



MCR-003-001527 Seat No. _____

B. Sc. (Sem. V) (CBCS) Examination

May / June - 2018

MB - 503 : Prokaryotic Metabolism

Faculty Code : 003

Subject Code : 001527

Time : $2\frac{1}{2}$ Hours]

[Total Marks : 70

- Instructions :** (1) All questions are compulsory
(2) Figures at the right side indicate total marks
(3) Draw the figure wherever necessary
(4) All the answers must be written in the main answer sheet

1 Answer following questions in short **20**

- (1) What is K_m ?
- (2) Write first law of thermodynamics.
- (3) What is active site of enzyme?
- (4) What is free energy (G) ?
- (5) Who discovered the Glycolysis?
- (6) What is Stickland reaction?
- (7) How many ATP are generated after β -oxidation of Palmitic acid?
- (8) What is the significance of HMP pathway?
- (9) Which enzyme requires generating FADH₂ during Kreb's cycle?
- (10) What is PMF?
- (11) Which amino acid is present in the composition of peptidoglycan?
- (12) Which metal ion is present in the structure of Chlorophyll a?

- (13) What is Planck equation.?
- (14) Define Nitrogen fixation.
- (15) Define Halophiles.
- (16) What is psuedomurin?
- (17) Give example of Single membrane spanning protein.
- (18) What is Antiport process?
- (19) What is Quorum sensing?
- (20) What is second messenger?

- 2** (A) Answer Briefly : (Any **Three**) **6**
- (1) What is double reciprocal line weaver burke plot?
 - (2) Explain transamination.
 - (3) List use of Biochemical mutant.
 - (4) Write fermentation pathway for lactic acid bacteria.
 - (5) Write the characteristics of Phospholipids.
 - (6) Explain facilitated diffusion.
- (B) Write answer of following in Brief : (Any **Three**) **9**
- (1) Explain feedback inhibition.
 - (2) Draw Kreb's cycle.
 - (3) Explain structure of ATP Synthase.
 - (4) Write note on carriers of ETC.
 - (5) What is hetero fermentative lactic acid fermentation?
 - (6) List the function of cytoplasmic membrane in prokaryotes.
- (C) Write Notes on following : (Any **Two**) **10**
- (1) Derive Michaelis Menten equation.
 - (2) Explain in detail Glycolysis.
 - (3) Explain biosynthetic pathway of peptidoglycan.
 - (4) Write note on Methanogens.
 - (5) Discuss in detail Signal Transduction.

- 3** (A) Answer Briefly : (Any **Three**) **6**
- (1) Explain second law of thermodynamics.
 - (2) What is oxidative deamination of amino acid catabolism?
 - (3) What is Q loop cycle?
 - (4) What is Hydrogenomonas?
 - (5) How to purify integral membrane protein from plasma membrane?
 - (6) Define : Peripheral proteins.
- (B) Write answers following in Brief : (Any **Three**) **9**
- (1) Justify ATP is a Universal energy currency.
 - (2) Explain Entner - Doudoroff (ED) pathway.
 - (3) Discuss Photosynthetic pigment in bacteria.
 - (4) Write note on Nitrifying bacteria.
 - (5) Explain Iron cycle.
 - (6) Discuss membrane transport of macromolecule.
- (C) Answer Briefly : (Any **Two**) **10**
- (1) Explain Allosteric enzyme.
 - (2) Discuss in detail β -oxidation of lipid.
 - (3) Discuss Electron Transport Chain in bacteria.
 - (4) Write note on Halobacterium.
 - (5) Explain in detail Fluid Mosaic Model of cytoplasmic membrane.
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