

2 ½ Hours

Total Marks: 75

1. Attempt **all** questions.
2. **All questions** carry **equal** marks.
3. Draw **neat labeled diagrams** wherever necessary.
4. Use of **log tables** and **non-programmable calculator** is **allowed**.
5. 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. Give one example of fungi used as protein supplement.
2. State any one disadvantage of serial subculture method used for preservation of microorganisms.
3. What is the role of chemical, 'phosphorus pentoxide' in process of lyophilisation?
4. Give role of "giant – colony" technique.
5. How volatile organic compound as a carbon source is provided to microorganisms degrading it during screening?
6. State any one objective of secondary screening.
7. Name the method suitable for preservation of microorganism in the laboratory with relatively limited funds and small collection.
8. Give one example of chelating agent used in fermentation media.
9. State the role of baffles in the fermenter.
10. Name the organism used in industrial ethanol production.
11. Phenyl acetic acid is used as a _____ in penicillin production.
12. State the use of paramagnetic gas analyser.
13. _____ method is used universally for sterilization of fermentation media.
14. Name any one type of continuous sterilizer used for sterilization of fermentation media.
15. Name two techniques that provide valuable information on the chemical structure of the fermentation product.
16. Fill in the blank: Fluorescent dye _____ allows microscopic counting of only viable cells by fluorescent microscope.
17. What do you mean by Pharmacokinetics?
18. Name the protozoan employed in bioassay of Vitamin B₁₂.
19. Enlist two metabolic reactions used for metabolic response assays.

20. State true or False: Difference between minimum effective dose & minimum toxic dose is referred as Therapeutic index.

Q.2 A. Discuss primary screening of antibiotic producing microorganisms. **08**

Q.2 B. Give a brief account on any two industrial processes which involve application of bacteria. **07**

OR

Q.2 C. Describe process of lyophilisation to preserve industrially important strains. How the method is different from method of cryopreservation? **08**

Q.2 D. What is secondary screening? Differentiate it from primary screening. **07**

Q.3 A. Discuss the role of different components in fermentation media. **08**

Q.3 B. Describe batch sterilization of fermentation media. State the advantages and disadvantages of the method. **07**

OR

Q.3 C. Schematically explain industrial production and recovery of penicillin. **08**

Q.3 D. Give a brief account on submerged fermentation using suitable example. State the advantages and disadvantages of the process. **07**

Q.4 A. Describe Thin Layer Chromatography as a method of analysis of product from fermentation broth. **08**

Q.4 B. Discuss turbidimetric & growth assays for analysis of fermentation broth. **07**

OR

Q.4 C. Elaborate on Enzymatic methods for analysis of fermentation broth. **08**

Q.4 D. Give an account on Blood concentration-time profile for a theoretical drug given intramuscular. **07**

Q 5. Write Short notes on **any three** of the following **15**

- a. Auxanography.
- b. Industrial applications of algae.
- c. Filter sterilization of fermentation media.
- d. Methods to measure dissolved oxygen in a fermentor.
- e. Bioequivalence & it's assessment.