(6 pages)

Reg. No. : .....

Code No. : 5553 **Sub. Code : ZMBM 43**

M.Sc. (CBCS) DEGREE EXAMINATION, APRIL 2023.

Fourth Semester

Microbiology – Core

BIOTECHNOLOGY

(For those who joined in July 2021 onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. Restriction Endonuclease recognize specific sequences on DNA called
   (a) Non-coding sequences
   (b) Satellites
   (c) Palindromes with rotational symmetry
   (d) Tandem repeats

2. DNA finger printing was first developed by
   (a) David Suzuki
   (b) Khorana
   (c) Alec jaffreys
   (d) Gilbert

3. Cosmid vectors are used for
   (a) Cloning small fragments of DNA
   (b) Cloning large fragments of DNA
   (c) Cloning prokaryotic DNA only
   (d) Cloning eukaryotic DNA only

4. There is a sequence region in M_{13}, where the foreign DNA can be inserted that sequence called?
   (a) Inverted repeat
   (b) Palindromic
   (c) Intergenic
   (d) Interstitial

5. E.CoR1 is a
   (a) DNA ligase enzyme
   (b) Restriction Endonuclease
   (c) A vector used for insulin synthesis
   (d) A plasmid used as a vector

6. Libraries constructed in plasmid vectors can be kept as
   (a) Plasmid containing cells
   (b) Naked DNA
   (c) Both plasmid containing cells and naked DNA
   (d) Naked DNA is preferred over plasmid containing cells

7. The first transgenic plant to be produced
   (a) Rice (b) Maize
   (c) Cotton (d) Tobacco

8. Which of the following compounds has been produced in transgenic plants to improve tolerance to salt stress and water deficit?
   (a) Sucrose (b) Mannitol
   (c) Nicotine (d) Octopine

9. One of the following is the correct sequence to make a transgenic animal
   (a) Transomics-transfection on microinjection-electroporation retroviral vectors
   (b) Microinjection-transfection-Electroporation-retroviral vectors transomics
   (c) Transfection-microinjection on transomics-electroporation retroviral vectors
   (d) None of these

10. Why is microinjection more satisfactory than using a viral vector for mammalian cells?
    (a) Compatibility
    (b) Ease of cloning
    (c) Avoiding infection and defects
    (d) Wide host range

PART B — (5 × 5 = 25 marks)

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

Each answer should not exceed 250 words.

11. (a) Assess the isolation of nucleic acids.

Or

(b) State a CRISPR Cas9 Technology with Application.

12. (a) Distinguish between cDNA Library and genome library.

Or

(b) Justify Phagemids.

13. (a) Evaluate the regulation and biosynthesis of PHB.

Or

(b) Classify Electrochemical Biosensor.

14. (a) Assume the factors affecting Biomass production.

Or

(b) Discuss composition of biomass.

15. (a) Determine the brief notes on Ti plasmid.

Or

(b) Evaluate the rules and regulations in Transgenic animals.

PART C — (5 × 8 = 40 marks)

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

Each answer should not exceed 600 words.

16. (a) Classify types of restriction enzymes.

Or

(b) Prepare application of PCR.

17. (a) Justify the properties of yeast cloning vectors.

Or

(b) Design the screening procedures of cloning strategies.

18. (a) Create notes on biosensor for environmental control.

Or

(b) Enumerate the types of electrode system.

19. (a) Predict the brief notes on composition of biomass.

Or

(b) Develop the notes on bioenergy products.

20. (a) Determine the notes on developing plant strains by genetic engineering.

Or

(b) Evaluate Intellectual property right.

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