

FACULTY OF SCIENCE

M. Sc. III – Semester Examination, December 2013

Subject : Biochemistry

Paper – II

Regulation of Gene Expression and Genetic Engineering

Time : 3 Hours

Max. Marks: 80

Note : Answer all questions from Part–A and Part–B. Each question carries 4 marks in Part–A and 12 marks in Part – B.

PART – A (8 x 4 = 32 Marks)
(Short Answer Type)

Give an account on the following :

1. Dual function of repressor
2. Control of plasmid copy number
3. Tissue specific gene expression
4. RNA transport and stability
5. Poly (A) polymerase
6. Synthesis of oligodeoxynucleotides
7. Differentiate plasmid and viral vectors
8. Design and preparation of probes for hybridization

PART – B (4 x 12 = 48 Marks)
(Essay Answer Type)

9.(a) Give a detailed account on trp operon.

OR

(b) Explain the mechanism of gene expression regulation in Lambda phage.

10.(a) Describe the transcriptional control mechanism in eukaryotic cell.

OR

(b) Discuss in detail about the Gal operon of yeast.

11.(a) Write a note on implications of restriction endonucleases in gene manipulation.

OR

(b) Give an account on
(i) DNA ligases
(ii) Sequencing of DNA by Sanger's dideoxy method

12.(a) Write a note on :

- (i) c DNA libraries
- (ii) Fusion proteins

OR

(b) Give an account on:
(i) Shuttle vectors
(ii) Reporter genes
(iii) Microarray technology
