D 40120   (Pages : 2)   Name...

Reg. No...................................

SIXTH SEMESTER B.Sc. DEGREE EXAMINATION, MARCH/APRIL 2018

(CUCBCSS—UG)

Biotechnology

BTY 6B 15—RECOMBINANT DNA TECHNOLOGY AND BIOINFORMATICS

Time : Three Hours   Maximum : 80 Marks

Section A

Answer any **two** *out of four questions in about* 1,500 *words.*
Each question carries 10 *marks.*

1. Explain how the bacteriophage M13 is used for sequencing a cloned DNA fragment.

2. What is DNA fingerprinting ? Write its principle and applications.

3. What is cDNA ? Write in detail about the constructions of cDNA libraries and its applications ?

4. Explain the method of gene transformation in plants through Ti-plasmid.

(2 × 10 = 20 marks)

Section B

Answer any **seven** *out of fourteen questions in about* 750 *words.*
Each question carries 5 *marks.*

5. Discuss the various steps involved in shot gun cloning.

6. Write short notes on type II restriction endonucleases.

7. What is NEP cutter? Write the protocol of NEP cutter tool.

8. Explain the different types of cloning vectors used in genetic engineering.

9. Write short notes on Western blot techniques and its applications.

10. What is the difference between RFLP and AFLP techniques ?

11. Discuss in detail on construction and functions of expression vectors.

12. Write short notes on yeast vectors.

13. Diagrammatically explain PBR-322 plasmids.

14. Discuss the strategy for developing virus resistance in plants.

Turn over

15. Explain the technique used in fruit preservation by genetic engineering.

16. Comment on stabilization of proteins.

17. Write a detailed account on microarray technology and its applications.

18. Comment the in silico tools to drug development.

(7 × 5 = 35 marks)

Section C

*Answer **all** questions in about 300 words.*
Each question carries 3 marks.

19. How can a protein of interest be engineered to be used secreted by E.coli ?

20. Discuss how PCR is used to synthesize a gene.

21. Give an account on shuttle vectors.

22. Write an essay on selectable markers used in plant viral vectors.

23. Discuss the current status of immunoinformatics tools used in immunology.

(5 × 3 = 15 marks)

Section D

*Answer **all** questions in about 200 words.*
Each question carries 2 marks.

24. What is the role of RNA polymerase ?

25. What is CaMV ?

26. Define Cosmids.

27. What is chromosome walking ?

28. What is BioPerl ?

(5 × 2 = 10 marks)