

BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(MID SEMESTER EXAMINATION)

CLASS: BTECH
BRANCH: BIOTECHNOLOGY

SEMESTER: V
SESSION: MO/2022

SUBJECT: BE302 FUNCTIONAL GENOMICS AND RDNA TECHNOLOGY

TIME: 2 HOURS

FULL MARKS: 25

INSTRUCTIONS:

1. The total marks of the questions are 25.
2. Candidates attempt for all 25 marks.
3. Before attempting the question paper, be sure that you have got the correct question paper.
4. The missing data, if any, may be assumed suitably.
5. Tables/Data hand book/Graph paper etc. to be supplied to the candidates in the examination hall.

NIL-----

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Q1 (a)	Assess the importance of the world of RNA hypothesis.	[2]	1	5
Q1 (b)	Justify that advances in genomics has played important role in the crop improvement.	[3]	2	5
Q2 (a)	Differentiate between forward and reverse genetics.	[2]	1	4
Q2 (b)	Give a diagrammatic representation showing the strategies used in antisense technology for degradation of target mRNA.	[3]	2	6
Q3 (a)	Show the steps involved in siRNA based gene silencing for the regulation of gene expression.	[2]	4	4
Q3 (b)	Design an experimental sketch having various steps of CRISPR-Cas9 mediated gene editing mechanism for altering the <i>Hexokinase</i> gene.	[3]	2	6
Q4 (a)	Justify that restriction enzymes have very much important role in rDNA technology.	[2]	5	6
Q4 (b)	Design an experimental sketch having various steps for Reverse Transcription PCR based amplification of <i>Phosphofructokinase</i> gene using RNA isolated from plant leaf.	[3]	5	6
Q5 (a)	Prove that site directed mutagenesis has very much important role towards developing the protein of interest.	[2]	2	5
Q5 (b)	Give the diagrammatic representation for the detection of <i>Fructokinase</i> gene using Southern blotting.	[3]	2	4

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