

T.Y.B.SC. SEM – VI (CBCS - 2016 Course) : SUMMER - 2019
SUBJECT : MICROBIOLOGY : MICROBIAL METABOLISM & BIOCHEMICAL
EVOLUTION

Day : Saturday
Date : 27/04/2019

S-2019-0916

Time : 03.00 P.M. To 06.00 P.M
Max. Marks : 60

N. B. :

- 1) All questions are **COMPULSORY**.
 - 2) Figures to the right indicate **FULL** marks.
 - 3) Draw labelled diagrams **WHEREVER** necessary.
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Q.1 Attempt **ANY TWO** of the following : **(12)**

- a) Explain diagrammatically the various modes of active transport mechanisms.
- b) State the various laws of thermodynamics. Add a note on standard free energy change, additive nature of standard free energy change, enthalpy and entropy.
- c) Enlist the components of electron transport chain. Diagrammatically describe any two components of ETC.

Q.2 Attempt **ANY TWO** of the following : **(12)**

- a) Define the term bioluminescence. Describe the role of luciferase and properties affecting the process of bioluminescence.
- b) Describe the various steps involved in the synthesis of purine nucleotides.
- c) What is nitrogen fixation? Explain the structure of NiF gene and the role of nitrogenase enzyme complex in nitrogen fixation.

Q.3 Attempt **ANY TWO** of the following : **(12)**

- a) Describe the various reactions in the fixation of ammonia.
- b) Draw the pathway and explain the steps involved in the synthesis of glycerophospholipids.
- c) Explain the pathway for the synthesis of amino acids from serine family.

Q.4 Write short notes on **ANY THREE** of the following : **(12)**

- a) Stickland reaction
- b) Oxidative phosphorylation
- c) The gene hypothesis : Life without proteins
- d) Synthesis of glycogen

Q.5 Attempt **ANY FOUR** of the following : **(12)**

- a) Elaborate on - Isoprene formation.
- b) Discuss the elongation step in protein biosynthesis.
- c) Draw the pathway for the synthesis of peptidoglycan.
- d) Comment on - Periodic condensing agents.
- e) Write a note on "Acyl carrier protein".

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