Name				Printed Pages:01		
Student Admn. No.:						
School of Biological and Life Sciences						
Summer Term Examination – July - August 2024						
Programme: B.Sc. Biomedical Sciences Semester:				III		
Course Title: Biotechnology				Max Marks: 100		
Course Code: C2UC302B				Time: 3 Hrs.		
Instructions: 1. All questions are compulsory.						
2. Assume missing data suitably, if any.						
			Level	COs	Marks	
SECTION-A (15 Marks) 5 Marks eac						
1.	Define the	term "cloning" in the context of animal biotechnology.	K1	1	5	
2.	Define the term "protoplasts" and explain their role in somatic hybridization.		K2	1	5	
3.	3. What is the purpose of isolating and purifying nucleic acids in molecular biology.			2	5	
SECTION-B (40 Marks) 10 Marks each						
4.	Describe the key components of a phage library and how they are used in the selection and display of specific proteins		K2	2	10	
5.	Compare and contrast the applications of micropropagation and callus culture in plant tissue culture.			2	10	
6.	Explain the key steps involved in the construction of a cDNA library. Discuss the importance of reverse transcription in this process.			3	10	
7.	What role do restriction enzymes play in the construction of a genomic library?		K4	3	10	
** Explain how they are used to generate DNA fragments for library insertion. Image: SECTION-C (45 Marks) ** SECTION-C (45 Marks) 15 Marks each						
	Analyze tł	e potential benefits and drawbacks of somatic hybridization in crop				
8.	improvement and plant breeding, and provide case studies illustrating its successful applications.		K4	4	15	
9.	Compare different gene delivery methods in gene therapy, such as viral vectors, CRISPR-Cas9, and mRNA-based therapies. Assess the advantages and limitations of		K4	4	15	
		each approach in the context of treating specific genetic diseases.			10	
10	Investigate the role of advanced library construction techniques in functional		K5			
	-	genomics and gene regulation studies. How are these libraries applied to uncover the			15	
	mechanisms of gene regulation and the functional relationships between genes and non-coding elements?					
	non coun					