B.Sc./6th Sem (H)/BOT/23(CBCS)

2023

6th Semester Examination

BOTANY (Honours)

Paper : DSE 3-T

[CBCS]

Full Marks : 40 Time : Two Hours

The figures in the margin indicate full marks.
Candidates are required to give their answers in their own words as far as practicable.

[Industrial and Environmental Microbiology]

Group - A

Answer any ***five*** questions. 2×5=10

1. What is BOD?
2. Name two immobilized enzyme.
3. Name two bacteria commonly found in air.
4. Name two nitrogen fixing cyanobacteria.
5. What is lyophilization?
6. What are TDS and TOC of water samples?
7. What is downstream processing?
8. Write down the name of the microorganism used in citric acid production.

P.T.O.

Group - B

Answer any ***four*** questions. 5×4=20

9. Write about the applications of Tank fermenter and Tower fermenter. 2½+2½

10. Write a brief note on industrial application of casein hydrolysis and starch hydrolysis. 2½+2½

11. Write a note on arbuscular mycorrhizal colonization in plant root. 5

12. Briefly describe the process of root nodule formation. 5

13. Name different types of commercially produced enzymes and describe the process of manufacturing of any one enzyme. 2+3

14. What is biofertilizer? Write notes on significance of biofertilizer. 2+3

Group - C

Answer any ***one*** question. 10×1=10

15. Write a note on bioremediation of contaminated soil. Elaborately describe the role of microbes in sewage and domestic waste water treatment systems. 5+5

16. Differentiate between batch and continuous fermentations. Describe the components of a typical bioreactor. 5+5

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OR

[Bioinformatics]

Group - A

Answer any ***five*** questions. 2×5=10

1. What is the full form of DDBJ and NCBI?

2. Name a software for prediction of secondary structure of a protein.

3. What are the database retrieval tools of NCBI?

4. What is PIR?

5. What is DBMS? Mention two main types of data organization.

6. What is CLUSTALW alignment?

7. What is phylogram?

8. What is the difference between global and local sequence alignment?

Group - B

Answer any ***four*** questions. 5×4=20

9. Write the differences between PAM and BLOSUM. 5

10. Write a brief account on specialised tools and databases of NCBI. 5

P.T.O.

11. What are the goals and applications of Bioinformatics? 5

12. What is BLAST? What are types of BLAST? 1+4

13. Describe the word method for alignment of sequence. 5

14. What are the difference between phenetic and cladistic approach? 5

Group - C

Answer any ***one*** question. 10×1=10

15. Describe with suitable examples the different types of biological databases. 10

16. Give the applications of bioinformatics in drug discovery, QSAR and crop improvement. 3+4+3