

THE KAVERY ENGINEERING COLLEGE
(An Autonomous Institution)

B. E/B.TECH DEGREE END SEMESTER THEORY EXAMINATIONS, APRIL-MAY 2025

Sixth Semester

Mechanical Engineering

CME355 – Material Handling and Solid Processing Equipment

Regulations - 2021

Duration : 3 Hrs

Maximum: 100 Marks

PART – A (ANSWER ALL QUESTIONS) (Marks 10*2=20)

Q.No	Questions	BLT	CO	Marks
1.	Mention any four objectives of material handling.	L1	1	2
2.	Recall the applications of material handling equipments with example	L1	1	2
3.	How industrial trucks are classified?	L2	2	2
4.	Give the primary purpose of fork lift truck.	L2	2	2
5.	Enumerate the principle components of a belt conveyor	L2	3	2
6.	Where pneumatic and hydraulic conveyors were employed in industrial environment?	L2	3	2
7.	List the features of chute and its application.	L1	4	2
8.	What are Derricks? State their applications.	L1	4	2
9.	Define bulk solids in material handling.	L1	5	2
10.	Differentiate between a serial manipulator and a parallel manipulator in robotics.	L2	5	2

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

Q.No	Questions	BLT	CO	Marks
11.	a i Describe the factors considered while selecting material handling equipment.	L2	1	10
	i Explain the principles of material handling.	L2	1	6
	Or			
	b i Discuss the guidelines for effective utilization of material handling equipments.	L2	1	10
	i Explain the concept of unit load handling and its advantages over individual item handling.	L2	1	6
12.	a What is a power truck? Explain the wide varieties of powered trucks for material handling.	L2	2	16

Or

	b	i	Discuss fork lift truck and its attachment with relevant sketches.	L2	2	8
		i	Discuss the construction and working of Automated Guided Vehicle.	L2	2	8
13.	a		With the neat sketch describe characteristics, components and Classification of roller conveyors in unit load application.	L2	3	16
			Or			
	b	i	Explain the concept of cable conveyor and their benefits in particular application.	L2	3	8
		i	Compare Hydraulic and pneumatic conveyors.	L2	3	8
14.	a		Write short notes on the following auxiliary equipments for improving the productivity i) Chutes ii) feeders iii) Gates	L2	4	16
			Or			
	b	i	Elaborate the design variations applied to jib cranes in handling loads.	L2	4	10
		i	How luffing mechanism support for material handling in a tower crane.	L2	4	6
15.	a		Based on a production scenario, analyze and classify the appropriate type of robot (e.g., SCARA, articulated, Cartesian) and justify your choice.	L4	5	16
			Or			
	b		Examine the effectiveness of robotic handling systems in reducing operational costs and improving consistency in product quality.	L4	5	16