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22ZOU624N

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BSc DEGREE EXAMINATION MAY 2026
(Sixth Semester)

Branch – **ZOOLOGY**

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	Restriction endonucleases are enzymes that (i) Join DNA fragments (ii) Cut DNA at specific sites (iii) synthesis RNA (iv) unwind DNA	K1	CO1
	2	pBR 322 is commonly used as (i) cloning factor (ii) hormone (iii) restriction enzyme (iv) molecular probe	K2	CO1
2	3	Electroporation introduce DNA into host cells using (i) electriic pulse (ii) enzyme (iii) virus (iv) heat shock	K2	CO2
	4	DNA fingerprinting is mainly useful in (i) vaccine production (ii) fermentation (iii) Forensic identification (iv) enzyme immobilization	K2	CO2
3	5	Monoclonal antibodies are produced by (i) PCR (ii) hybridoma techniques (iii) fermentation (iv) blotting	K1	CO3
	6	Recombinant insulin is commercially produced using (i) bacteria (ii) animals (iii) plants (iv) fungi	K2	CO3
4	7	Fermentation process is carried out in a (i) fermenter (ii) microscope (iii) autoclave (iv) incubator	K1	CO4
	8	Immobilized enzymes are advantageous because they (i) are unstable (ii) cannot be reused (iii) can be reused (iv) increase cost	K2	CO4
5	9	Patent rights mainly protect (i) inventions (ii) ideas (iii) ethics (iv) organisms	K1	CO5
	10	Biosafety guidelines are framed to ensure (i) profit (ii) safety to human and environment (iii) rapid production (iv) marketing	K2	CO5

Cont...

Module No.	Question No.	Question	K Level	CO
1	11.a.	Explain restriction endonucleases, DNA ligase and reverse transcriptase.	K2	CO1
		(OR)		
	11.b.	Illustrate the vectors used in recombinant DNA technology.		
2	12.a.	Explain electroporation and biolistics methods of gene transfer.	K3	CO2
		(OR)		
	12.b.	Describe DNA fingerprinting and organize its applications.		
3	13.a.	Interview the production of insulin using recombinant DNA technology.	K3	CO3
		(OR)		
	13.b.	Describe monoclonal antibodies and their applications.		
4	14.a.	Analyze the fermenter design and types.	K4	CO4
		(OR)		
	14.b.	Describe immobilization of enzymes and its applications.		
5	15.a.	Explain bioethics and its importance in biotechnology.	K5	CO5
		(OR)		
	15.b.	Evaluate the intellectual Property Rights in biotechnology.		

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	Categorize the vectors used in recombinant DNA technology.	K4	CO1
2	17	Inspect methods of gene transfer into host cells with suitable examples.	K4	CO2
3	18	Describe the production of insulin and vaccines through biotechnology.	K4	CO3
4	19	Assess the immobilization of enzymes and its applications.	K5	CO4
5	20	Explain the guidelines of research in rDNA technology?	K5	CO5

Z-Z-Z END