



BCH-003-001527

Seat No. _____

B. Sc. (Sem. V) (W.E.F. 2012) Examination

August - 2021

MB-503 : Microbiology
(Prokaryotic Metabolism)
(Old Course)

Faculty Code : 003

Subject Code : 001527

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

[Total Marks : 70

- Instructions :** (1) All questions are compulsory.
(2) Right side figures indicate marks of the question.
(3) Draw the figure wherever necessary.

1 Answer the following : **20**

- (1) Define Bioenergetics.
- (2) Give full form of NAD and NADP.
- (3) Give full form of ATP, ADP.
- (4) Define KM.
- (5) Write only equation of Michaelis–Menten equation for enzymatic reaction.
- (6) What is catabolism ?
- (7) What is Anabolism ?
- (8) Write full form of PMF.
- (9) What is the net gain of ATP during TCA cycle ?
- (10) Give two examples of photosynthetic pigments.
- (11) What is active transport ?
- (12) What is passive transport ?
- (13) Give two examples of nitrifying bacteria.
- (14) Define chemo-autotrophs.
- (15) _____ convert organic material into methane.

- (16) Which organism can grow in high salt concentration ?
- (17) What are peripheral proteins ?
- (18) What is Integral proteins ?
- (19) What is signal Transduction ?
- (20) Which molecule can directly pass through the membrane ?

- 2** (a) Answer in short : (any three) **6**
- (1) Draw ATP molecule.
 - (2) Define Entropy.
 - (3) What is PPP ?
 - (4) Define anaerobic respiration.
 - (5) Explain simple diffusion.
 - (6) Give two characteristics of Hydrogen bacteria.
- (b) Answer in brief : (any three) **9**
- (1) What do you mean by oxidative phosphorylation ?
 - (2) Explain Glyoxylate cycle.
 - (3) What are cytochromes ?
 - (4) Explain : membrane carbohydrates.
 - (5) What do you mean by facilitated diffusion ?
 - (6) Explain the role of precursor in metabolism.
- (c) Write a short note on : (any two) **10**
- (1) Michelis Menten equation.
 - (2) Glycolysis
 - (3) ED pathway
 - (4) ETC
 - (5) Methanogens

- 3** (a) Answer in short : (any three) **6**
- (1) Give concept of Gibbs free energy.
 - (2) Why HMP is called shunt ?
 - (3) Explain the role of reducing power in metabolism.
 - (4) What are lactic acid bacteria ?
 - (5) What is the fate of pyruvate ?
 - (6) What are Halobacteria ?
- (b) Answer in brief : (any three) **9**
- (1) Give stickland Reaction.
 - (2) Give two laws of Thermodynamics.
 - (3) Describe : Anaerobic Respiration.
 - (4) What are sulphur bacteria ?
 - (5) Explain Singer and Nicolson model of cytoplasmic membrane.
 - (6) Explain cluorum sensing.
- (c) Write a short note on : (any two) **10**
- (1) TCA and its regulation.
 - (2) Explain importance of conformational changes in regulatory enzymes.
 - (3) Discuss in detail peptidoglycan biosynthesis.
 - (4) Discuss pattern of carbohydrate fermentation in lactic acid bacteria.
 - (5) Explain signal transduction.
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