

MICROSCOPY

Questions carry two marks:

1. What is light microscope?
2. What is an electron microscope?
3. Explain the principle of transmission Electron Microscope.
4. Describe the principle of scanning electron microscope.
5. Compare the characteristic features of light and electron microscopes.

Questions carry four marks:

1. Describe different types of light microscopy.
2. Explain the principle of transmission Electron Microscope.
3. Describe the principle of scanning electron microscope.
4. Compare the characteristic features of light and electron microscopes.

CLASSIFICATION OF MICROORGANISMS

Questions carry two marks:

1. What are Prokaryotes?
2. What are eukaryotes?
3. What are fungi?
4. What are algae?

Questions carry four marks:

1. List the divisions of organisms.
2. Explain the universal tree of life.
3. List major groups of fungi.
4. Describe the biological of economic importance of algae.
5. Describe protozoans.
6. Compare the viruses as living or non living.
7. Tabulate the virus classification.

BACTERIAL CELL STRUCTURE

Questions carry two marks:

1. What are capsules?
2. What is glycocalyx?
3. Give the functions of glycocalyx.
4. Give the functions of capsules.

5. What are endoscopes?

Questions carry four marks:

1. Give the structure of a bacterial cell.
2. Illustrate the bacterial cell.
3. List the components in bacterial cell.
4. What is the nature of cytoplasm in bacteria?
5. Give the characteristic features of bacterial cell membrane.
6. Give the characteristic features of bacterial chromosome.
7. Give the characteristic features of bacterial plasmids.
8. Give the characteristic features of bacterial ribosomes.
9. Write a note on bacterial staining.
10. Write a note on gram staining.
11. Describe the structure of peptidoglycan.
12. Describe the structure of Gram positive cell wall.
13. Describe the structure of Gram negative cell wall.
14. What is the structure of outer membrane in Gram-negative bacteria?
15. What is LPS? Explain.
16. Compare the cell walls in bacteria.
17. List the functions of bacterial cell walls.
18. Describe the structure of bacterial flagella.
19. Describe the arrangements of flagella.
20. Describe the structure of endoscopes.

VIRUSES

Questions carry two marks:

1. What is flu?
2. What are viroids?
3. What are bacteriophages?
4. What is a temperate phage?
5. What is a lytic phage.

Questions carry four marks:

1. What is the general structure of a virus?
2. List the type of genomes in viruses.
3. Give an account of protein coats of viruses.

4. Give a brief account on polio.
5. Illustrate the structure of Influenza virus.
6. Illustrate the structure of HIV.
7. How does HIV infection spreads?
8. Give a brief account on viral infection of plants.
9. How plant viruses spread?
10. Describe the structure of TMV.
11. Tabulate the properties of T-Bacteriophages.
12. Describe the lytic cycle of bacteriophages.
13. Describe the lysogenic cycle of bacteriophages.

MICROBIAL TECHNOLOGY

Questions carry two marks:

1. Define microbial technology.
2. What are semi synthetic pencillins?
3. Describe in brief steps involved in waste water treatment.
4. Explain primary treatment of wastewater.
5. Explain secondary treatment of wastewater.
6. Explain tertiary treatment of wastewater.

Questions carry four marks:

1. Provide a list of fermentation products and their applications.
2. Write a note on a products of microbial fermentations.
3. What are the raw materials used in ethanol production?
4. Give an account of ethanol producing microorganisms.
5. Explain the steps involved in Industrial ethanol production.
6. Describe the structure of ethanol fermentation system.
7. What are the additional steps involved in ethanol production from carbohydrate based waste?
8. Explain the concentration of ethanol from fermented broth.
9. Which are the by products of ethanol manufacture?
10. Write on account on the pencillin production.
11. Describe steps involved in recovery of pencillin from fermented broth.
12. Write notes on activated sludge process.
13. Write notes on tricking filters.
14. Describe the stages in anaerobic degradation of sludge.
15. Write a note on single cell proteins.
16. Describe the general steps in SCP production.
17. Write note on Spirulina as SCP.
18. Describe the production of spirulina.

NUTRITIONAL REQUIREMENTS

Questions carry two marks:

1. Give an account on the macronutrients.
2. What is meant by a trace element? Give examples.
3. What are phototrophs?
4. What are heterotrophs?
5. What are lithotrophs?
6. Provide the list of growth factors.
7. Give the composition of nutrient agar.
8. Define bacterial growth.
9. What is binary fission?
10. Explain the bacterial growth curve.
11. What is the importance of bacterial growth inhibition?

Questions carry four marks:

1. List the nutritional requirements of bacteria.
2. Explain the types of bacterial culture media.
3. Give an account of gelling agents for microbiological media.
4. Give the composition of nutrient broth.
5. How do bacteria respond to temperature?
6. Explain the influence of pH on bacterial growth.
7. Classify the bacteria on oxygen requirements.
8. Describe bacterial control using heat.
9. List the physical methods for bacterial control.
10. Differentiate antiseptics and disinfectants.
11. Tabulate the action and uses of antiseptics and disinfectants.

IMMUNOLOGY

Questions carry two marks:

1. What is innate immunity?
2. Describe the components of innate immunity.
3. Define (a) Phagocytosis (b) Opsonisation (c) Inflammation
4. Describe the inflammatory response.

5. What is acquired immunity?
6. Acquired immunity is specific .why?
7. What are immunogens? Give examples.
8. Define hatpins.
9. What is cell mediated immunity?
10. What are antibodies?
11. Describe the function of antibodies.
12. What is allergy?
13. What is a vaccine?
14. Define active immunization.
15. Define passive immunization.
16. What are ABO blood types?
17. What is Rh test?

Questions carry four marks:

1. Write a note on lymphocytes in acquired immunity.
2. What are antigens? List their properties.
3. Describe the functions of T and B lymphocytes.
4. Write a note on macrophyces and their function.
5. Write a note on natural killer cells.
6. Describe the role of phagocytes in immunity.
7. Write a brief note on dendritic cells.
8. Write a note on granulocytes.
9. Write a note on classes of antibodies.
10. Describe the structure of immunoglobulin G.
11. Write briefly on antigen antibody reactions.
12. Describe the steps involved in allergic response.
13. Give brief classification on allergies.
14. Write a note on vaccines.
15. Write in brief note on blood typin?

RECOMBINENT DNA TECHNOLOGY

Questions carry two marks

1. Define genetic engineering.
2. What is gene cloning?
3. List the tools of genetic engineering?

4. Write a note on DNA ligase?
5. What is palindromic sequence?
6. What is a chimeric molecule?
7. Define cloning vectors?
8. What are competent cells? How are they obtained?
9. What is a genomic library?
10. What is cDNA library?
11. What is screening of a DNA library?
12. What are probes?
13. What is hybridization?
14. What is meant by **Blotting**?
15. Write a note on Southern Blot?
16. Write a note on Northern Blot?
17. What are DNA chips?

Questions carry four marks:

1. Write a note on restriction enzymes.
2. List the features of importance in cloning vectors.
3. Explain how plasmids are excellent vectors.
4. Give the characteristic features of pBR 322 vectors.
5. Give the characteristic features of pUC vectors.
6. Describe the steps involved in the preparation of chimeric DNA molecule.
7. Write a note on transformation of Host cells with recombinant DNA.
8. Write a note on selection of transformed cell.
9. Explain the construction of a DNA library.
10. How is a DNA library screened?
11. Explain the methods to detect target DNA among clones.
12. Write a note on hybridization probes.
13. What are the various types of Blots and what are their uses?
14. Briefly describe the Blotting procedure.
15. What is autoradiography?
16. Write a note on DNA microarray technology.
17. Describe the various applications of recombinant DNA technology.
18. How are recombinant proteins produced? Explain with insulin as an example.