2024/FYUG/ODD/SEM/
BTCDSM-201T/245

FYUG Odd Semester Exam., 2024

BIOTECHNOLOGY

(3rd Semester)

Course No. : BTCDSM-201T

(Microbiology and Immunology)

Full Marks : 70
Pass Marks : 28

Time : 3 hours

The figures in the margin indicate full marks for the questions

UNIT—I

1. Answer any *two* from the following : 2×2=4

(a) Write the features of bacteria.

(b) Differentiate between algae and fungi.

(c) Write about the nature of viruses.

2. Give a short account of major discoveries of microbiology. Describe the criteria for grouping microorganisms. 4+6=10

OR

3. Give an illustrated account of morphology and cell structure of bacteria. 4+6=10

UNIT—II

4. Answer any *two* from the following : 2×2=4

(a) Write a note on bacterial conjugation.

(b) Give a brief account of generation time.

(c) Mention the factors affecting growth of bacteria.

5. Give a detailed account of nutritional categories of microorganisms. 10

OR

6. Write notes on the following : 5+5=10

(a) Transformation

(b) Transduction

UNIT—III

7. Answer any *two* from the following : 2×2=4

(a) Write a note on serial dilution.

(b) Give a brief account of inoculation.

(c) What is pure culture?

8. Give an illustrated account of physical methods for sterilization. Add a note on streak plate method. 6+4=10

OR

9. Describe chemical methods for sterilization. Add a note on the preparation of culture media. 6+4=10

UNIT—IV

10. Answer any *two* from the following : 2×2=4

(a) Differentiate between B-lymphocytes and T-lymphocytes.

(b) Write a note on T-cell receptors.

(c) Write about B-cell activation.

11. Write about class switching. Give a detailed account of heavy chain gene transcription. 3+7=10

OR

12. Write a note on innate immunity. Give an illustrated account of humoral immunity. 3+7=10

UNIT—V

13. Answer any *two* from the following : 2×2=4

(a) Write a note on Class I MHC molecule.

(b) What is antigen processing?

(c) Give a short account of RIA.

14. Define autoimmune diseases. Describe Hashimoto's disease and myasthenia gravis. 2+4+4=10

OR

15. Write notes on the following : 5+5=10

(a) AIDS

(b) Systematic lupus erythematosus

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