

Roll No: _____

JAMIA HAMDARDSCHOOL OF CHEMICAL AND LIFE SCIENCES
DEPARTMENT OF BIOCHEMISTRY**MSc Biochemistry, Semester III Examination, 2023**

Paper Code: MBC 310

Paper Title: Biotechnology

Time: 1½ h

Max Marks: 30

Note: This paper has 3 Sections, A, B, and C. Attempt all three sections. Section A: Answer all the questions; Section B: Answer any one; Section C: Answer all the questions, each question in this section has an internal choice

Course/Program Learning Outcomes (CLO/PLO) and Blooms Taxonomy Levels (BTL):

CLO-1: Understand concepts; CLO-2: Systematically learn the processes; CLO-3: Gain knowledge of mechanism; CLO-4: Comprehend how things are integrated; CLO-5: Analyse and evaluate processes.

SECTION A

Attempt All Questions
(1x6= 6 Marks)

Q. No. 1	COMMENT BRIEFLY ON THE FOLLOWING:	BTL	CLO	PLO
(a)	i) Plant host cells that contain T-DNA are called (A) Infected (B) Transfected (C) Transformed (D) Edited	3	3	4
	(ii) Which of the following is not a type of continuous brewing (A) Cascade system (B) Multistage system (C) Tower system (D) Extract brewing	2	4	5
	(iii) Encapsulation is necessary to produce and protect synthetic seeds. The encapsulation is carried out by various types of hydrogels, which are (A) soluble in water (B) soluble in organic solvents (C) insoluble in water (D) insoluble in organic solvents	4	4	3
	(iv) Which of the following enzymes are needed for isolating protoplast? (A) Pectinase	2	1	3

	(B) Cellulase (C) Chitinase (D) Both (a) and (b)			
(v)	Which of the following is the most controversial approach in Gene therapy (A) Somatic therapy (B) Ex-vivo therapy (C) Germ line therapy (D) Anti-sense therapy	3	3	2
(vi)	The two types of plasmids in <i>Agrobacterium</i> -mediated transformation are _____ and _____	4	3	3

SECTION B

Attempt Any One
(1x12 = 12 Marks)

Q. No. 2	LONG ANSWER QUESTIONS	BTL	CLO	PLO
a)	<i>Agrobacterium</i> has evolved an elaborate mechanism for transforming plant cells. Describe what the function of the T-DNA in transformed plants, and explain how this benefits <i>Agrobacterium</i> .	5	3	2
b)	How does gene therapy work? What are the recent advances in gene delivery systems?	2	2	3

SECTION C

Attempt All Questions
(3x4 = 12 Marks)

Q. No. 3	SHORT ANSWER TYPE QUESTIONS	BTL	CLO	PLO
a)	What are the advantages of plastome engineering over conventional nuclear transformation? Mention a few applications of plastid transformation. Or How does fermentation differ from glycolysis?	3	2	2
b)	What is the best type of cloning vector for creating a library if you plan to do chromosome walking? Explain your reason. Or Mention ways of verifying RFLPs.	4	5	3
c)	Describe how can RNAi gene silencing be used to determine the function of genes? Or What is DNA microarray technology. What are the types of DNA microarrays?	4	3	2

END OF THE QUESTION PAPER