Question Bank- 502 (Prokaryotic Metabolism)

UNIT: 1

1 Mark:

1. Define free energy ΔG.
2. Write a name of energy reach compound.
3. How much energy release form hydrolysis of 1 molecule of ATP.
4. ATP is currency of energy justify.
5. Define Enthalpy & Entropy.
6. Justify the first law of thermodynamics.
7. Justify the second law of thermodynamics.
8. Define Allosteric enzyme.
9. What is Active site?
10. Define Km & Vmax.

2 & 3 Marks:

1. Role of ATP in metabolism.
2. Write a note on reduction potential.
3. Difference between ΔG and ΔG°′
4. Reducing power in metabolism.
5. Write a note on double reciprocal line weaver burk plot.
6. Write a note on competitive inhibition.
7. Write a note on non-competitive inhibition.
8. Write a note on feedback inhibition.
9. Write a note on allosteric regulation with example.
10. Write a note on covalent modification of enzyme.

5 Mark:

1. Explain First and Second Law of thermodynamics.
2. What are the properties of Enzyme?
3. Derive Michaelis Menten equation.

UNIT: 2

1 marks

1. Write down any two general reaction of amino acid catabolism.
2. Enlist the name of enzyme involved in glyoxylate cycle.
3. Write down the overall reaction of stickland reaction.
4. Explain any one reaction of substrate level phosphorylation.
5. What is HMP pathway and write down its importance.
6. Give a name of regulatory enzyme in glycolysis.

7. How many number of ATP are produced at the end of glycolysis.
8. How many number of net ATP are produced at the end of beta-oxidation.
9. How many number of ATP are produced at the end of Citric acid cycle.
10. Glycolysis occurs in which part of the cell ?

2 & 3 Marks

1. Explain Entner- Doudroff pathway
2. Explain Glyoxylate cycle
3. Enlist the enzymes involved in TCA cycle
4. Explain pentose Phosphate pathway.

5 Mark:

1. Explain in detail Glycolysis
2. Write a note on Citric acid cycle
3. Explain energetics of Palmitic acid
4. Write down the different reactions of amino acid metabolism

UNIT: 3

1 Mark:

1. Define ATPase system
2. What are cytochromes?
3. Define Proton motive force.
4. Define oxidative phosphorylation.
5. Define redox potential.
6. Enlist the carrier present in bacterial electron transport chain.
7. Define biochemical mutants.
8. Write a short note on Favoproteins.
9. Difference between oxygenic and an oxygenic photosynthesis.
10. Difference between Chlorophyll and Bacterial chlorophyll.

2 & 3 Marks:

1. What is the difference between V-Type and F-Type ATP Synthase?
2. Generation of ATP in Alkalophiles.
3. Write a note on generation of proton motive force in bacteria.
4. Write a note on any two carrier of ETC.
5. What is the application of biochemical mutants?
6. How many types of photosynthetic pigment present in photosynthetic bacteria.
7. How many types of reaction center present in photosynthetic bacteria.
8. Write any cyclic reaction in an oxygenic prototroph.
9. What the difference between aerobic and an anaerobic respiration.
10. What is the use of isotopic labelling in bacteria?

5 Mark:

1. Write a note on electron transport chain in bacteria
2. Anaerobic respiration.

3. Write a note on photosynthetic reaction in cyanobacteria.
4. Cyclic photophosphorylation in an oxygenic photographs.
5. Write a note on synthesis of peptidoglycans.

UNIT: 4

1 Mark:

1. Define chemoheterotrophs
2. Define chemolithotrophs.
3. Write a name of nitrogen oxidizing bacteria.
4. What is the source of sulfur oxidizing bacteria?
5. Define Archea bacteria.
6. Which type of bacteria use in fermentation process.
7. Which bacteria involved in lactic acid fermentation.
8. Explain decarboxylation.
9. Give the name of iron bacteria.
10. Give the name of hydrogen bacteria and hydrogenate.
11. Which type of bacteria is survived in extreme salt concentration?

2 & 3 Marks:

1. Explain nitrifying bacteria and its reaction.
2. Explain Hydrogen bacteria.
3. Explain randomizing pathway of gram negative bacteria.
4. Explain phosphorylation in halobacterium.
5. Explain propionate fermentation.
6. Write a note on butyrate and succinate formation.
7. Write a detail note on iron bacteria.
8. Write a note on sulfur oxidizing bacteria with example.

5 Mark:

1. Write a note on homo-fermentative lactic acid fermentation.
2. Write a note on hetro-fermentative lactic acid fermentation.
3. Give the detail of methanogens.
4. Nitrifying bacteria
5. Propionate formation via non-randomizing pathway.

UNIT 5

1 marks

1. Define bacterial plasma membrane are selectively permeable?
2. Write a brief note on various components present in plasma membrane.
3. Write a name of different lipids present in plasma membrane.
4. Give the name of different protein present in structure of plasma membrane.
5. What is the role of carbohydrate in structure of plasma membrane?
6. What is the difference between carrier and channels?
7. Define siderophore.

8. Define chemiosmosis process?
9. Define group translocation process.
10. Define Endocytosis and Exocytosis.
11. Define quorum sensing.
12. Define signal transduction process.
13. What is autocrine and paracrine?
14. What is cAMP and its role in signal transduction?
15. Define secondary messenger.

2 & 3 marks

1. Write a note on lipid anchor proteins.
2. What is membrane fluidity? How is maintain?
3. Write a note on various protein and lipid present plasma membrane.
4. Difference between Passive and Active transport mechanism.
5. Write a note on iron transport.
6. Write a note on mechanosensitive channels.
7. What is the role of enterochelin in *E.coli* ?
8. Write a note on homoserine lactone in quorum sensing.
9. What is G protein? Describe in brief.
10. Write a brief note on receptor present in signal transduction.
11. Role of cell surface receptor in signal transduction mechanism.
12. Write a note on Phosphotransferase system.

5 Marks

1. Write a note on fluid mosaic model.
2. Write a detail note on integral peripheral membrane proteins.
3. Describe the generation of energy by chemiosmosis driven transport.
4. Describe iron transport.
5. Write a brief note on quorum sensing with example.
6. Write note on signal transduction mechanism.