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M.Sc. (Bio-Informatics) Third Semester
MBIN-8015: Genomics and Proteomics – I

Time allowed: 3 Hours

Max. Marks: 60

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

x-x-x

I. Attempt the following:-

- a) What do you understand by heterochromatin and euchromatin ?
- b) Briefly describe the role of telomeres in cell division.
- c) Give a brief sketch of pyrosequencing technique.
- d) What is the difference between native and SDS- PAGE?
- e) Give a sketch of instrumentation involved in mass spectroscopy.
- f) Write the principle of Solexa sequencing.
- g) How is sensitivity defined in mass spectroscopy?
- h) What is the effect of salt concentration on protein solubility? (8x1½)

UNIT- I

II. Discuss in detail the role of histones and its modifications in nucleosome organization. (12)

III. a) Write a short note on satellite DNA.

b) Discuss the role of DNA methylation in regulation of gene expression. (2x6)

UNIT- II

IV. a) Discuss different methods of isotope labeling of proteins for mass spectroscopy. What are its advantages?

b) Discuss the application of MALDI- TOF mass spectroscopy in protein mass determination. (2x6)

V. Discuss the following with respect to 2D-PAGE:-

- a) Method
- b) Sample preparation
- c) Solubilisation (12)

UNIT- III

VI. a) Give an account of chain termination method of DNA sequencing.

b) Discuss the post translational modification by glycosylation and its significance. (7,5)

VI. a) Describe the shotgun approach for determination of DNA sequence and its strengths and limitation.

b) Write short note on Edman degradation. (7,5)

x-x-x