

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

**CLASS: BTECH
BRANCH: BIOTECHNOLOGY**

**SEMESTER : V
SESSION : MO/2024**

SUBJECT: BE213 PHARMACEUTICAL BIOTECHNOLOGY

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)	Use central dogma of molecular biology and show the possible outcomes as Molecular medicine. Present your answer with the help of explanation and suitable diagram.	[5] 1	6
Q.1(b)	What is 'Rational drug design'? Sketch steps of ligand based drug design and explain it.	[5] 1	3
Q.2(a)	List out different techniques for gene testing. Evaluate PCR as a tool for gene testing.	[5] 2	5
Q.2(b)	List out different types of diagnostics. Construct the steps for development of ELISA for identification of an antigen.	[5] 2	6
Q.3(a)	Explain Oncogenes? Differentiate between <i>c-onc</i> and <i>v-onc</i> genes.	[5] 1	4
Q.3(b)	Present features of gene therapy. Demonstrate steps of Adenosine deaminase gene therapy with suitable explanation.	[5] 2	3
Q.4(a)	Relate various microbial aspects with fermentation products used in clinical medicine.	[5] 3	4
Q.4(b)	With respect to tablet preparation, demonstrate the roles of diluents, binders, disintegrants, colours and glidants.	[5] 3	3
Q.5(a)	Construct the Hepatitis B antigen gene. Also construct the suitable vector and microorganism for its production by r-DNA technique.	[5] 4	6
Q.5(b)	Draw the molecular structure of insulin and proinsulin. Assemble steps about the biosynthetic production of insulin by genetically engineered <i>E. coli</i> ? Present your answer with the help of suitable diagram.	[5] 4	6

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