

THE KAVERY ENGINEERING COLLEGE*(An Autonomous Institution)***B.E/B.TECH DEGREE END SEMESTER THEORY EXAMINATIONS, NOV/DEC 2025***Fifth Semester**Mechanical Engineering***CME396 - Process Planning and Cost Estimation***Regulations - 2021**Duration : 3 Hrs**Maximum : 100 Marks****PART - A (ANSWER ALL QUESTIONS) (Marks 10*2=20)***

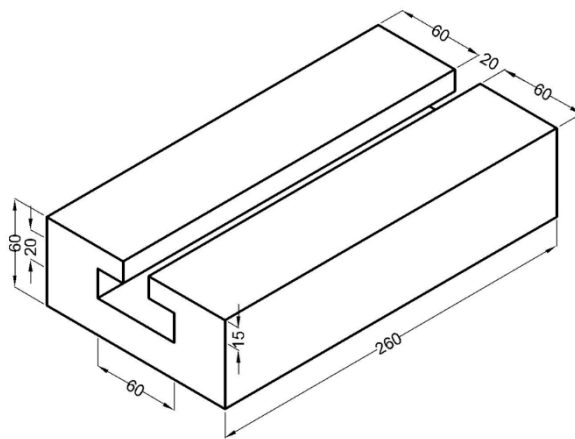
<i>Q.No</i>	<i>Questions</i>	<i>BTL</i>	<i>CO</i>	<i>Marks</i>
1.	Define the term Process Planning.	L1	1	2
2.	What is the main purpose of the Route Sheet?	L1	1	2
3.	Name two factors affecting cutting speed calculation.	L2	2	2
4.	Identify the information contained in the Bill of Materials?	L1	2	2
5.	What are the preliminary and final estimates?	L1	3	2
6.	State the main step in costing procedure.	L1	3	2
7.	Mention a main element of welding shop estimate.	L1	4	2
8.	Which elements are considered in estimating the cost of foundry sand?	L1	4	2
9.	Identify a step involved in calculating planning time.	L1	5	2
10.	How machining time affects overall process planning accuracy?	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 i Explain the process of Drawing Interpretation as a preliminary step in process planning, detailing the critical information a planner extracts from an engineering drawing.	L4	1	8
	ii Develop a process plan for a component involving material and tooling selection.	L4	1	8
	Or			
	b i Discuss in detail the objectives and significance of Process Planning in the context of modern product manufacturing and cost control.	L4	1	8
	ii Analyze the financial consequences of selecting inappropriate equipment. Specifically, analyze how selecting oversized or undersized equipment affects production costs.	L4	1	8
12.	a i Evaluate the effect of different jigs and fixtures on production costs and efficiency.	L4	2	8
	ii Discuss the volume-process selection relationship using break-even principle.	L2	2	8

Or

	b	i	Compare and contrast the role of process planning in reducing waste and improving efficiency in production.	L4	2	8
		ii	Design a suitable fixture for an electronic component housing. Sketch it.	L3	2	8
13.	a	i	Explain difference between detailed and preliminary estimates.	L2	3	8
		ii	Design a cost estimation model that includes labor, material, and overhead costs for a manufacturing setup.	L4	3	8
	Or					
	b	i	Prepare a Cost Sheet to determine the selling price for 1,000 chemical plant pump units.	L5	3	8
ii		Describe depreciation causes and the Straight Line and Sinking Fund Methods.	L2	3	8	
14.	a	i	Examine NDT requirements impact on fabricated ship hull welding cost estimation.	L3	4	8
		ii	Discuss the impact of production volume and job complexity on cost estimation in a forging shop.	L4	4	8
	Or					
	b	i	Explain the effect of material, labor, and energy on shop estimation.	L2	4	8
ii		Formulate cost model for production foundry with core making and molding.	L2	4	8	
15.	a	A T-Slot is to be cut in a C.I slab shown in Figure. Estimate the machining time. Take cutting speed 25 m/min, feed is 0.25 mm/rev. Diameter of cutter for channel milling is 80 mm.		L5	5	16



Or

b			Find the time required on a shaper to machine a plate 1100 x 500 mm, if the cutting speed is 16 m/min. The ratio of return stroke time to cutting time is 2:3. The clearance at each end is 20 mm along the length and 15 mm on width. Two cuts are required, one roughing cut with cross feed of 2 mm per stroke and one finishing cut with feed of 1.25 mm per stroke.	L5	5	16
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