

NOVEMBER/DECEMBER 2019

**BMB51 — MOLECULAR BIOLOGY AND
GENETIC ENGINEERING**

Time : Three hours

Maximum : 75 marks

SECTION A — (10 × 2 = 20 marks)

Answer ALL questions.



1. What is Molecular Biology?
2. Contributions of Meselson and Stahl.
3. Plasmids
4. Restriction endonucleases.
5. Antibodies
6. Genetic engineering
7. *Ti* plasmid
8. *nif* and *nod* genes
9. Recombinant vaccines
10. Antigens

SECTION B — (5 × 5 = 25 marks)

Answer ALL questions.

11. (a) What is PCR? Briefly discuss about their applications.

Or

- (b) Write a detailed account on rolling circle amplification method.

12. (a) Differentiate between genomic library and cDNA Library.

Or

- (b) Define vector. Discuss in detail about the properties of a good vector.

13. (a) Write a brief account on applications of monoclonal antibodies.

Or

- (b) Discuss briefly about the viral vectors with example used in gene therapy.

14. (a) Discuss about the applications of genetic engineering to the farming community.

Or

- (b) Briefly explain about production of single cell protein from yeast and their advantages.

15. (a) Write a brief account on interferons and their uses.

Or

- (b) Write a brief account on social impact of rDNA technology.

SECTION C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. What is synthetic DNA? How will you synthesise DNA molecules under *in vitro* conditions.

17. Discuss in detail about construction of a genomic library. Add notes on their applications.

18. What is a vaccine? Discuss in detail about the role and application of genetic engineering in the field of vaccine production with suitable examples.

19. What is Biological nitrogen fixation? How can you improve the nitrogen fixation ability of a microorganism through genetic engineering technique?

20. What is genetic engineering? How will you develop Recombinant insulin by genetic engineering?