JW-003-1015010 Seat No. _____

B. Sc. (Sem. V) (CBCS) (W.I.F. 2016) Examination

October - 2019

MB - 502 : Prokaryotic Metabolism

(New Course)

Faculty Code : 003
Subject Code : 1015010

Time : $2\frac{1}{2}$ Hours] [Total Marks : **70**

Instructions : (1) All Questions are compulsory.
(2) Figure at the right side indicate Total marks.
(3) Draw the figure wherever necessary.

1 (a) Answer following questions in short : **4**

(1) What is ΔG ?

(2) Write the first law of Thermodynamics.

(3) Define : Km

(4) Justify - ATP is the currency of energy.

(b) Answer briefly : (any **one**) **2**

(1) Explain allosteric enzyme

(2) Explain concept of free energy.

(c) Answer briefly : (any **one**) **3**

(1) Explain in detail Lineviweaver burke plot

(2) Explain role of ATP in metabolism

(d) Write following answer in brief : (any **one**) **5**

(1) Derive Michaelis - Menten equation.

(2) Explain Inhibition of enzyme

2 (a) Answer following questions in short : **4**

(1) Who discover Glycolysis ?

(2) What is stickland reaction?

(3) _____ ATP gain by the complete oxidation of one molecule of Palmitic acid.

(4) Define : Substrate level phosphorylation

(b) Answer briefly : (any **one**) **2**

(1) Write the significance of pentose phosphate pathway

(2) Draw the Entner Doudruff pathway

(c) Answer briefly : (any **one**) **3**

(1) Explain Glyoxylate pathway

(2) Discuss in detail catabolism of amino acid.

(d) Write following answer in brief : (any **one**) **5**

(1) Explain in detail Glycolysis

(2) Discuss in detail TCA cycle.

3 (a) Answer following questions in short : **4**

(1) What is PMF ?

(2) Define : Redox potential

(3) Give the example of Phototrophic bacteria.

(4) What is Q loop cycle ?

(b) Answer briefly : (any **one**) **2**

(1) Write short note on Photosynthetic pigment.

(2) List the application of Biochemical mutants

(c) Answer briefly : (any **one**) **3**

(1) Write note on ATPase.

(2) Discuss in detail Biosynthetic pathway of peptidoglycan.

(d) Write following answer in brief : (any **one**) **5**

(1) Explain in detail Electron Transport Chain (ETC) in bacteria.

(2) Discuss in detail cyclic photophosphorylation.

4 (a) Answer following questions in short : **4**

(1) Define : Halophiles

(2) Give the example of Nitrifying bacteria

(3) What are Archea bacteria ?

(4) What is Randomizing pathway ?

(b) Answer briefly : (any **one**) **2**

(1) Explain decarboxylation.

(2) Which are the bacteria involve in sulfur cycle ?

(c) Answer briefly : (any **one**) **3**

(1) Discuss Hydrogen bacteria

(2) Explain Homo fermentative lactic acid pathway.

(d) Write following answer in brief : (any **one**) **5**

(1) Write note on Methanogens

(2) Explain Phosphorylation of Halophillic bacteria

5 (a) Answer following questions in short : **4**

(1) What is secondary messenger ?

(2) Define : Mechanosensitive channels.

(3) What is signal transduction process ?

(4) Write the difference between Active transport & Passive transport.

(b) Answer briefly : (any **one**) **2**

(1) Which are the types of endocrine signaling ?

(2) Explain facilitated diffusion

(c) Answer briefly : (any **one**) **3**

(1) Write note on Cell surface receptor

(2) Explain Phosphotransferase system

(d) Write following answer in brief : (any **one**) **5**

(1) Discuss in detail Fluid Mosaic model

(2) Write note on Quorum sensing
