Reg. No. :

Code No.: 6380 Sub. Code: PZOM 32

M.Sc. (CBCS) DEGREE EXAMINATION, NOVEMBER 2021

Third Semester

ZOOLOGY - CORE

BIOTECHNOLOGY

(For those who joined in July 2017 onwards)

Time : Three hours

Maximum : 75 marks

PART A — $(10 \times 1 = 10 \text{ marks})$

Answer ALL questions.

Choose the correct answers :

- 1. The first successful transformation of rDNA molecule into a bacterium was carried out by
 - (a) Nathan, Arber and Smith
 - (b) Watson, Crick and Wilkins
 - (c) Boyer and Cohen
 - (d) Paul Berg

(6 Pages)

- 2. The DNA molecule to which the gene of insert is integrated for cloning is called
 - (a) Vector (b) Transformer
 - (c) Carrier (d) None of these
- 3. Electroporation facilitates introduction of foreign DNA into the target organism by
 - (a) Changing the electric potential of the cell wall
 - (b) Changing the porosity of the cell wall
 - (c) Lysis of the cell wall
 - (d) Active transport across the cell wall
- 4. The bacteria generally used for genetic engineering is
 - (a) Bacillus (b) Pseudomonas
 - (c) Agrobacterium (d) All the above
- 5. In monoclonal antibody technology, tumor cells that can replicate endlessly are fused with mammalian cells that produce an antibody. The result of this cell fusion is a
 - (a) Myeloma (b) Natural killer cell
 - (c) Lymphoblast (d) Hybridoma
- 6. Which one is green manure/biofertilizer
 - (a) sesbania (b) rice
 - (c) oat (d) maize

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- 7. Penicillin production is optimum in
 - (a) Discontinuous operation system
 - (b) Continuous operation systems
 - (c) Batch operation systems
 - (d) Unique operation system
- 8. Industrial level fermentation microorganism bacillus is used to form the production
 - (a) Protease (b) Alpha amylases
 - (c) Formic acid (d) Both (a) and (b)
- 9. What is the general name for the class of structures made of rolled up carbon lattices?
 - (a) Nanorods (b) Nanotubes
 - (c) Nanosheets (d) Fullerrods
- 10. Which choice below best describes the goal for nanotechnology advances in medicine?
 - (a) To improve technology for finding to cure diseases
 - (b) Improve the application of cosmetics
 - (c) Increase the production of medicines
 - (d) All the above

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PART B — $(5 \times 5 = 25 \text{ marks})$

Answer ALL questions, choosing either (a) or (b) Each answer should not exceed 250 words.

11. (a) Explain it. Selection of cDNA libraries using colony hybridization technique.

Or

- (b) What is vector? Write the role of vector in genetic engineering.
- 12. (a) Write short notes on YAC vectors.

Or

- (b) Briefly explain. Gene transfer by particle bombardment technique.
- 13. (a) Explain it. Cloning animal dolly.

 \mathbf{Or}

- (b) Write short notes on organ culture.
- 14. (a) Differentiate primary and secondary metabolites.

 \mathbf{Or}

(b) Write a methodology involved in biogas production and its application.

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15. (a) Write short notes on significance of biotechnology in medical field.

Or

(b) Discuss about the diagnostic kit.

PART C — $(5 \times 8 = 40 \text{ marks})$

- Answer ALL questions, choosing either (a) or (b) Each answer should not exceed 600 words.
- 16. (a) Describe the techniques of PCR and DNA sequencing. Discuss the utility of these techniques in the field of genetic engineering.

Or

- (b) Discuss the role of both restriction and ligase enzymes in rDNA technology.
- 17. (a) Give a brief account of different kinds of vectors used for gene cloning.

 \mathbf{Or}

- (b) Give an account on Agrobacterium mediated gene transfer.
- 18. (a) Give an account of transgenic animals.

 \mathbf{Or}

(b) Write an essay on cryobiology and its role in animal biotechnology.

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19. (a) What is bioreactor? Discuss about the role of bioreactor on industrial microbial product production with any one suitable example.

Or

- (b) Give a brief account of bioremediation of hydrocarbons.
- 20. (a) Write an essay on production of pharmaceutical important compounds by genetically engineered organisms.

Or

(b) Describe it. Drug design and targeting.

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