

AU-275

M.Sc. (Part-I) Semester-I (C.B.C.S. Scheme) Examination

BIOINFORMATICS

(Cell and Molecular Biology)

Paper-II

Time : Three Hours]

[Maximum Marks : 80

Note :—(1) All questions are compulsory and carry equal marks.

(2) Draw well labelled diagram and give suitable examples wherever necessary.

1. Enumerate and explain various phases in the cell cycle. 16

OR

Explain the mechanism of regulation of cell cycle. 16

2. (a) Explain structure, function and importance of peroxisomes. 4
(b) Comment upon the functions of rough endoplasmic reticulum. 4
(c) Explain importance and function of Golgi bodies. 4
(d) Explain function of lysosomes. 4

OR

- (p) Write in brief about the Flagellar Movements. 4
(q) How and why ribosomes are important in identification of bacteria ? 4
(r) Write in brief about eukaryotic ribosomes. 4
(s) Comment upon various types of WBC in human blood. 4
3. Describe structure of nuclear pore complex and explain in detail how the export and import of various molecules is carried over through it ? 16

OR

Explain the ultrastructure of nucleus and nucleolus with a neat suitable labelled diagram. 16

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| 4. | (a) | Explain the z-DNA structure. | 4 |
| | (b) | Write in brief about RNA polymerase. | 4 |
| | (c) | Enlist the salient features of genetic code. | 4 |
| | (d) | Write in brief how chromatin is replicated. | 4 |

OR

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|----|-----|---|---|
| | (p) | How the DNA replication in prokaryotes is different from eukaryotes ? | 4 |
| | (q) | Explain the structure of t-RNA. | 4 |
| | (r) | Explain Wobble hypothesis. | 4 |
| | (s) | Write in brief about the transcription machinery. | 4 |
| 5. | (a) | What do you understand by cis-acting and trans-acting regulators ? | 4 |
| | (b) | Write in brief about operon. | 4 |
| | (c) | What are repressors ? | 4 |
| | (d) | Explain the mechanism of translation regulation. | 4 |

OR

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| | (p) | Explain the negative regulation of a gene and its significance. | 4 |
| | (q) | What are inducers ? | 4 |
| | (r) | How is the regulation of tryptophan operon ? | 4 |
| | (s) | How lac operon is used successfully as a marker in transformation experiments ? | 4 |