

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

CLASS: BTECH
BRANCH: BIOTECH

SEMESTER : Vth
SESSION : MO/2023

SUBJECT: BE302 FUNCTIONAL GENOMICS AND rDNA TECHNOLOGY

TIME: 3 Hours

FULL MARKS: 50

INSTRUCTIONS:

1. The question paper contains 5 questions each of 10 marks and total 50 marks.
 2. Attempt all questions.
 3. The missing data, if any, may be assumed suitably.
 4. Before attempting the question paper, be sure that you have got the correct question paper.
 5. Tables/Data hand book/Graph paper etc. to be supplied to the candidates in the examination hall.
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Q.1(a)	Explain the steps involved in forward genetics to identify gene.	[5] 1	2
Q.1(b)	Describe the applications of CRISPR/Cas9 in functional genomics studies.	[5] 2	3
Q.2(a)	Discuss the significance of restriction enzymes in the cloning process.	[5] 2	4
Q.2(b)	Explain the PCR process and its use in diagnosis.	[5] 2	3
Q.3(a)	Define important components and reactions in pyrosequencing.	[5] 3	2
Q.3(b)	Give a comparative analysis of conventional Sanger's DNA sequencing and NGS technologies.	[5] 3	3
Q.4(a)	Justify the importance of having a promoter in an expression vector.	[5] 4	4
Q.4(b)	Describe the purpose of selection markers in cloning vectors.	[5] 3	3
Q.5(a)	Develop a protocol for the purification of recombinant protein from bacterial expression system.	[5] 5	5
Q.5(b)	Evaluate the advantage and disadvantages of using a prokaryotic expression vector for producing eukaryotic proteins.	[5] 4	4

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