(6 pages)

Reg. No. : .....

Code No.: 5382 **Sub. Code: PBOM 43**

M.Sc. (CBCS) DEGREE EXAMINATION,
APRIL 2022

Fourth Semester

Botany – Core

APPLIED BIOTECHNOLOGY

(For those who joined in July 2017 onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions, Choose the correct answer :

1. Haploid plants can be obtained from_____
   (a) Bud culture (b) Anther culture
   (c) Leaf culture (d) Root culture

2. Synthetic seeds are produced by the encapsulation of somatic embryos with _____.
   (a) Sodium acetate (b) Sodium nitrate
   (c) Sodium chloride (d) Sodium alginate

3. Transposons were first discovered in _____.
   (a) Rice (b) Maize
   (c) Mice (d) Bacteria

4. 35S promoter is obtained from _____.
   (a) Tobacco mosaic virus
   (b) Cauliflower mosaic virus
   (c) Agrobacterium
   (d) Arabdopsis

5. Resistance to glyphosphate in transgenic petunia plants has been developed by the transfer of
   (a) gene for 5-enol-pyruvyl shikimat 3 phosphate synthase
   (b) gene for acetolactate synthase
   (c) gene for glutamine synthase
   (d) All of these

6. Select the incorrect statement from the following option.
   (a) Biodegradable polymers are not suitable candidates in the recycling of commingled plastics
   (b) Biodegradable polymers are very expensive
   (c) Biodegradable polymers are an attractive option for addressing the solid waste and marine pollution
   (d) Biodegradable polymers are easily available

7. Which one of the following is not included in the mechanism of bioleaching?

(a) Acidolysis (b) Complexolysis

(c) Redoxolysis (d) Hydrolysis

8. The nature of an enzyme is

(a) Lipid (b) Vitamin

(c) Protein (d) Carbohydrate

9. In 1990 the first gene therapy was given to treat which deficiency?

(a) Smallpox

(b) Vitamin E

(c) Protein

(d) Adenosine deaminase

10. The technology used for the production of monoclonal antibodies is

(a) mass culture technology

(b) hybridoma technology

(c) suspension culture

(d) None of these

PART B — (5 × 5 = 25 marks)

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

Each answer should not exceed 250 words.

11. (a) Illustrate the anther culture.

Or

(b) Write the advantages and disadvantages of micropropagation.

12. (a) Give a brief account on transposons.

Or

(b) Explain the Ti plasmid.

13. (a) Transgenic plant as bioreactor- Explain.

Or

(b) Write notes on golden rice.

14. (a) Explain the *In situ* method of bioremediation.

Or

(b) Discuss the various applications of fungal enzymes.

15. (a) List the various biofuels with their sources.

Or

(b) Give an account on humulin.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b)
Each answer should not exceed 600 words.

16. (a) Explain the suspension culture.

Or

(b) Write the applications of plant tissue culture in agriculture and crop improvement.

17. (a) Describe the gene amplification by PCR technique.

Or

(b) Elaborate the steps of gene cloning in eukaryotes.

18. (a) Explain the production of insects resistant plant.

Or

(b) Discuss about biodegradable plastics.

19. (a) Describe the bioleaching.

Or

(b) Explain about the various methods of enzyme purification.

20. (a) Explain the production of vaccines.

Or

(b) Describe the various types of gene therapy.

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