

2056  
M.Sc. (Bio-Informatics) Fourth Semester  
MBIN-8020: Expression Bio-Informatics

Time allowed: 3 Hours

Max. Marks: 45

*NOTE: Attempt five questions in all, including Question No. 1 which is compulsory and selecting two questions from each Unit.*

*x-x-x*

1. Answer briefly:

- a) Anti sense RNA
- b) Reverse phase microarray
- c) Subtractive hybridization
- d) Oligonucleotide microarray
- e) Self-organizing maps
- f) dbEST

(6x1½)

**UNIT - I**

2. a) Discuss microarray databases and their importance.  
b) Explain various applications of DNA microarrays.
3. a) Describe the steps involved in microarray analysis workflow.  
b) Explain normalization techniques for expression measurements.
4. a) Discuss chip-on-chip arrays and their applications.  
b) Explain clustering methods used in gene expression analysis.

(2x4½)

(2x4½)

(2x4½)

**UNIT - II**

5. a) Explain experimental strategies for constructing proteome libraries.  
b) Describe protein chips and their applications.
6. a) Explain RNA interference (RNAi) and its mechanism.  
b) Discuss the role of miRNA and siRNA in gene regulation.
7. a) Describe snRNA its functions.  
b) Explain piRNA and snoRNA and their biological significance.

(2x4½)

(2x4½)

(2x4½)

*x-x-x*