

MSc Sem.-3 Examination

501

CB (Cancer Genomics & Pro)

May 2022

Time : 2-00 Hours]

[Max. Marks : 50

Instructions:

- All Questions in Section I carry equal marks
 Attempt any THREE questions in Section I
 Question IX in Section II is COMPULSORY
 Illustrate your answers with neat and labeled diagram wherever necessary

Section I

- Q-I A What is Genomic mapping? How many types of Mapping are present? 7
 Write in short about "Radiation Hybrid Map"
- B What were the major goal of Cancer Genome Anatomy Project? Write in 7
 detail about "Cancer Genome Anatomy Project".
- Q-II A What were the goals, achievements, and ethical, legal, social implications 7
 addressed by the Human Genome Project?
- B Short note on Link between cell metabolism and cancer. 7
- Q-III A Write Short note on any one (i) Sanger Chain Termination 7
 Sequencing (ii) Next-Generation Sequencing (Pyrosequencing)
- B Write in short about drug resistances and its classification citing 7
 examples
- Q-IV A Name the types of mutations observed by cancer genome analysis and 7
 explain chromosomal shattering and mutational timing.
- B Explain how Genetic Heterogeneity leads to tumorigenesis? 7
- Q-V A Explain protein-protein interactions: structure and systems approaches 7
 to analyze diverse genomic data.
- B Write a note on innovative methodology for discovery of protein based 7
 biomarkers in serum.
- Q-VI A Write a principle of 2D electrophoresis and current use of 2D 7
 electrophoresis in proteomics
- B Explain the screening phases for biomarker prior to its clinical 7
 application.
- Q-VII A Explain about different types of ion sources in mass spectrometers. 7
- B Explain the regulatory issues related to study design in the co- 7
 development of oncology drugs and proteomics tests.

- Q-VIII A Explain difference between MALDI-TOF and ESI techniques for proteomics study. 7
 B Describe the importance of 'Target characterization' in biomarker development. 7

Section II

Q-IX Multiple Choice Questions

8

- A 1% recombination is equal to _____ which is equal to 1 centimorgan (cM).
 a 1 map unit (m.u.) b 1% mitotic product
 c 1% meiotic product d cDNA map
- B SNP are divided into two main types: _____ and _____.
 a Linked SNPs (indicative SNPs) and Causative SNPs b Linked SNPs (indicative SNPs) and Silent SNPs
 c Harmless SNPs and Causative SNPs d Un linked SNPs (indicative SNPs) and Casual SNPs
- C TP53, PTEN and PIK3CA genes are found altered/ mutated in a high percentage of tumors and therefore called _____.
 a Hillocks b Landscape
 c Hills d Mountains
- D _____ occur in regulatory regions that affect the transcription, translation, or splicing of the protein causing complete or partial absence of normal protein function.
 a Gain-of-function mutation b Loss-of-function mutations
 c Silent mutation d Neutral mutation
- E In mass spectrometry, which of the following phrases is shortened to the acronym "FAB"?
 a Flight averaged bumping b Fast atom bombardment
 c Fragmented atom beam d Flying atom bashing
- F _____ is one of the most widely used ionization technique.
 a ESI b 2D-electrophoresis
 c Western blotting d ELISA
- G Which of these method would be appropriate to choose for quantitative proteomics experiment containing a large number of samples?
 a TRAQ b SILAC
 c Label-free quantification d Western blotting
- H Bevacizumab is a humanized monoclonal antibody directed against the activity of _____.
 a BCR/ABL fusion protein b VEGF
 c RAS proteins d EGFR and HER-2

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