

FACULTY OF SCIENCE

M.Sc. II - Semester Examination, April / May 2014

Subject: Biochemistry

Paper - III: Biochemical Genetics and Model Organism

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.

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

Give an account on the following:

- 1 Maternal effect
- 2 Polyploidy
- 3 Cytological proof of crossing over
- 4 Mobile genetic elements
- 5 Discovery of conjugation
- 6 Deletion mapping
- 7 One gene-one enzyme hypothesis
- 8 Mus inbred and knockout strains

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

- 9 (a) With suitable examples given an account on gene interactions.
OR
(b) Write a note on :
(i) Detection and isolation of microbial mutants (ii) Spontaneous mutations
- 10 (a) Discuss about mapping human genes by pedigree analysis with suitable examples.
OR
(b) Give an account on :
(i) Tetrad analysis (ii) Making knockout cells by recombination
- 11 (a) Write about mapping bacterial genes by transformation and transduction.
OR
(b) Write a note on :
(i) Transposition (ii) rII Locus
- 12 (a) Explain how Drosophila serve as a model organism to study embryonic development.
OR
(b) Why Arabidopsis is used as a model organism to study flower development?

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