Mock Question Paper

MICROBIOLOGY(HONS.)

Paper-C-5

Full Marks:50 **Time:2hrs**

1. **Answer any *four* of the following :** **2x4=8**

a) Name two oxygenic and two anoxygenic photosynthetic bacteria. 1+1
b) Distinguish between osmophiles and xerophiles.What is a compatible solute? 1+1
c) How do chemolithotrophs differ from chemoorganotrophs.Cite example. 1+1
d) What is batch culture and continuous culture?
e) What are iron oxidizing bacteria? Give an example
f) What is the difference between anaerobic respiration and fermentation?
g) What do you mean by anaplerotic cycle? Give example. 1+1

2. **Answer any *three* of the following :** **6x3=18**

a) What is synchronous culture? Describe any one process by which you may obtain synchronous culture. 2+4
b) Describe schematically the biochemistry of nitrogen fixation highlighting the need of ATP in the process. 6
c) What is cardinal temperature? What are the major temperature classes of microorganisms? 2+4
d) Schematically describe the light trapping mechanism associated with bacterial photosynthesis. 6

3. **Answer any *two* of the following :** **12x2=24**

a) Briefly explain the classification of bacteria on the basis of nutrition.Who discovered chemolithotrophy? Why photoorganotrophs are considered as heterotrophy though they are photosynthetic groups? Mention two application of iron oxidizing bacteria. 7+1+2+2
b) Why some photosynthetic bacteria are compelled to do reverse electron flow? Differentiate between anoxic and oxic bacterial photosynthesis. Schematically describe the Calvin cycle mentioning enzymes in each step. 2+4+6
c) Describe various components of a typical components of nitrogenase enzyme complex? How is nirtogenase protected from oxygen in various microbes?What area alternative nitrogenase? How do they show oxygen insensitivity? 4+4+2+2
d)) Briefly describe the TCA cycle mentioning all of its enzyme. How many ATPs are produced per turn of TCA cycle? Distinguish between TCA and glyoxylate cycle? State the importance of TCA and glyoxylate in bacteria. 6+2+2+2
e) Distinguish between exopeptidase and endopeptidase. What are the different types of amino acids found in aspertate family? Schematically represent the synthesis of Lysine.2+2+8
f) Differentiate between α oxidation and β oxidation?Briefly describe the different β oxidation pathways you have studied. 2+10

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