

Q.P. Code : 780400

(2½ Hours)

[Total Marks : 75

- N.B. : (1) All question are compulsory.
(2) All questions carry equal marks.
(3) Draw diagrams wherever necessary.

1. Do as directed (any fifteen) :

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Define :

1. Sterilization
2. Resolving limit
3. Chromogen
4. Growth
5. Thermal death time

Give one example of :

6. Ionizing radiation
7. Halogen used as antimicrobial agent
8. Material sterilized using radiation
9. Acid fast bacteria
10. Basic stain
11. Cationic detergent
12. Selective medium
13. Nitrogen source used in microbial medium
14. Preservative method for cultures using low temperature

Name the following :

15. A type of objective which is simplest in construction and least expensive
16. A defect in microscopic image in which marginal point is drawn out as two separate images
17. A germicidal agent formed using chlorine
18. In the component of microscope which magnifies real image of formed by objective

Fill in the blanks :

19. _____ is a defect in image caused due to loss of contrast in spherical surface.
20. _____ slide divided into RBC chambers and WBC chambers is used for microbial count.

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2. (a) Compare and contrast between dark field and phase contrast microscope
(b) Discuss what are natural and synthetic dyes with examples.

OR

- (c) Explain the principle and applications of compound microscope.
(d) Illustrate the principle of differential staining of Gram positive and Gram negative bacteria with one example each.

3. (a) Discuss applications and limitations of gaseous antimicrobial agent.
(b) Describe method for destruction of microbes using steam under pressure.

OR

- (c) Elaborate on control of micro organisms using phenol and phenolic compounds.
(d) Explain why and how radiation can be used as sterilizing agent with applications.

4. (a) What is Growth Curve? Explain graphically different phases of Growth Curve.

- (b) Discuss isolation of pure culture of microbes with three isolation techniques.

OR

- (c) How would you enumerate micro organisms using any two direct methods.
(d) Elaborate on : 'Differential', 'selective' and 'enrichment media'.

5. Write Short Notes on **any three** of the following :

- (a) Quaternary ammonium compounds
(b) Applications of sterilization by dry heat
(c) Acid fast staining
(d) Advantages and limitation of cryogenic preservation
(e) Chemostat
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