

B.Sc. Semester - 5 (Remedial) (CBCS) Examination**March/April-2023(Old Course)****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 the following. (Any One) (07)**

1. Derivation of the Michaelis – Menten Equation.
2. Role of precursor metabolites in metabolism.

(B) Answer the following. (Any One) (04)

1. Short note on: The concept of free energy.
2. Role of ATP in metabolism.

(C) Answer the following (Any Three) (03)

1. Define: Metabolism
2. Write full form of ATP.
3. Enzyme is key player in metabolic reaction. (True/False).
4. Law of thermodynamics which states that energy can neither be created nor be destroyed is _____. (First, Second, Third).
5. What is the value of ΔG , when a system is in equilibrium?

Q.2**(A) Answer the following. (Any One) (07)**

1. Short note on: Glycolysis and its regulation.
2. Explain: Beta- Oxidation of Fatty Acids.

(B) Answer the following. (Any One) (04)

1. Stickland Reactions.
2. Citric acid cycle.

(C) Answer the following (Any Three) (03)

1. Define: Catabolism.
2. How many Total Molecules of ATP are synthesized from ADP via Glycolysis of a Single Molecule of Glucose?
3. Glycogen Synthesis is increased by Insulin. (True/False)
4. Enzymes for β -oxidation enzymes present in _____. (Mitochondria, Cytosol)
5. Write full form of TCA.

Q.3**(A) Answer the following. (Any One) (07)**

1. Detail note on: Electron transport chain.
2. Short note on: Bacterial photosynthesis.

(B) Answer the following. (Any One) (04)

1. Write the method for Strategy of Biosynthesis.
2. Different modes of ATP generation

(C) Answer the following (Any Three) (03)

1. Define: Anabolism.
2. Where ETC processed take place in bacterial cell?
3. Name any two Isotope use for studying biosynthesis.
4. Explain: Respiration
5. Glucose is directly involve in ETC. (True/False)

Q.4

(A) Answer the following. (Any One)

(07)

1. Write short note on: Nitrifying Bacteria
2. Explain: Photophosphorylation in Halobacterium.

(B) Answer the following. (Any One)

(04)

1. How Sulfur Oxidizers involve in metabolism?
2. Give in brief: Carbon- Assimilation in Methanogens.

(C) Answer the following (Any Three)

(03)

1. Define: Chemoautotrophs.
2. Example of any two nitrifying bacteria?
3. Define: Nitrification
4. Archaeobacteria are mostly extremophiles. (True/False)
5. Explain: Methanogens and methanotrops.

Q.5

(A) Answer the following. (Any One)

(07)

1. Give detailed note on passive transport with example.
2. Write short not on quorum sensing

(B) Answer the following. (Any One)

(04)

1. Explain: Mechanosensitive channels.
2. Active transport with example.

(C) Answer the following (Any Three)

(03)

1. Define: Antiport
2. Transverse diffusion (flip-flop) is the movement of _____.
3. FRAP can be used to analyze living cells. (True/False)
4. Ion carriers are located in _____.
5. Explain: Signal Transduction
