Attempt any three. (out of five) (03)
1. Write Michaelis-Menten equation.
 2. Define: feedback inhibition.
 3. What is ΔG ?
 4. Give full form of NAD & NADP.
 5. In the aerobic respiratory chain, the final electron acceptor is an oxygen atom (True/False)?
- Q.2(A) Answer the following. (any one out of two) (07)
1. Discuss biochemical steps involved in TCA cycle.
 2. Write a note on β - oxidation of fatty acids.
- Q.2(B) Attempt any one. (out of two) (04)
1. Describe Stickland reaction.
 2. How Entner – Doudroff pathway differ from glycolysis?
- Q.2(C) Attempt any three. (out of five) (03)
1. How many ATP molecules are generated by oxidation of one glucose molecule?
 2. Draw structural formula of glucose.
 3. Enlist two enzymes of pentose phosphate pathway.
 4. Write Significance of glyoxylate bypass.
 5. Which are different modes of amino acid catabolism?
- Q.3(A) Answer the following. (any one out of two) (07)
1. Role of electron transport chain in generation of ATP.
 2. Explain use of biochemical mutants to study biosynthetic pathway.

- Q.3(B) Attempt any one. (out of two) (04)
1. Write a note on photosynthetic components of eubacteria.
 2. Write a note on anaerobic respiration.
- Q.3(C) Attempt any three. (out of five) (03)
1. Give full form of RUBISCO.
 2. Define Photosynthesis.
 3. Give two example of photo synthetic pigments?
 4. What is the importance of Peptidoglycan layer for cell?
 5. Name the process that involves chemiosmotic phosphorylation.
- Q.4(A) Answer the following. (any one out of two) (07)
1. Discuss the fermentative patterns of lactic acid bacteria.
 2. Enlist chemo-autotrophs. Discuss sulphur oxidizers with suitable examples.
- Q.4(B) Attempt any one. (out of two) (04)
1. Discuss Common properties of the enteric group of bacteria.
 2. Discuss in detail Methanogens.
- Q.4(C) Attempt any three. (out of five) (03)
1. Name any two nitrifying bacteria.
 2. Name the pigment present in purple membrane of halophiles.
 3. Enlist mode of propionate fermentation in bacteria.
 4. What do you mean by Methylotrophs.
 5. Species of *Thiobacillus* and *Beggiatoa* play an important role in the_____
- Q.5(A) Answer the following. (any one out of two) (07)
1. Explain signal transduction.
 2. Compare and contrast: Active and Passive transport.
- Q.5(B) Attempt any one. (out of two) (04)
1. Discuss the membrane lipids with examples.
 2. Briefly explain: the phosphotransferase system.
- Q.5 (C) Attempt any three. (out of five) (03)
1. Give two function of cell membrane.
 2. Give full form of PEP-PTS.
 3. What is quorum sensing?
 4. Enlist the types of cell signaling.
 5. Give examples of any two second messengers.
