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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