

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BSc DEGREE EXAMINATION DECEMBER 2024
(Fifth Semester)

Branch – BIOTECHNOLOGY
GENOMICS AND PROTEOMICS

Time: Three Hours

Maximum: 50 Marks

SECTION-A (5 Marks)

Answer ALL questions

ALL questions carry EQUAL marks

(5 x 1 = 5)

- 1 Pseudogenes are _____
(i) Non-Functional (ii) Functional
(iii) Found only in Animals (iv) Found only in Plants
- 2 In Shotgun sequencing, which technology is used to determine the sequence of individual DNA fragments
(i) Gel-Electrophoresis (ii) PCR
(iii) Next Generation Sequencing (iv) Mass Spectroscopy
- 3 If two proteins of same molecular weight have to be separated, then which of the following method would be used?
(i) SDS-PAGE (ii) Native PAGE
(iii) 2-D Gel Electrophoresis (iv) Immuno-Electrophoresis
- 4 What happens after the DNA sample is applied to DNA microarray?
(i) mRNA binding takes place
(ii) DNA becomes single stranded
(iii) tRNA joins with the complementary Strand
(iv) the cDNA will hybridise with the single stranded DNA molecules in the microarray
- 5 Which of the following statements about High throughput screening is FALSE?
(i) It can screen large number of compounds
(ii) It required large quantity of compounds for testing
(iii) It is an automated process
(iv) It can be used screen compounds in several types of biological assays

SECTION - B (15 Marks)

Answer ALL Questions

ALL Questions Carry EQUAL Marks

(5 x 3 = 15)

- 6 a Write short note on Pedigree Analysis.
OR
b Write Short note on Transcriptomics.
- 7 a What is Shot-Gun sequencing? State its application.
OR
b Write short note on Comparative Genomics.
- 8 a State the Principle and Application of 2-D Gel Electrophoresis.
OR
b Write short note on Yeats Two Hybrid System.

Cont...

- 9 a Write Short note on Structural Proteomics.
OR
b Write short note on Metabolomics.
- 10 a Give an outline on the steps in Identification of Gene Targets.
OR
b State the importance of High throughput sequencing in genome for drug discovery.

SECTION -C (30 Marks)

Answer ALL questions

ALL questions carry EQUAL Marks

(5 x 6 = 30)

- 11 a Explain in detail the Structural Organization of Eukaryotic Genome.
OR
b Enlist the Molecular Markers used in genomics.
- 12 a Explain the Goals, Procedure used and the Outcome of Human Genome Project.
OR
b Discuss the use of *C.elegans* and *Drosophila* as a model organism.
- 13 a Explain the Principle and Application of MALDI-TOF.
OR
b Explain the role of LC-MS/MS in identification of Proteins.
- 14 a Explain about DNA Microarray and its applications.
OR
b Explain in details about PCR directed protein arrays.
- 15 a Discuss about Personalized Medicine and its future.
OR
b Explain the Steps involved in Drug Development.

Z-Z-Z

END