

(20518)

Roll No.

(2)

B. Sc.(Biotech.)-III Year

3478(N)

B. Sc. (Biotech.) Examination, May 2018

Transcriptomics and Metabolomics

[B-306 (Old) & B-310 (New)]

Time : Three Hours]

[Maximum Marks : 100

Note: Attempt *Five* questions in detail. Each question carries 20 marks.

1. What is transcriptome ? Describe the different methods of transcriptome analysis. 20
2. Describe in detail the applications of cloning and expression of foreign genes in metabolic engineering. 20
3. How can we redirect the metabolic flow to get the desired product ? Discuss the different methods of achieving this. 20

4. What is molecular breeding of biosynthetic pathways? Discuss carotenoid biosynthesis. 20
5. Write detailed notes on the following : 10 each
 - (a) NMR and metabolic profiling
 - (b) Metabolic engineering for PHAs.
6. What do you mean by metabolic engineering ? Discuss metabolomics and metabolic engineering in detail. 20
7. Write short notes on the following : 5 each
 - (a) Metabolic Control Analysis (MCA)
 - (b) Insertional mutagenesis
 - (c) EST contigs
 - (d) Mass Spectrometry (MS).
8. Describe in detail the limitations in metabolic engineering due to technology. 20
9. How metabolic engineering is used for over-production of metabolites in plants ? Discuss in detail. 20

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10. Write notes on the following : 10 each
- (a) Metabolic engineering for alkaloid biosynthesis
 - (b) Transcript maps and functional maps.