**QP CODE: 24026971**

24026971

**Reg No :** .....

**Name :** .....

# B.Sc DEGREE (CBCS) REGULAR / IMPROVEMENT / REAPPEARANCE EXAMINATIONS, OCTOBER 2024

## Third Semester

B.Sc Biological Techniques and Specimen Preparation Model III

## Core Course - ZB3CRT09 - TISSUE CULTURE AND GENE MANIPULATION

2017 Admission Onwards

A1751BBD

Time: 3 Hours Max. Marks : 60

### Part A

*Answer any **ten** questions.*

*Each question carries **1** mark.*

1. What are ligases?
2. Write two examples of plasmid vectors.
3. Write two plant virus vectors.
4. Define the principle of Genecloning .
5. List the major techniques involved in gene cloning.
6. Which are the different macronutrients in plant tissue culture media?
7. What is invitro fertilization in plant tissue culture?
8. Define ovary culture.
9. What is the pupose of endosperm culture?
10. Give two examples for cryoprotectants.
11. Write two examples for cell lines.
12. What is hybridoma technology?

(10×1=10)

### Part B

*Answer any **six** questions.*

*Each question carries **5** marks.*

13. Explain type II restriction endonucleases with examples.

14. Describe EMBL4 vector.

15. Explain identification and selection of recombinants.

16. Describe the applications in gene cloning.

17. Explain the characteristics of plant cells in culture.

18. Explain the protocol of callus culture.

19. Explain the protocol of anther culture.

20. Explain the protocol of ovule culture.

21. Explain the media composition of animal cell culture.

(6×5=30)

**Part C**

*Answer any **two** questions.*

*Each question carries **10** marks.*

22. Explain in detail genomic DNA isolation from plant tissue.

23. Describe the principle and steps in gene cloning.

24. Explain meristem culture with applications.

25. Explain briefly the different methods of protoplast fusion.

(2×10=20)