B–26

Roll No.

Total No. of Questions : 27] [Total No. of Printed Pages : 4

12th ARM(SZ)JKUT2024

1126

BIOTECHNOLOGY

Time : 3 Hours] **[Maximum Marks : 70**

SECTION–A

(OBJECTIVE TYPE QUESTIONS) 1 each

1. Active form of Chymotrypsin is called chymotrypsinogen.

(True/False)

2. The term germ was coined by ..... .

3. What is the direction of synthesis of nucleotide sequence ?

(A) 3 → 5′

(B) 5′ → 3′

(C) Both 3′ → 5′ and 5′ → 3′

(C) All of these

4. Which of the following is not genetic disease ?

(A) Cystis fibrosis

(B) Sickle cell anemia

(C) Malaria

(D) Haemophilia

5. Which hormone is given during infertility ?

SECTION–B

(VERY SHORT ANSWER TYPE QUESTIONS) 2 each

6. What is cDNA library ?

7. Why are not mRNA directly cloned ?

8. Explain briefly single nucleotide polymorphism.

9. What is bioremediation ?

10. How does *Agrobacterium tumifaciens* transfer the desired gene into the plants ?

11. What is In-Vitro morphogenesis ?

12. What are cell lines ?

SECTION–C

(SHORT ANSWER TYPE QUESTIONS) 3 eac

13. Write a short note on DNA probes.

14. Briefly explain Southern blotting technique.

15. Indicate three non-covalent forces which contribute to protein folding and explain they arise.

16. Why has sickle cell trait been selected in populations where malaria is endemic ? What is the molecular basis for SCA ?

17. Briefly explain structural proteomics.

18. Write a brief note on functional genomics.

19. What are SNPs ? Indicate the importance of generating SNP maps.

20. Briefly explain downstream processing.

21. What are the zygote embryo culture ? Give any three applications of this technique.

22. Define somaclonal variations. Explain the benefits of somaclonal variation.

23. What are the various levels of stem cell technology ? Explain.

24. Write various applications of monoclonal antibodies.

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SECTION–D

(LONG ANSWER TYPE QUESTIONS) 5 each

25. How the sequence of nucleotides of DNA can be analysed by using Sanger's method ? Explain.

Or

Schematically describe site directed mutagenesis and explain one application of this technique.

26. Give an account of nutraceutical proteins and therapeutic proteins in detail.

Or

Describe the structure-function relationship in proteins giving example of chymotrypsin.

27. Give a detailed account of batch culture and microbial kinetics in batch culture.

Or

Write detailed notes on the following :

(i) Culture preservation

(ii) Bioreactor