

D 130835

(Pages : 2)

Name.....

Reg. No.....

FIFTH SEMESTER B.VOC. DEGREE EXAMINATION, NOVEMBER 2025

Organic Farming

SDC 5AG 23-E1—ENVIRONMENTAL MICROBIOLOGY AND BIOTECHNOLOGY

(2021 Admissions)

Time : Two Hours and a Half

Maximum : 80 Marks

Section A*Each question carries 2 marks.**(Ceiling 25)*

1. Write a note on mutualism.
2. What are Chemoautotrophic bacteria ?
3. What is Mutation ? Give any *two* types of mutation.
4. Differentiate between SEM and TEM.
5. Differentiate gram positive and gram-negative bacteria.
6. What is bacterial endospore ? Mention its function.
7. What is Spectrophotometer ? Mention its application in microbiology laboratory.
8. Mention contributions of Robert Koch.
9. List out various methods of determining growth of micro-organism.
10. Write short note on transduction and types of transduction.
11. Plasmids are used as suitable vectors in genetic engineering experiments. Justify the statement.
12. Explain the role of micro-organism in organic synthesis.
13. Briefly explain negative interactions with examples.
14. Draw the growth curve of bacteria in culture and explain its various phases.
15. Differentiate between bright field and phase contrast microscope.

Turn over

Section B

*Each question carries 5 marks.
(Ceiling 35)*

16. Explain recombinant DNA technology and its application.
17. Define air microbiology. Brief on distribution, techniques and role of air micro-organisms.
18. Microbes have immense potential to control environmental pollution. Justify the statement.
19. Explain various rules, regulations and safety measures in a microbiology laboratory.
20. Explain basic principle, components and function of autoclave with a neat diagram.
21. Elaborate note on history and scope of microbiology.
22. Write a note on conjugation.
23. Describe about Genetically Modified Organisms with examples.

Section C

*Answer any two questions.
Each question carries 10 marks.*

24. Describe the structure and biology of bacteria, virus, algae and fungi along with their classification with suitable diagram.
25. Write essay on preparation of samples, types of media, sterilization techniques, methods of estimation and isolation of microorganism and Microbial growth process.
26. Define Industrial microbiology and explain the types of major products of industrial microbiology along with environmental applications of microbiology.
27. Elaborate the role of soil micro-organisms with the detailed explanation of nitrogen, carbon and sulphur cycle.

(2 × 10 = 20 marks)