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.

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

Give an account on the following:
1. Maternal effect
2. Polyplody
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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