19. (a) Describe the manufacture and uses of ethanol.

Or

(b) Briefly explain about the types and stages of fermentation.

20. (a) Explain how does microbes help us reclaim our waste water?

Or

(b) Discuss the biological methods for bioremediation of dyes.

PART C — (3 × 10 = 30)

Answer any THREE questions.

21. Distinguish the how can penicillin be produced commercially using fermentation method.

22. Discuss in detail on the benefits and risks of gene therapy.

23. Write down the significant mechanism of cyanobacterial inoculants.

24. Explain in detail about the differences of essential and non-essential amino acids.

25. What is the bioremediation? Highlight the desired methods, advantages and their limitations.

S.No. 3332 **P 22 ZOE 1 A**

(For candidates admitted from 2022–2023 onwards)

M.Sc. DEGREE EXAMINATION, NOVEMBER 2022.

Zoology — Elective

APPLIED BIOTECHNOLOGY

Time : Three hours Maximum : 75 marks

PART – A

Answer ALL questions.

I. Choose the correct answer: (5 × 1 = 5)

1. Nick translation is done by

(a) DNA polymerase I

(b) DNA Polymerase II

(c) DNA Ligase

(d) Kinase

2. Transgenic models can be designed to study the change in the

(a) Saliva (b) Urine

(c) Gene (d) Serum

3. _____ bacterium can with stand the dosage of radiation, which are several times higher than that of human cell can tolerate.

(a) *Escherichia coil*

(b) *Staphylococcus aureus*

(c) *Conus magus*

(d) *Deinococcus radiodurans*

4. Which of the following is not a free living nitrogen fixing bacteria

(a) Azotobacter (b) Clostridium

(c) Klebsiella (d) Xanthomonas

5. Which of the following is the most common bacteria used for bioleaching

(a) Spirilium (b) Coccus

(c) Bacillus (d) Staphylococus

II. Fill in the blanks: (5 × 1 = 5)

6. Embryo therapy was devised by Handyside et al., to cure _____.

7. The major reaction of xenobiotics is hydroxylation catalyzed by the enzyme.

8. Antibiotics are mainly produced by fungi and _____.

9. The technology used for the production of monoclonal antibodies is _____.

10. DNA profiling technique to demonstrate the similarity between different animal species with reference to some specific protein coding DNA sequences is called.

III. Define/Explain the following questions: (5 × 2 = 10)

11. Tissue culture

12. Sulphate fixing

13. VAM fungi

14. CDRs

15. VAM fungi

PART B — (5 × 5 = 25)

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

16. (a) Give an account on the functions of alteplase.

Or

(b) What is the oligonucleotide hybridisation? and mention the advantage of hybridization analysis in genetic disorders?

17. (a) What is molecular pharming? Mention their advantages and disadvantages.

Or

(b) Make a note on the mechanism of formation of pronucleus.

18. (a) Explain the role of acetobacter in growth hormone production of plants.

Or

(b) Discuss the VAM and its importance in biotechnology.