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| **ST. JOSEPH’S COLLEGE (AUTONOMOUS), BANGALORE-27** |
| **M.Sc. MICROBIOLOGY- II SEMESTER** |
| **SEMESTER EXAMINATION: APRIL 2019** |
| **MB 8118– MICROBIAL PHYSIOLOGY** |

**Time: 2 1/2 hrs Max. Marks - 70**

**This paper contains 1 printed pages and 4 parts**

**I. Answer any FIVE of the following 5x3=15 marks**

1. Define nutrition. Classify microorganism based on the carbon source.
2. What is oxidative stress? How does the cell combat oxidative stress?
3. Draw the structure of any one disaccharide? Write the enzyme that converts that disaccharide to monosaccharide.
4. Define substrate level phosphorylation and give one example?
5. Give an overview of pentose phosphate pathway.
6. Define transamination, deamination and decarboxylation.
7. Differentiate between ribozyme and abzyme.

**II. Answer any FIVE of the following 5x5=25 marks**

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1. Draw the structure of a Purine nucleotide. Discuss Purine synthesis by Salvage pathway.
2. Draw the general structure of an amino acid. Classify amino acid on the basis of the R groups.
3. What is thermodynamics? Summarize the first and second laws. Define entropy, and enthalpy.
4. Describe Alcoholic fermentation.
5. Define Activation energy, Specificity and Binding energy in relationship with enzymes. Write a note on the classification of enzymes.
6. Describe the mechanism of Oxygenic photosynthesis.
7. How are fatty acid molecules broken down by β-oxidation pathway?

**III. Answer any TWO of the following 2X10=20 marks.**

1. How do binding protein transport systems and membrane-bound transport systems function for uptake of nutrients?

16. What is the fate of glucose under aerobic condition?

17. Describe the factors that affect enzyme kinetics. Write a note on multisubstrate enzyme

kinetics.

**III. Answer the following 1X10=10 marks.**

18. a. What happens if anaerobic conditions prevails after the organism has utilized the

sugars completely from the medium? (5 marks)

b. Calculate the ATP yield in prokaryotes if two glucose molecules are consumed under aerobic condition. (5marks)