

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)MSc DEGREE EXAMINATION MAY 2024
(Second Semester)Branch - **BIOTECHNOLOGY****OMICS TECHNOLOGY**

Time: Three Hours

Maximum: 75 Marks

SECTION-A (10 Marks)Answer **ALL** questions**ALL** questions carry **EQUAL** marks

(10 × 1 = 10)

Module No.	Question No.	Question	K Level	CO
1	1	The region of repetitive nucleotide sequences at each end of chromatid is _____. a) Centromere b) Isomers c) Telomere d) Monomer	K1	CO1
	2	Specific biomolecules which show easily detectable differences among different strains of a species is termed as _____. a) DNA fingerprinting b) Molecular markers c) Molecular scissors d) RFLP	K2	CO1
2	3	In the CRISPR-Cas9 system, which molecule guides Cas9 to the target DNA sequence? a) Lipids b) DNA c) Proteins d) RNA	K1	CO1
	4	The technique used to analyze gene expression on a large scale is called _____. a) Microarray analysis b) Polymerase chain reaction c) Sanger sequencing d) Gel electrophoresis	K2	CO1
3	5	Which of the following provides higher resolution in MALDI-TOF? a) Blocker b) Channel c) Transmitter d) Reflector	K1	CO1
	6	Which of the following software search engine uses mass spectrometry data to identify proteins from peptide sequence databases? a) MASCOT b) OMSSA c) SEQUEST d) PEAKS DB	K2	CO1
4	7	Protein glycosylation does not have significant effects on which of the following? a) Protein folding b) Protein distribution c) Protein stability d) Protein synthesis	K2	CO1
	8	Which protein database provides information on post-translational modifications (PTMs)? a) PhosphoSitePlus b) GenBank c) UniProt d) PDB	K1	CO1
5	9	The yeast two hybrid system is used to detect _____. a) Post translational modifications b) RNA-DNA interactions c) Protein-protein interactions d) RNA binding proteins	K1	CO1
	10	If you need access to PPI data with a deep level of detail, which of the following resources would be your best choice? a) BioGrid b) IntAct c) STRING d) Reactome	K2	CO1

Cont...

SECTION - B (35 Marks)

Answer ALL questions

ALL questions carry EQUAL Marks

(5 × 7 = 35)

Module No.	Question No.	Question	K Level	CO
1	11.a.	Analyze the structure and organization of human Y chromosome.	K4	CO2
	(OR)			
	11.b.	Analyze the steps involved in RH mapping and add a note on its advantage.		
2	12.a.	Discuss the specific goals of functional genomics with reference to <i>C.elegans</i> as a model system.	K6	CO5
	(OR)			
	12.b.	Elaborate on the shot gun approach of DNA sequencing method.		
3	13.a.	Evaluate the yeast two-hybrid system for protein-protein interaction.	K5	CO4
	(OR)			
	13.b.	Criticize the different types of protein microarrays and their specific applications.		
4	14.a.	Assess the role of reporter gene in protein visualization.	K5	CO4
	(OR)			
	14.b.	Explain the principle and applications of metabolomics.		
5	15.a.	Discuss the role of IntAct molecular interaction database in interactome.	K6	CO5
	(OR)			
	15.b.	Develop the experimental methods to map interactomes.		

SECTION -C (30 Marks)

Answer ANY THREE questions

ALL questions carry EQUAL Marks

(3 × 10 = 30)

Module No.	Question No.	Question	K Level	CO
1	16	Explain the structure and organization of eukaryotic genome.	K5	CO4
2	17	Assess the mechanism of CRISPR-Cas9 mediated gene editing.	K5	CO4
3	18	Explain the principle, instrumentation and application of MALDI-TOF.	K5	CO4
4	19	Discuss about the techniques used for identification and characterization of Post Translation modifications.	K6	CO5
5	20	Elaborate on the computational methods used to study interactomes.	K6	CO5

Z-Z-Z

END