



JX-003-001527

Seat No. _____

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

October – 2019

**Microbiology : Paper - MB - 502
(Prokaryotic Metabolism) (Old Course)**

Faculty Code : 003

Subject Code : 001527

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

[Total Marks : 70

1 Answer the following : 20

1. Give Gibb's reaction of free energy function,
2. Give two redox reactions found in Biological system.
3. Which enzyme carry out oxidation reduction reaction ?
4. On which location of an enzyme binding of the substrate takes place ?
5. Name three inhibitors of PFK.
6. What is the net gain of ATP during TCA cycle`?
7. In anaerobic condition pyruvate is converted into _____.
8. Name the enzyme responsible for decarboxylation.
9. Give the reaction of Photosynthesis.
10. Give names of three different types of electron carriers in ETC.
11. Define: Biochemical mutants.
12. What is PMF ?
13. Give names of two Sulphur oxidizing bacteria.
14. What is the end product of denitrification ?
15. In which bacteria Rusticyanin is found ?
16. Which end products are formed by homo fermentative lactic acid bacteria ?
17. The simultaneous transport of two substance in opposite direction is _____.
18. What is paracrine type of signal transduction ?
19. Which integral membrane protein is found in Erythrocyte ?
20. Which bacteria produces Bioluminescence by Quorum sensing ?

- 2 A) Answer any three from six : 6
1. Draw ATP molecule.
 2. Define Entropy. How is it related to ΔG ?
 3. What is PPP ?
 4. Explain in brief: ATPase
 5. Give two characteristics of Hydrogen Bacteria.
 6. Define :Passive Transport
- B) Answer any three from six : 9
1. Why ATP is universal currency ?
 2. Explain : Glyoxylate cycle.
 3. What are Cytochromes?
 4. What are Nitrifying bacteria?
 5. Explain : membrane carbohydrates.
 6. What is the role of ATP in Metabolism ?
- C) Write a note on any two from five: 10
1. Michelis Menten Equation.
 2. Glycolysis
 3. ETC
 4. Methanogens
 5. Quorum Sensing.
- 3 A) Answer any three from six: 6
1. Mention any four precursor metabolite with structure.
 2. Why HMP is called shunt ?
 3. Explain one example of substrate level phosphorylation.
 4. What are Lactic acid bacteria?
 5. Explain in brief Signal Transduction with proper diagram.
 6. What is the fate of Pyruvate ?

- B) Answer any three from six : **9**
1. What are light harvesting parts in photosynthetic bacteria?
 2. Explain : Stickland reaction.
 3. Give two laws of Thermodynamics.
 4. Describe ; Anaerobic Respiration.
 5. What are Sulphur Bacteria?
 6. Explain Singer and Nicolson model of Cytoplasmic membrane.
- C) Write a note on any two from five : **10**
1. Mechanism of Enzyme.
 2. TCA and its Regulation.
 3. Methods of studying Biosynthesis.
 4. Metabolism in Gram Negative Eubacteria.
 5. PTS.
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