2018

BIOTECHNOLOGY

BIT 102

MICROBIOLOGY

Full Marks : 80

Time: 3 Hours

The figures in the margin indicates full marks for the questions

Q1. Answer the following questions: (1×10=10)

a. What is the function of yeast in wine production?

b. What are chemotherapeutic agents?

c. Name the three domains in the classification of microorganisms.

d. Define differential staining.

e. What are microbial fuel cells used for?

f. What is Holliday Junction?

g. Define an auxotrophic mutant?

h. What is a phylogenetic tree?

i. What is a pure culture?

j. Define plasmid.

Q2. Answer the following questions: (2×5=10)

a. What is microbial bioremediation?

b. Differentiate between batch and continuous culture.

c. Name two viral and two bacterial pathogens.

d. Differentiate between MIC and MLC.

e. What are the beneficial effects of microbes on the earth's environment?

Q3. Write short notes on any four of the following: (5×4=20)

a. Ames Test for mutagenicity

b. DGGE

c. Microbial toxins

d. Biosensors in Biological studies

e. Antimicrobial Susceptibility Test

f. Homologous Recombination

Q4. Answer any two of the following questions: (8×2=16)

a. What is quorum sensing? What type of quorum sensing system is found in Gram negative bacteria? (2+6=8)

b. Describe the different techniques used for preservation and maintenance of a microbial culture. (8)

c. Explain the cell wall structure of a Gram positive and Gram negative bacteria. (4+4=8)

d. Describe how microbes are used for biogas and bio-fertilizer production. (8)

e. i. Define conjugation. (2+2+2+2=8)

ii. What do you mean by Hfr strain?

iii. Diagrammatically describe the conjugation between

- F^+ & F^-
- Hfr & F^-

Q5. Elaborately answer any two of the following questions: (12×2=24)

a. Define probiotics? What are the properties of probiotics? Why are probiotics important for human health? (2+5+5=12)

b. What is transduction? Explain the two types of transduction process with neat and labelled diagrams. (2+5+5=12)

c. Describe the different physical and chemical agents/methods used to control micro-organisms. (6+6=12)

d. What are the different nutritional groups of microorganisms? Define microbial growth. Describe the different phases of microbial growth with a neat and labelled diagram. (2+2+8=12)

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