22ZOP312N

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

MSc DEGREE EXAMINATION DECEMBER 2025
(Third Semester)

Branch - **ZOOLOGY**

APPLIED BIOTECHNOLOGY

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	Which one of the following is a method of selection of recombinants? a) Restriction Fragment Length Polymorphism b) Western Blotting c) Blue-white screening d) Gel-shift assay	K1	CO2
	2	Show the enzyme which is used to synthesize complementary enzyme from mRNA a) DNA dependent RNA polymerase b) RNA polymerase II c) Restriction endonuclease d) Reverse transcriptase	K2	CO2
2	3	Why are Yeast Artificial Chromosomes (YAC) used in cloning? a) To clone large segments of DNA b) To clone mRNA c) To clone bacterial DNA d) To clone yeast DNA	K1	CO2
	4	Which one of the following gene delivery methods is NOT a chemical transfection method? a) Liposome mediated method b) Microinjection c) Calcium phosphate precipitation d) DEAE-dextran method	K2	CO2
3	5	Identify the defined media from the following. a) Embryo extract b) Eagle's medium c) Amniotic fluid d) Blood serum	K1	CO3
	6	Which one of the following is NOT a component of downstream processing? a) Separation b) Purification c) Preservation d) Expression	K2	CO3
4	7	Define bioremediation. a) Use of living organism to degrade environmental pollution. b) Process of extracting metals from ore-bearing rocks. c) Removal of pollutants by chemical agents. d) Process of destroying microorganisms causing environmental pollution.	K1	CO4
	8	Select the phosphate solubilizing bacteria from the following. *a) Rhizobium* *b) Azospirillum* *c) Thiobacillus* *d) Bradyrhizobium*	K2	CO4
5	9	What are xenobiotics? a) Antibiotics used against bacteria b) Biodegradable compounds c) Non-biodegradable compounds d) Mercury containing compounds	K1	CO5
	10	What is the first recombinant protein approved by the FDA for the use in food? a) Chymosin b) Insulin c) Somatotrophin d) Amylase	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.	Distinguish the characteristics of various types of restriction endonucleases.	K4	CO2
		(OR)		
	11.b.	Examine the steps involved in the construction of genomic library.		
2	12.a.	Construct a concept that bacteriophage can be a cloning vector.	K3	CO2
		(OR)		
	12.b.	Solve that *Agrobacterium* as a natural genetic engineer.		
3	13.a.	List out the steps involved in *in vitro* fertilization.	K4	CO3
		(OR)		
	13.b.	Analyze the various approaches to gene therapy for inherited diseases.		
4	14.a.	Demonstrate the various components of a bioreactor.	K2	CO5
		(OR)		
	14.b.	Outline the principle and applications of biosensors.		
5	15.a.	Choose suitable methods of production of biofuels.	K3	CO5
		(OR)		
	15.b.	Identify the impact of genetically modified organisms on environment.		

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	Analyze the principle and applications of DNA fingerprinting.	K4	CO1
2	17	Compare the salient features of various cloning vectors for animal cells.	K4	CO2
3	18	Categorize the methods of transgenic animal production.	K4	CO3
4	19	Distinguish the methods of production and applications of single cell proteins.	K4	CO4
5	20	Examine the role of microorganisms in biomining.	K4	CO5

Z-Z-Z END