JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT
TEST -1 EXAMINATION- 2026
B.Tech-I Semester (CSE/IT/BT/ECE/CE)

COURSE CODE (CREDITS):20MS1BT211 MAX. MARKS: 15
COURSE NAME: Genetic Engineering
COURSE INSTRUCTOR:Dr Anil Kant MAX. TIME: 1 Hour

Note: *(a) All questions are compulsory. (b) The candidate is allowed to make Suitable numeric assumptions wherever required for solving problems (c) Use of calculators is not allowed*

Q.No	Question	Marks
	Do any eight of following	8
Q.1	a. A student created a DNA molecule in the lab by joining DNA from two sources but none of these fragments were capable of replication in any host? Will it be called recombinant DNA? Support with reason. b. Traditional plant and animal breeding also results in genetic modification? Justify and give examples. c. Name the genes and their sources used to develop golden rice? d. Analyze the interrelationship between recombinant DNA technology, genetic engineering and gene cloning? e. Application Genetic engineering can result in reduced use of agrochemicals? Justify with help of suitable examples. f. Elaborate on development of any one of following products i) Non-browning Apple ii) Blue coloured rose g. Which company, county developed and commercialized Bt brinjal? What is the impact of commercialization? h. What is the pattern in Type II restriction enzyme recognition sites? What is its significance to genetic engineering? i. Give two examples of therapeutics which could be commercialized as a result of their recombinant production, j. Evaluate the role of genetic engineering in development of corona course vaccine?	
	Do any two of following	5
Q.2	A. First three nucleotides of six base pair type II restriction enzymes are 5'CGT, which after the first nucleotide from 3' end. Write a complete recognition site and fragments generated by this enzyme.	P.T.O

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	B. Genetic Engineering facilitates the generation of engineered therapeutic proteins with some clinical advantage. Justify and give two such examples. C. Elaborate on any three of recent examples of development of genetic engineered products/ therapies. Include purpose/gene and it role i) Gendicine ii) Neovasculgen iii) Burgers that bleed iv) Gene therapy for X-linked chronic granulomatous disease	
Q.3	Suggest at least two strategies to favor formation of recombinant vectors, during Recombinant DNA construction. Mention the enzyme, their enzymatic activities and logic involved. Draw a suitable diagram for more clarity.	2