

B.Sc. Semester - 5 (CBCS) Examination**Oct/Nov. - 2018****PROCARYOTIC 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) Answer any one out of two: (07)
- (1) Write a note on Bioenergetics.
 - (2) General properties of Regulatory Enzymes
- Q-1(B) Answer any one out of two: (04)
- (1) What is the role of precursor metabolites in metabolism?
 - (2) What is the role of ATP in metabolism?
- Q-1(C) Answer any three out of five: (03)
- (1) Give first law of Thermodynamics.
 - (2) What is ΔG ?
 - (3) Give two examples of energy rich compounds.
 - (4) Give Gibb's reaction for free energy function.
 - (5) Mention components of ATP molecule.
- Q-2(A) Answer any one out of two: (07)
- (1) Describe: Glycolysis
 - (2) Explain: Catabolism of Amino acids
- Q-2(B) Answer any one out of two: (04)
- (1) Describe: Stickland reaction
 - (2) Explain: β Oxidation
- Q-2(C) Answer any three out of five: (03)
- (1) Give two names of organisms exhibiting ED pathway.
 - (2) What is the net gain of ATP in TCA?
 - (3) In which environmental condition pyruvate converts into lactate in bacteria?
 - (4) Mention end products of oxidation of Palmitic acid.
 - (5) In which organisms Glyoxylate cycle operates?
- Q-3(A) Answer any one out of two: (07)
- (1) Explain: substrate level phosphorylation.
 - (2) Discuss: Photosynthesis.
- Q-3(B) Answer any one out of two: (04)
- (1) Describe: Anaerobic respiration.
 - (2) Discuss: Cytochromes

- Q-3(C) Answer any three out of five: (03)
- (1) What is PMF?
 - (2) Which substrate is biosynthetic precursor of arginine and proline synthesis?
 - (3) What is Biochemical mutant?
 - (4) Give full form of NAD and FMN.
 - (5) Give function of ATPase.
- Q-4(A) Answer any one out of two: (07)
- (1) Discuss: fermentative patterns in Gram Negative Eubacteria
 - (2) Write a note on Nitrifying bacteria and Nitrogen cycle.
- Q-4(B) Answer any one out of two: (04)
- (1) What are Iron Bacteria?
 - (2) What are Hydrogen Bacteria?
- Q-4(C) Answer any three out of five: (03)
- (1) What is Chemoorganotroph?
 - (2) Give example of three Gram Negative Eubacteria.
 - (3) Give name of membrane of Halobacteria.
 - (4) Lactic acid fermentation is carried out by _____.
 - (5) State true or false: Azotobacter carry out oxidation of sulphur.
- Q-5(A) Answer any one out of two: (07)
- (1) Explain Major modes of Membrane Transport.
 - (2) Discuss: Signal Transduction.
- Q-5(B) Answer any one out of two: (04)
- (1) How ion gradient is established in a bacteria?
 - (2) What are Membrane proteins?
- Q-5(C) Answer any three out of five: (03)
- (1) Name three lipids found in Membrane of Bacteria.
 - (2) Give an example of bacteria showing Quorum sensing.
 - (3) Give use of Isotopic labeling.
 - (4) What is PTS?
 - (5) Where Glycophorin is found?
