

VCD: 6/12/23

Class: FYBT Sem: I Subject: Biotechnology

Duration: 2 ½ Hours

Marks: 75

USBT102 - Microbiology-1

1. Attempt **all** questions.
2. **All questions** carry equal marks.
3. Draw **neat labeled 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 'Organotrophs'.
2. Give one example of an enriched medium.
3. _____ is the international standard for bacterial taxonomy (GFS manual , Bergey's manual , ICTV , ICNafp)
4. What is 'Freeze-drying'.
5. Protozoa are unicellular prokaryotic organisms.State whether the statement is true or false.
6. Mention one application of Agriculture microbiology.
7. State the use of basic fuchsin in Endo agar medium.
8. Give any one example of phenolic compound as a chemical agent for controlling microorganisms.
9. The most common commercial preparation is Betadine, which is a povidone-iodine is an example of iodophor. State whether the given statement is true or false.
10. Define bacteriostatic agent.
11. Agent which kills fungi is called as _____ (fungicide , bactericide, viricide, algicide)
12. Name the compound containing copper which is used as an effective algicide in lakes and swimming pools.
13. Name the aldehyde which was used to preserve biological specimens.
14. Give another name for chlorine containing compound which is used as a household bleach.
15. Write a role of objective lenses.
16. Give one example of neutral dyes.
17. Write one example of special staining.
18. Give the one advantage of scanning electron microscope.
19. Define- Auxochrome group.
20. Define- stain.

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- Q. 2 A** Discuss the major nutritional types of micro-organisms with examples. 08
- Q. 2 B** 'MacConkey agar is both a differential and selective medium. Justify the statement. 07
- OR**
- Q. 2 C** Explain how would you preserve the micro-organisms under low temperatures. 08
- Q. 2 D** How was the theory of 'Abiogenesis' disproved by Louis Pasteur? Explain in detail. 07
- Q. 3 A** Give a brief account on Ionizing radiation as an agent which can be used to control microorganisms and add a note on non ionizing radiations. 08
- Q. 3 B** Moist heat is an agent which can be used to control microorganisms. Justify. 07
- OR**
- Q. 3 C** Elaborate on phenol and phenolic compounds as a chemical agent for control of microorganisms and add a note on alcohol as an antimicrobial agent. 08
- Q. 3 D** Describe in brief the use of chemical agents in control of microorganisms with respect to heavy metals and aldehydes. 07
- Q. 4 A** Discuss the working of phase contrast microscope. 08
- Q. 4 B** Explain dyes and its types with examples. 07
- OR**
- Q. 4 C** Explain working of transmission electron microscope. 08
- Q. 4 D** Write a note on dark field microscopy. 07
- Q. 5** Write Short notes on **any three** of the following 15
- Haeckel's kingdom protista.
 - Ethylene oxide as a chemical agent for controlling microorganisms.
 - Dry heat as a method for controlling microorganisms.
 - Parts of bright field microscope
 - Application of fluorescence microscope.