

THE KAVERY ENGINEERING COLLEGE*(An Autonomous Institution)***B.E/B.TECH DEGREE END SEMESTER THEORY EXAMINATIONS, NOV/DEC 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)**

<i>Q.No</i>	<i>Questions</i>	<i>BLT</i>	<i>CO</i>	<i>Marks</i>
1.	Recall any four primary objectives of material handling.	L1	1	2
2.	Define unit load concept.	L1	1	2
3.	Identify the need of pallet lift trucks.	L2	2	2
4.	Illustrate any two real time applications of self-propelled trucks.	L3	2	2
5.	Find the purpose of using Haulage conveyors in material handling.	L1	3	2
6.	List the benefits of using Computer-Controlled conveyor system.	L1	3	2
7.	Illustrate the essential factors to be considered while using pallet loaders.	L2	4	2
8.	Identify the suitable applications of derricks.	L2	4	2
9.	Discover the suitable equipment preferred for the storage of bulk solids.	L2	5	2
10.	Identify the applications for which the robotic handling system is essential.	L3	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 Classify the material handling equipment based on transporting different kinds of materials in indoor and outdoor environments.	L4	1	16
	Or			
	b Categorize the guidelines followed in the selection and effective utilization of different material handling equipment.	L4	1	16
12.	a i Illustrate the beneficial features of power trucks compare to hand trucks with respect to its applications.	L2	2	8
	ii Under what circumstances the two wheel and multiple wheel hand trucks are preferred. Explain in detail.	L2	2	8
	Or			
	b i Outline the specifications to be considered for the effective long run utilization of Fork Lift Trucks (FLT) without failure and explain how its influence the operational efficiency.	L2	2	8
	ii Relate the technical features of tractor and trailers based on its functionality.	L2	2	8

13.	a	Compare the design factors, characteristics, failure modes and applications of belt and roller conveyors.	L3	3	16	
	Or					
	b	Examine the selection criteria to be considered for the implementation of pneumatic and hydraulic conveyor systems in food processing industry. Compare the suitability of both systems for transporting heavy loads in accurate locations.	L3	3	16	
14.	a	i	Explain the characteristics and purposes of hoppers, feeders and chutes in materials handling.	L2	4	8
		ii	Illustrate the suitable industry / product examples in which the hoppers and feeders are utilized effectively and explain how it influences the production rate.	L2	4	8
	Or					
	b	i	Classify the materials handling equipment used to acquire vertical and horizontal transportation of heavy weights with accurate speed of operation.	L2	4	8
		ii	Illustrate how the design of crane hook and ropes are ensured for specific applications. Summarize the factors involved to fix the load carrying capacity of the Ropes.	L2	4	8
15.	a	Compare the features, benefits and limitations of utilizing robots for material handling. Also outline the suitability of using robots for bulk material handling.	L2	5	16	
	Or					
	b	Classify the robot manipulators used in industrial materials handling and summarize its suitable applications for which each manipulator classifications are recommended.	L2	5	16	