

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

CLASS: B.TECH
BRANCH: BIOTECHNOLOGY

SEMESTER: V
SESSION: MO/2022

SUBJECT: BE301 BIOANALYTICAL TECHNIQUES

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.
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Q1	(a)	Discuss the characteristics of a good density gradient media.	[2]	CO	BL
Q1	(b)	Calculate the RCF_{min} , RCF_{av} and RCF_{max} for a centrifuge tube rotating at 27500 rpm and in which the distance between the rotation axis and the meniscus is 12 cm and between the rotation axis and the bottom of the tube is 19 cm.	[3]	CO2	06
				CO1	03
Q2	(a)	Differentiate between sedimentation and Centrifugation.	[2]	CO1	03
Q2	(b)	Explain the relative centrifugal force. How is it related to the speed of rotation of a centrifuge?	[3]	CO2	05
Q3	(a)	Differentiate between the Polyacrylamide gel and agarose gel.	[2]	CO1	03
Q3	(b)	Describe the instrumentation and process utilized for agarose gel electrophoresis.	[3]	CO2	06
Q4	(a)	How do you correlate IEF with the separation of proteins?	[2]	CO1	04
Q4	(b)	Illustrate the various steps involved in SDS- PAGE starting from sample preparation.	[3]	CO3	04
Q5	(a)	Why is agarose used in gel electrophoresis?	[2]	CO2	05
Q5	(b)	Explain the effect of voltage, buffer composition and pH on the electrophoresis process.	[3]	CO5	06

:::::: 26/09/2022 :::::M