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UG/II/BIOT/H/III/18(New)

2018

BIOTECHNOLOGY

[ Honours ]

PAPER – III

Full Marks : 90

Time : 4 hours

*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*

[ NEW SYLLABUS ]

GROUP – A

Answer any two questions : 15 × 2

1. Discuss the role of restriction enzyme in restriction mapping. Discuss the significance of double digestion in the process.

$$7\frac{1}{2} + 7\frac{1}{2}$$

( Turn Over )

2. Write a short notes on : 5 + 5+ 5
- (i) Yeast artificial chromosome
  - (ii) Expression vector
  - (iii) RAPD.
3. Explain Sargers and Gilberts methods of DNA sequencing. 15
4. Write short notes on : 5 + 5 + 5
- (i) Stem cell therapy
  - (ii) Antisense gene technology
  - (iii) Transgenic mice.

**GROUP – B**

Answer any **three** questions : 10 × 3

5. (a) Describe primary lymphoid organ in details. 5
- (b) Write a note on different subsets of T-cells and their functions. 5
6. (a) Define vaccine Enlist its type along with example of each. 5

- (b) What are the factors responsible for autoimmunity? 5
7. (a) Classify immunoglobulins on the basis of their fine structure. 5
- (b) Discuss the rationale behind the use of HAT medium in hybridoma technology. 5
8. (a) Explain briefly, ELISA in the detection of antibody in an animal's serum. 5
- (b) Explain the principle associated with Ag-Ab (antigen-antibody) reaction and diagnosis in agar-gel immunodiffusion test. 5
9. (a) Discuss briefly the principle of HLA typing. 2
- (b) Immediate hypersensitivity. 4
- (c) Discuss the mode of natural killer cells. 4

GROUP – C

Answer any six questions : 5 × 6

10. Discuss the method of preparing primary cell culture and establishment of cell lines. 5

11. Discuss totipotency and pluripotency of cell. 5
  12. What are stem cells ? Give their types and explain their functions. 5
  13. Describe a technique for determining cell viability after cryopreservation. 5
  14. What is serum ? What are major constituents of an animal cell culture medium and their important functions ? 5
  15. Explain embryo transfer technology and add a note on its significance. 5
  16. Explain the importance haematopoietic stem cell. 5
  17. What is apoptosis ? What causes cancer cells to undergo apoptosis. 5
  18. Explain FACS and DNA fragmentation assay. 5
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