

MASTER'S DEGREE (C.S.S) EXAMINATION, NOVEMBER 2024

2023 ADMISSIONS REGULAR

SEMESTER III - CORE COURSE ZOOLOGY

ZO3C12TM20 - Biotechnology

Time : 3 Hours

Maximum Weight : 30

Part A

I. Answer any Eight questions. Each question carries 1 weight

(8x1=8)

1. Comment on pUC19 vector.
2. Briefly describe the scope of biotechnology in medicine.
3. Explain the blunt end and sticky ends produced by restriction enzymes.
4. Explain the role of polyplex in chemical transfection method.
5. Define gene cloning. Illustrate the steps involved with the help of a neat diagram.
6. What is chromosome walking?
7. Write short notes on gene therapy. Mention its applications.
8. Explain the importance of serum in tissue culture media.
9. Write a note on WIPO.
10. Write note on physical containment.

Part B

II. Answer any Six questions. Each question carries 2 weight

(6x2=12)

11. Explain the details of the concept of blue-white selection taking pUC vector as an example.
12. Explain a bacteriophage based vector. Why are bacteriophages preferred to plasmids in gene cloning experiments?
13. Explain in detail construction of genomic library.
14. Explain the steps involved in polymerase chain reaction. Mention its applications.
15. Explain the steps involved in sanger and coulson method of DNA sequencing. Mention its applications.
16. Explain the steps utilized to maintain animal cell cultures.
17. Diagrammatically represent a conventional bioreactor and explain its features.
18. Write an elaborate note on plant breeder's right.

Part C

III. Answer any Two questions. Each question carries 5 weight

(2x5=10)

19. Write an essay on the different vectors used in rDNA techniques using neat diagrams. Mention what are the features of a good vector.
20. Explain the different techniques that are used for the identification of specific DNA insert.
21. Elaborate the principle of polymerase chain reaction. Explain in detail the variations of PCR. Mention its applications.
22. Write an essay on the different methods used for production of transgenic animals. Mention the applications of transgenic animals.