

(6 pages)

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M.Sc.(CBCS) DEGREE EXAMINATION, APRIL 2020.

Fourth Semester

Microbiology

BIOTECHNOLOGY

(For those who joined in July 2016 and afterwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL the 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 what is this sequence called?
 - (a) Inverted repeat
 - (b) Palindromic
 - (c) Iritergenic
 - (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-microinjection-electro portions-retroviral vectors
 - (b) Microinjection–transfection – Electroposition-retroviral vectors -transomics
 - (c) Transfection-microinjection-transomics-electroportion-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) Write about RFLP and its applications.

Or

(b) Explain southern blotting and its applications.

12. (a) What are cosmids, explain gene cloning using cosmids

Or

(b) Comment on M_{13} Bacteriophage vectors

13. (a) Explain genomic DNA library.

Or

(b) Explain about immunological assays on rDNA

14. (a) Write note on viral resistant transgenic plants

Or

(b) Write about the stress tolerant transgenic plants.

15. (a) Write about transgenic sheep & wool production.

Or

- (b) Comment on transgenic pigs

PART C — (5 × 8 = 40 marks)

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

Each answer should not exceed 600 words.

16. (a) Discuss about history of Biotechnology.

Or

- (b) Write a detailed essay on different types of restriction enzymes.

17. (a) Comment on plasmids as cloning vector, and list out the ideal characteristics of plasmid vectors

Or

- (b) Explain Mu phage vector, its restriction map and advantages

18. (a) Define c DNA libraries. Discuss the steps involved in creation of c DNA library

Or

- (b) Write a detailed account on various methods used to identify rDNA

19. (a) Explain about the physical methods of gene transfer in plants

Or

- (b) Write a detail essay on transgenic plant products

20. (a) Write about transgenic mice and with neat diagram explain the microinjection methods of gene transfer.

Or

- (b) Explain; Gene knockout (or) Gene targeting with neat diagram and add note on application of transgenic mice.
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