

19. (a) Write an essay about organization of Ti plasmid.

Or

- (b) Illustrate the strategies for development of transgenic plants.
20. (a) Discuss in brief on improved horticultural variety.

Or

- (b) Role of transgenics in bioremediation – Discuss in detail.

SECTION C — ($3 \times 10 = 30$)

Answer any THREE questions.

21. Write brief account on organogenesis in plant tissue culture.
22. Describe about the production of plant secondary metabolites.
23. Discuss in brief on transfer of rDNA molecules into bacteria.
24. Describe about DNA transfer by micro and macro injection methods.
25. Give detailed note on genetically engineered products — Humulin.

S.No. 2636

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(For candidates admitted from 2022–2023 onwards)

M.Sc. DEGREE EXAMINATION, NOVEMBER 2022.

Botany – Core Choice Course

**PLANT BIOTECHNOLOGY AND GENETIC
ENGINEERING**

Time : Three hours

Maximum : 75 marks

SECTION A — (20 marks)

Answer ALL questions.

- I. Multiple Choice questions : (5 × 1 = 5)
1. Synthetic seeds are produced by the encapsulation of somatic embryos with _____.
(a) Sodium acetate (b) Sodium nitrate
(c) Sodium chloride (d) Sodium alginate
2. Frozen storage is generally operated at the temperature of _____
(a) -50°C (b) -18°C
(c) 0°C (d) -60°C

3. The tendency of an offspring to resemble its parent is known as
 (a) Variation (b) Heredity
 (c) Resemblance (d) Inheritance
4. Disarming of Ti plasmid is _____.
 (a) Removal of the Virulence region
 (b) Removal of the 25 base pair repeats
 (c) Removal of the T-DNA
 (d) Removal of the Host specificity region
5. Bt reduce the use of
 (a) Fertilizers (b) Manures
 (c) Seeds (d) Pesticides
- II. Fill in the blanks : (5 × 1 = 5)
6. The three germ layers utilized in organogenesis are ectoderm, mesoderm and _____
7. Flavonoid is a _____.
8. _____ blotting technique is most suitable for detecting the presence of gene products.
9. Hormone response element is found in _____ of the cell.
10. Humulin is made of _____.

- III. Answer ALL the questions in a sentence or two :
 (5 × 2 = 10)
11. Define callus.
12. Comment on cybrids.
13. What is ligase?
14. Define Ti plasmid.
15. Define human growth hormone with examples.

SECTION B — (5 × 5 = 25)

Answer ALL questions, choosing either (a) or (b).

16. (a) Write about the plant tissue culture media (MS).
 Or
 (b) Explain in brief about organization of a tissue culture laboratory.
17. (a) Discuss in brief account on somoclonal variation.
 Or
 (b) Write note on methods of fusing at protoplasts.
18. (a) Briefly explain the gene cloning steps in eukaryotes.
 Or
 (b) Write an elaborate note on reverse transcriptase.