

**2023/TDC(CBCS)/ODD/SEM/
BOTSEC-301T/142**

TDC (CBCS) Odd Semester Exam., 2023

BOTANY

(3rd Semester)

Course No. : BOTSEC-301T

(Biofertilizers)

Full Marks : 50

Pass Marks : 20

Time : 3 hours

*The figures in the margin indicate full marks
for the questions*

SECTION—A

**Answer fifteen questions, selecting any three from
each Unit : 1×15=15**

UNIT—I

- 1. What is fertilizer?**
- 2. Name two bacteria which are used as biofertilizer.**

(2)

3. Name one N_2 -fixing symbiotic bacteria.
4. Which plant family is associated with N_2 -fixation with *Rhizobium* symbiotically?

UNIT—II

5. Name one N_2 -fixer used in paddy fields.
6. Who first reported the genus *Spirillum*?
7. Write one difference between *Azotobacter* and *Azospirillum*.
8. Name one aerobic, free-living, N_2 -fixing soil bacteria.

UNIT—III

9. Name one heterocyst bearing Cyanobacteria.
10. What is the role of heterocyst in Cyanobacteria?
11. Name one aquatic pteridophyte which forms symbiotic association with *Anabaena*.
12. Where is the Central Rice Research Institute (CRRRI) situated?

(3)

UNIT—IV

13. Define mycorrhiza.
14. Name one genus of arbuscular mycorrhiza fungi.
15. Define endomycorrhiza.
16. Name the mycorrhizal type found in gymnosperms and angiosperms.

UNIT—V

17. Write the scientific name of one earthworm used in vermicomposting.
18. Define vermicomposting.
19. What is green manuring?
20. Who is considered as the father of organic farming?

SECTION—B

Answer *five* questions, selecting *one* from each
Unit : 2×5=10

UNIT—I

21. Write a brief note on microbial inoculants.

(4)

22. Write a note on N_2 -fixation by free living soil bacteria.

UNIT—II

23. Write a brief note on plant growth promoting bacteria (PGPB).

24. What are diazotrophs?

UNIT—III

25. Write a brief note on *Azolla* and *Anabaena azollae* symbiotic association.

26. Write a note on role of cyanobacteria in rice cultivation.

UNIT—IV

27. Write a short note on VAM.

28. What is hartig net?

UNIT—V

29. Write the importance of biocompost.

30. Write a short note on green manuring.

(5)

SECTION—C

Answer five questions, selecting one from each
Unit : 5×5=25

UNIT—I

31. Write a detailed account on isolation, identification and mass multiplication of *Rhizobium*.

32. Write a note on isolation of *Frankia* and significance of *Frankia* inoculation in actinorhizal symbiosis.

UNIT—II

33. Give a detailed account of *Azotobacter* inoculant preparation and multiplication.

34. Write a note on mass multiplication of *Azospirillum* inoculant.

UNIT—III

35. Give an account on biological nitrogen fixation.

36. Write a note on role of *Azolla* in rice cultivation.

(6)

UNIT—IV

37. Give an account on the classification of mycorrhiza.
38. Write an elaborate note on types of mycorrhizal association in plants.

UNIT—V

39. Give an account of process of vermi-composting with diagram.
40. Write a note on recycling process of agricultural and municipal wastes.
