

PSG COLLEGE OF ARTS & SCIENCE  
(AUTONOMOUS)

MSc DEGREE EXAMINATION DECEMBER 2023  
(First Semester)

Branch - ZOOLOGY

MOLECULAR GENETICS

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	Who described the structure of DNA double helix? a) Peter Mitchell                      b) Andre Jagendorf c) Ernest Uribe                          d) Watson and Crick	K1	CO1
	2	The process of DNA replication is affected by an enzyme known as a) Mutase                                      b) Ligase c) Polymerase I                              d) Ribonuclease	K2	CO1
2	3	Restoring of damaged part of DNA is called a) DNA ligation                          b) M DNA c) rDNA    d) DNA repair.	K1	CO2
	4	DNA is made up of two a) Monosaccharides                      b) oligosaccharides c) Polynucleotide chains                  d) Polysaccharide	K2	CO2
3	5	A single amino acid is specified by a set of three nucleotides in mRNA. This is called a a) Nucleotide                              b) Nucleoside c) Nucleic acid                              d) Codon.	K1	CO3
	6	Which protein mentioned below can reverse central dogma? a) Ribosome b) Restriction Endonuclease c) Reverse Transcriptase d) RNA Polymerase	K2	CO3
4	7	What is the amino acid binding sequence in tRNA? a) AUG                      b) GGU                      c) CCA                      d) T ψ C	K1	CO4
	8	Regulation of gene expression in prokaryotes predominantly takes place at a) Transcriptional b) Translation level c) Splicing gene d) Transportation of m-RNA from cytoplasm to mesosomes.	K2	CO4
5	9	Which of the following is not a type of mutation? a) Gene mutation b) Chromosomal aberrations c) Genomatic mutations d) Colourful mutations	K1	CO5
	10	Which base is generated due to the deamination of adenine? a) Guanine                                      b) Cytosine c) Uracil    d) Hypoxanthin	K2	CO5

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.	Summarize the Semi Conservative DNA replication.	K2	CO1
	(OR)			
	11.b.	Discuss about the Meselson and Stahl's experiment.		
2	12.a.	Discuss about the Repetitive DNA.	K5	CO2
	(OR)			
	12.b.	Evaluate the Gene synthesis using mRNA.		
3	13.a.	Demonstrate the Transcription in prokaryotes.	K5	CO3
	(OR)			
	13.b.	Briefly explain the RNA splicing.		
4	14.a.	Summarize the Initiation of polypeptide chain in protein synthesis.	K2	CO4
	(OR)			
	14.b.	Interpret the Amino acid activation.		
5	15.a.	Point out the chemical mutagens.	K4	CO5
	(OR)			
	15.b.	Briefly explain the Types of mutation caused by radiations.		

**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	Construct the Watson and Crick model of DNA.	K3	CO1
2	17	Describe the mechanism of DNA repair.	K4	CO2
3	18	List out the characteristics of genetic code.	K4	CO3
4	19	Discuss the structure of Lac operon.	K6	CO4
5	20	Illustrate the molecular basis of mutations.	K2	CO5

Z-Z-Z

END