

THE KAVERY ENGINEERING COLLEGE*(An Autonomous Institution)***B.E/B.TECH DEGREE END SEMESTER THEORY EXAMINATIONS, APRIL/MAY 2026***Sixth Semester**Chemical Engineering***CH3014 – Bioseparation and Downstream Processing***Regulations – 2021**Duration : 3 Hrs**Maximum : 100 Marks***PART – A (ANSWER ALL QUESTIONS) (Marks 10*2=20)**

<i>Q. No</i>	<i>Questions</i>	<i>BLT</i>	<i>CO</i>	<i>Marks</i>
1.	What is downstream processing?	L1	1	2
2.	Write a note on Bioseparation.	L2	1	2
3.	Define settling velocity.	L1	2	2
4.	What is meant by filter aids? Give examples.	L1	2	2
5.	Define absorption factor.	L1	3	2
6.	Give two examples for gas absorption?	L1	3	2
7.	State the difference between adsorption and extraction.	L1	4	2
8.	Define selectivity.	L1	4	2
9.	Infer about dialysis.	L2	5	2
10.	Explain briefly about electrophoresis.	L2	5	2

PART – B (ANSWER ALL QUESTIONS) (Marks 5*16 = 80)

<i>Q. No</i>	<i>Questions</i>	<i>BLT</i>	<i>CO</i>	<i>Marks</i>
11.	a Write brief notes on the characteristics and principles of Bioseparation in detail.	L2	1	16
	Or			
	b Write brief notes on the various stages of downstream processing.	L2	1	16
12.	a Describe the general theory of filtration and describe the design and working principle of rotary drum vacuum filtration.	L4	2	16
	Or			
	b Explain the density gradient centrifugation and explain in detail the design and working of a tubular bowl centrifuge.	L4	2	16
13.	a Derive an equation for finding out the height of a packed column operating in a counter current method.	L5	3	16
	Or			
	b Explain the co-current and counter current operation of absorption with neat sketch.	L5	3	16

14.	a	Explain how you will find out the final composition of the solute in the raffinate for immiscible solvent and diluents in single and multistage cross current extraction.	L3	4	16
		Or			
	b	Explain the procedure to determine the minimum number of theoretical plates by Ponchon Savarit method and McCabe Thiele method.	L3	4	16
15.	a	Write brief notes on Ultrafiltration and Microfiltration.	L4	5	16
		Or			
	b	Write brief notes on Theory of chromatography, Binary chromatography and Hydrodynamic chromatography	L4	5	16