

Q. P. Code: 20663

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)

1. Define: Differential staining.
2. Define: Working distance.
3. Give one example of a Gram positive bacterium.
4. Give one example of a Natural dye.
5. Give significance of an Immersion objective.
6. Fill in the blank: Working distance of an object covered with a thick cover slip will be _____ than that of an uncovered object. (more/less)
7. Give the term for: The defect in the microscope objective which causes diffusion of light in the centre leading to ring structures.
8. Define: Disinfection.
Give one example:
9. Nontionising radiation.
10. Source of ionising radiations.
11. Alcohol used as sterilant.
12. Surface active agent.
13. How would you sterilize pre-packed syringe and catheters?
14. How would you sterilize enclosed area like PTC laboratory?
15. Define: Chemoheterotrophs.
16. Define: Cryopreservation.
17. Fill in the blank: The time taken for the population to double in size is called _____ time.
18. Fill in the blank: When microorganisms are introduced into fresh culture medium, usually no immediate increase in cell number occurs, so this period is called the _____ phase.
19. Give one example of an Indirect method to enumerate micro organisms.
20. Give one example of a Selective media.

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Q 2 A Elaborate the terms 'chromophore' and 'auxochrome'. State any two chemical groups of stains with examples. **08**

Q 2 B Explain the optical arrangement and applications of a Phase contrast microscope. **07**

OR

Q 2 C What is the difference between simple and compound microscope? Explain the significance of 'resolving power' and 'numerical aperture'. **08**

Q 2 D Illustrate the principle and method of Gram staining. **07**

Q 3 A Discuss in brief characteristics of an ideal disinfectant. Add a note on methods to determine the potency of a disinfectant. **08**

Q 3 B Describe role of dyes in antiseptis. **07**

OR

Q 3 C Using suitable examples explain the role of gases in sterilization, fumigation or disinfection. **08**

Q 3 D What is the role of aldehydes as microbicidal agents? **07**

Q 4 A Elaborate on the chemical and physical types of culture media. **08**

Q 4 B What do you mean by batch culture? Elaborate on the different phases of growth curve of organisms in a batch culture. **07**

OR

Q 4 C Discuss the direct methods used to enumerate microorganisms? **08**

Q 4 D Explain how you would preserve the microorganisms under lower temperatures. **07**

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

- a. Ziehl-Neelsen Staining.
- b. Dark field microscope.
- c. Role of ionising radiation in sterilization.
- d. Phenolic compounds as microbicidal agents.
- e. Turbidostat.