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Reg. No.....

Name.....

B.Sc. DEGREE (C.B.C.S.S.) EXAMINATION, NOVEMBER 2022

Fourth Semester

Core Course—TISSUE CULTURE AND GENE MANIPULATIONS

[For B.Sc. Biological Technique and Specimen Preparation]

(2013—2016 Admissions)

Time : Three Hours Maximum Marks : 60

Part A

Answer **all** *questions.*
Each question carries 1 *mark.*
Answer not to exceed 30 *words.*

1. Restriction enzymes.
2. Suspension culture.
3. Plasmid.
4. Cell culture.
5. Totipotency.
6. Microinjection.
7. Auxin.
8. Liposomes.

(8 × 1 = 8)

Part B

Answer any **six** *questions.*
Each question carries 2 *marks.*
Answer not to exceed 50 *words.*

9. What is micropropagation ? How it is different from vegetative propagation ?
10. Define colony hybridization.
11. What is an explant ? How will you induce callus from it ?
12. What is embryo rescue ?
13. What is somaclonal variation ? Mention its applications.

Turn over

14. Describe the commercial applications of plant tissue culture.

15. What is subculturing in plant tissue culture ?

16. Describe various additives in plant tissue culture media.

17. Why is insertional inactivation important ?

18. What is the role of trypsin and EDTA in cell culture ?

(6 × 2 = 12)

Part C

Answer any **four** *questions.*
Each question carries 4 *marks.*
Answer not to exceed 50 *words.*

19. Describe bluewhite screening of recombinants.

20. Explain Hybridoma technology.

21. Explain cryopreservation.

22. Write a short note on the composition and preparation of culture media for plant tissue culture method.

23. Describe electroporation and its applications.

24. What is meristem culture ? What are the advantages of meristem culture ?

(4 × 4 = 16)

Part D

Answer any **two** *questions.*
Each question carries 12 *marks.*
Answer not to exceed 400 *words.*

25. Describe somatic hybridization and its application.

26. Explain any three vector-less methods that are used to introduce recombinant DNA into a competent host cell.

27. Describe anther culture along with its advantages and disadvantages.

28. Explain cloning experiment.

(2 × 12 = 24)