2 ½ Hours

Total Marks: 75

Note:

1. Attempt **all** questions.
2. **All questions** carry **equal** marks.
3. Draw **neat labelled diagrams** wherever necessary.
4. For **Q 2, Q 3 and Q 4** attempt A and B **OR** C and D.

Q.1 Do as directed: (Any fifteen) **15**

1. Define: Distortion.
2. Define: Achromatic condenser.
3. Give one example of a Mordant.
4. Give one example of an Azo dye.
5. Give the significance of an Ocular.
6. Fill in the blank: Number of complete turns of a micrometer screw indicates measure of _____ of an objective. (working distance/ resolving power)
7. Name an axillary group in a dye which imparts salt forming properties to the compound.
   Give one example
8. Equipment working on steam sterilization technique.
9. Dry heat sterilization technique.
10. Disinfectant used in Biotechnology laboratory.
11. Chemical sterilant.
12. Nonionising radiation.
13. Indicator organism for checking efficiency of autoclave.
14. How would you sterilize heat labile liquids?
15. Define: Chemolithoheterotrophs.
16. Define : Complex medium.
17. Fill in the blank: Preservation of micro organisms in liquid nitrogen at -196°C is called _____.
18. Fill in the blank: During the _____ phase, the microorganisms divide and double in number at regular intervals.
19. Give one example of a Bacterium that can assimilate atmospheric Nitrogen.
20. Give one example of a Differential media.

Q 2 A	Describe the functions and different types of objectives used in a compound microscope.	**08**
Q 2 B	Explain the difference between `acidic' and `basic' stains with examples and give their applications. Describe what is meant by `differential staining'?	**07**
	OR	
Q 2 C	Discuss the differences between `Bright field' and `Dark field' microscopy? State the applications of dark field microscopy.	**08**
Q 2 D	Explain the terms `Gram positive' and `Gram negative' bacteria giving an example. Explain the method for their differential staining.	**07**
Q 3 A	Explain the role of Ionizing and non-ionizing radiation in sterilization using examples.	**08**
Q 3 B	State the mode of action of detergents and emulsifiers on microbes.	**07**
	OR	
Q 3 C	Describe the characteristics of an ideal disinfectant. Give three examples.	**08**
Q 3 D	Discuss the mode of action of gases on microbes.	**07**
Q 4 A	What do you mean by pure culture? Enlist the different methods used to obtain a pure culture. Explain any one method to obtain pure culture.	**08**
Q 4 B	What is continuous culture system? Describe the types of continuous culture system.	**07**
	OR	
Q 4 C	Discuss on the measurement of cell mass for enumerating the bacteria.	**08**
Q 4 D	Enlist and explain the methods involved to preserve and maintain pure cultures of bacteria.	**07**

Q.5 Write Short notes on: (Any three) **15**

a. Mechanism of acid-fast staining.

b. Phase contrast microscope.

c. Halogens as skin disinfectant.

d. Types of culture media.

e. Phases of growth curve.
