

2017

BIOTECHNOLOGY

[Honours]

PAPER — I

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

GROUP — A

(*Biochemistry*)

Answer any two questions : 15 × 2

1. State the function of transaldolase and transketolase. What are isoenzymes ? Describe the steps of pentose phosphate pathway. 4 + 3 + 8

(Turn Over)

(2)

2. What are micelles ? State what is a liposome ?
State the function of lipoproteins and describe
its role in bilayer formation. 2 + 2 + 4 + 7

3. How does diabetes mellitus and diabetes
insipidus differ ? What is the role of hCG ?
5 + 4 + 6

4. What is the significance of Ramachandran Plot
and how it helps in determination of structure ?
Write a short account on collagen structure.
4 + 4 + 7

GROUP –B

(Cell Biology)

Answer any five questions : 6 × 5

5. What are cyclins and state its role in cell cycle.
3 + 3

6. What are caspase and what are its functions ? 2 + 4

7. Why 7-TM helices are present in GPCR ? 6

8. State the function of trimeric-G Protein in CAMP
production. 6

(3)

9. State the differences between ion channel and voltage gated channel. 6
10. What are the role of phosphatase in signalling pathway. 6
11. Name two cell cycle inhibitors and how they do it? 3 + 3
12. What are integral and peripheral proteins? 6

GROUP –C

(*Molecular Biology*)

Answer any five questions : 6 × 5

13. Write a short account on SOS repair pathway?
14. What is the role of POT 1 in telomeric DNA.
15. What is Wobble hypothesis and what is genetic code?
16. Describe the process of prokaryotic initiation of replication.

(4)

17. Differentiate between histone and non histone protein.
18. Write a short account on nucleosome.
19. What enzymes are involved in DNA methylation and what is polyadenylation ?
20. Mention the function of helicase primase, SSB protein and ligase.