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

CLASS: MTECH   SEMESTER: II
BRANCH: BIOTECHNOLOGY   SESSION: SP/2023

SUBJECT: BE507 ADVANCED BIO SEPARATION ENGINEERING
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.

			CO	BL
Q.1(a)	Define the filter medium and mechanism of filtration? Discuss about the role of filter aids?	[5]	1	1
Q.1(b)	Design a process/method for release of intracellular thermos-labile product?	[5]	3	6
Q.2(a)	Provide an insight on adsorption isotherm? Investigate the properties of adsorbents?	[5]	2	4
Q.2(b)	Calculate the value of cephalosporin adsorbed per unit weight of activated carbon which adsorbs 5625 mol/cm3 by the mechanism of Langmuir adsorption isotherm with constant k as 2 mol/l and	[5]	4	5
Q.3(a)	Evaluate the mechanism of functioning of Liquid Chromatography	[5]	4	6
Q.3(b)	Find out the salient features of membrane separation process?	[5]	3	2
Q.4(a)	Propose a technique for purification of a protein on the basis of affinity?	[5]	4	3
Q.4(b)	Design a methodology for removal of salts from the mixture containing the product?	[5]		6
Q.5(a)	Analyze the mechanism of nucleation and crystal growth?	[5]	2	5
Q.5(b)	Examine the different steps of drying kinetics and elaborate the role of variables affecting the drying mechanism?	[5]	4	4

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