2019

Part – II

BIO-TECHNOLOGY

(Honours)

Paper – III

Full Marks – 90

Time : 4 Hours

The questions are of equal value for any group / half.

The figures in the right-hand margin indicate marks.

Candidates are required to give their answers in their own words as far as practicable.

Illustrate the answers wherever necessary.

GROUP – A

Answer **any two** questions: 15×2

1. Write the principle and applications of PCR technique.

   State the features of Cosmid vector.

   Write the applications of genetic engineering in pharmaceuticals. (3+3) + 4 + 5

2. Write note on the following (any **five**) :

   (i) Luciferase

   (ii) Expression Vector

   (iii) DNA microarray

   (iv) Knockout mice

   (v) Golden rice

   (vi) Restriction endonucleases II

   (vii) DNA foot printing

   (Viii) What is RFLP ? (5×2.5) + 2.5

3. Write the process of Southern blotting ? In which way Southern blotting is differed from Northern blotting ? What is antisense therapy ? Briefly state the process of antisense therapy. 4+4+3+4

4. Write the process of Gene therapy. State the process of genomic library preparation. In which aspects genomic library is differed from C-DNA library. 6+6+3

GROUP – B

Answer any **five** questions : 8×5

5. Differentiate between innate and adaptive immunity. State the structure and function of MHC molecules. 4+4

6. What is attenuated vaccine ? Give an example. Write the consequences of Reumatoid arthrities. (2+1)+5

7. (a) Distinguish between antigen and hapten .
   (b) Write the characteristics of an ideal antigen. 3+5

8. Write short notes (any **four**) : 2×4
   (i) N K cell
   (ii) Adjuvent
   (iii) R I A
   (iv) Passive immunity
   (v) Phagocytosis
   (vi) Immuno-diffusion.

9. State the importance of bone marrow and thymus in immunity of human. Explain antibody diversity with example. 4+4

10. How TH cell helps in the development of cell mediated immunity. What is ADCC ? 6+2

11. State the selective features of HAT medium in hybridoma technology. Write the process of ELISA (direct) with suitable diagram. 3+5

12. What is lymphokines ? How lymphokine sequentially induced the adaptive immunity ? 2+6

GROUP – C

Answer any five question:- 4×5

13. State the basic requirements of animal cell culture laboratory. 4

14. What is cell line ? What is subculture ? 2+2

15. Write the salient features of cancer cell. 4

16. Explain totipotency and pluripotency is stem cells. 2+2

17. Write short notes on : 2+2
    (i) MTT assay
    (ii) Cell growth curve

18. Describe the tunnel assay technique 4

19. Write about the methods of cryopreservation 4

20. State the principle of FACS and calcium phosphate method of transfection. 2+2