Q. P.Code : 755004

[3 hours] Total marks: 100

N.B. (1) Attempt **all** questions.
(2) Draw labeled diagrams wherever necessary.

Q1.A. Define the following terms : **5 marks**

i. Non reducing sugar
ii. Containment
iii. Phycobilisomes
iv. Chemotaxis
v. Derived lipids

B. State whether the given statement is true or false : **5 marks**

i. Plasmids give a selective advantage to the host bacterium.
ii. *Mycoplasma* are cell wall less bacteria.
iii. Peptidoglycan contains mesodiaminopimelic acid.
iv. The inner membrane of chloroplast has cristae.
v. Golgi complex plays a major role in ribosome synthesis

C. Give one example for each of the following: **5 marks**

i. Spiral bacteria.
ii. Bacteria possessing sulphur granules.
iii. Physical barrier between operator and pathogen.
iv. Structural polysaccharide of plant cells.
v. Photosynthetic pigments in chloroplast

D. Select the correct alternative and rewrite the statements: **5 marks**

i. Enrichment culture technology was discovered by___ [Koch, Pasteur, Winogradsky]
ii. _____ are sites of protein synthesis.[ribosomes, plasmids, endospores]
iii. A_____ fatty acid has no double bond in it. [saturated, unsaturated, polyunsaturated]
iv. Transfer of genetic material in a bacterial cell is mediated by____. [flagella, pili, fimbriae]
v. In DNA, adenine is in linkage with____. [thymine, uracil, cytosine]

Q2. Answer briefly any two of the following: **20 marks**

i. Diagrammatically explain the different stages in the formation of bacterial endospores.
ii. Discuss the various types of stereo isomers of organic molecules and their biological significance.
iii. Discuss the nucleus and nucleolus of a eukaryotic cell.

Q3.A. Answer briefly any two of the following : **16 marks**

i. Compare and contrast between the cell walls of Gram positive and Gram negative bacteria.
ii. State the Koch's postulates and explain them taking the example of *Mycobacterium tuberculosis.*
iii. Discuss the structure and function of bacterial cell membrane.
iv. Discuss the slime layer, capsule in bacteria and their significance.

B. State the contribution of : **4 marks**

i. John Tyndall
ii. Joseph Lister

Q4. A. Answer briefly any two of the following : **16 marks**

i. Discuss the importance of safety in microbiology laboratory and the consequences of failure to practice it.
ii. Differentiate between: Eukaryotic cell and prokaryotic cell.
iii. Explain in brief the eukaryotic ribosomes,endoplasmic reticulum and their functions.
iv. Discuss the structure of chloroplast.

B. Do as directed : **4 marks**

i. State the significance of autophagy.
ii. State the function of microtubules.

Q5. A. Answer briefly any two of the following : **16 marks**

i. What is the role played by water? Discuss the important properties of water.
ii. Explain the following terms with respect to protein structure: primary, secondary, tertiary and quaternary.
iii. Discuss with the help of example the simple and complex lipids.
iv. Compare and contrast between : DNA and RNA.(State two points of comparison and six points of differences)

B. Give the structural formula of : **4marks**

i. Maltose
ii. Alanine

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