

[Time: 2½ Hours]

[Marks:60]

Please check whether you have got the right question paper.

- N.B:**
1. All questions are compulsory.
 2. All questions carry equal marks.
 3. Draw neat labelled diagrams wherever necessary.

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|---|---|---|----|
| 1 | A | a) With suitable examples explain protein processing by glycosylation. | 08 |
| | | OR | |
| | | b) With suitable examples explain the phenomenon of protein folding that are involved in post translational processing of proteins. | 08 |
| | B | a) Explain the process of intein homing. | 04 |
| | | OR | |
| | | b) Explain the role of proteasome in protein modification. | 04 |
| 2 | | Answer any two of the following: | 12 |
| | | a) Explain the mating type switch in <i>Saccharomyces cerevisiae</i> . | |
| | | b) Antibody diversity is a consequence of gene rearrangements – Explain. | |
| | | c) Describe the role of Polycomb proteins in the development of <i>Drosophila</i> . | |
| | | d) Explain the role of DNA methylation in genome silencing. | |
| 3 | | Answer any two of the following: | 12 |
| | | a) Explain the usefulness of pET vectors for gene expression. | |
| | | b) Describe the role of pBAD as an expression vector. | |
| | | c) How are LITMUS vectors useful for synthesizing RNA probes? | |
| | | d) Explain the strategies for maximization of cloned gene expression. | |
| 4 | A | a) Explain the life cycle of <i>Arabidopsis thaliana</i> . | 08 |
| | | OR | |
| | | b) Elaborate on the various transgenic techniques for analyzing mouse genome. | 08 |
| | B | a) Describe the mechanism of vegetative propagation in <i>Saccharomyces cerevisiae</i> . | 04 |
| | | OR | |
| | | b) Explain epigenetic inheritance with a suitable example | 04 |
| 5 | | Write short notes on (any three): | 12 |
| | | a) Ubiquitinylation | |
| | | b) Chaperones | |
| | | c) RNA silencing | |
| | | d) Vulva development in <i>C.elegans</i> | |
| | | e) Maternal effect genes | |
| | | f) BAC | |