Exam.Code:0441
Sub. Code: 3507

2022

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. I which is compulsory and selecting atleast one question from each Unit.*

x-x-x

Q 1. Attempt the following-

(i) Briefly describe the role of telomeres in cell division.

(ii) Briefly describe the application of MALDI-TOF .

(iii) What do you understand by the term 'tops down' and 'bottoms up' proteomic strategies?

(iv) What are the three next generation sequencing techniques. Briefly comment on any one technique ?

(v) Compare and contrast native and 2D-PAGE.

(vi) What is the effect of salt concentration on protein solubility?

(vii) Comment on nucleosome remodelling.

(viii) What do you understand by heterochromatin and euchromatin ? (1.5x8=12)

Unit-I

Q2. Write short notes on the following- (a) Genome silencing byDNA methylation

(b) Genome imprinting (6x2=12)

Q3. (a) What are minisatellitesand microsatellites ? Discuss their application in genetic profiling.

(b) Give a detailed account of packaging of DNA into chromosome. (5+7=12)

Unit-II

Q4. Comment on the following w.r.t. 2D-PAGE-(a) Sample preparation (b) solubilisation (c) resolution(d) reduction (e) reproducibility (12)

Q5. (a) Discuss different methods of isotope labeling of proteins for mass spectroscopy. What are its advantages?

(b) Discuss the pros and cons of *denovo* sequencing of proteins by mass spectroscopy. (6x2=12)

Unit-III

Q6. (a) Describe the shotgun approach for determination of DNA sequence and its strengths and limitations.

(b) Write a short note on proteomic strategy for posttranslationally modified protein. (7+5=12)

Q7.(a) Give an account of sequence error verification by base calling .

(b) Discuss the post translational modification by lipid attachment and its significance. (7+5=12)

x-x-x