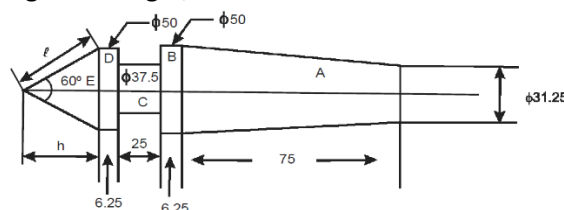


THE KAVERY ENGINEERING COLLEGE*(An Autonomous Institution)***UG/PG DEGREE END SEMESTER THEORY EXAMINATIONS, APR/MAY 2026*****Fifth Semester******Mechanical Engineering*****CME396- PROCESS PLANNING AND COST ESTIMATION****Regulations - 2021****Duration : 3 Hrs****Maximum : 100 Marks****PART – A(ANSWER ALL QUESTIONS) (Marks 10*2=20)**

Q.No	Questions	BTL	CO	Marks
1.	Give a definition of Process Planning.	L1	1	2
2.	What are the factors should be considered for process and equipment selection?	L1	1	2
3.	Distinguish between jigs and fixture.	L2	2	2
4.	List any four factors to be considered for selection of measuring instruments.	L1	2	2
5.	Mention the importance of costing and estimation.	L1	3	2
6.	Name two methods of labor cost estimation.	L1	3	2
7.	why costing and estimation are important in manufacturing?	L1	4	2
8.	Write any two bases for allocation of overhead charges.	L1	4	2
9.	State different factors that affect machining time.	L1	5	2
10.	What is the significance of work speed in grinding time calculation?	L1	5	2

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

Q.No	Questions	BLT	CO	Marks
11. a	Explain process planning activities and documentation involved in preparation of process plan.	L2	1	16
Or				
b	Describe the criteria and procedures for choosing machines and corresponding tools	L2	1	16
12. a	i Explain the factors to consider while selecting a fixture for a turning operation	L2	2	8
	ii Calculate cutting speed, feed, and machining time for turning a 60 mm diameter mild steel shaft, 300 mm long, on a lathe using HSS tool.	L2	2	8
Or				
b	Discuss the economic benefits of process planning with respect to reducing production costs and meeting delivery deadlines, citing a practical industrial example	L2	2	16
13. a	The following figure.1 shows a lathe stock. Estimate the weight and cost of material if C.I. weighs 7.787 gm/cu.cm and material cost is 11.45 kg.	L3	3	16



All the dimensions are in mm

Figure.1

Or

- b i A manufacturer uses straight-line depreciation for a machine costing ₹15,00,000 with a 15-year life. Annual production is 15,000 units. Calculate the depreciation per unit . L2 3 8
- ii Compare material cost estimation in batch production vs. mass production with industry examples. L2 3 8
14. a Estimate the net weight and gross weight for the manufacture of 500 levers shown in Figure. 3. The material weighs 7.8 gms/cc and the total losses account for 25 percent of net weight of the lever. Also calculate
i) Length of 3 cm diameter rod required/component.
ii) The cost offorging 500 pieces if the material costs Rs. 80 perkg, labour cost is Rs.5per piece and overheads are 25 percent of material cost. L3 4 16

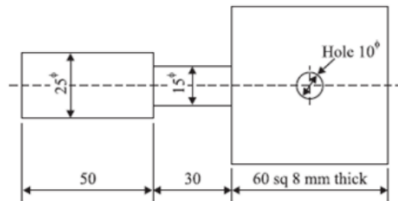


Figure .3

Or

- b Two 1 m long M.S plates of 10 mm thickness are to be welded by a lap joint with a 8 mm electrode. Calculate the cost of welding. L3 4 16
Assume the following data.
(i) Current used = 30 amperes
(ii) Voltage = 300 V
(iii) Welding speed = 10 m/hr
(iv) Electrode used = 0.1 kg/m of welding
(v) Labour charges = Rs. 4.00/hr
(vi) Power charges = Rs. 0.2/kWh
(vii) Cost of electrode = Rs. 40.00/kg
Efficiency of machine = 70%
15. a A 400 mm × 60 mm rectangular cast iron piece is to be face milled with a carbide cutter. The cutting speed and feed are 60 m/min and 60 m/mm. If the cutter dia is 80 mm with 12 cutting teeth. Find cutter r.p.m. feed per tooth, milling time. L3 5 16
Or
- b Calculate the machining time required to produce one piece of the component shown in Figure 4. given below starting from f 25 mm bar. The following data is available. L3 5 16

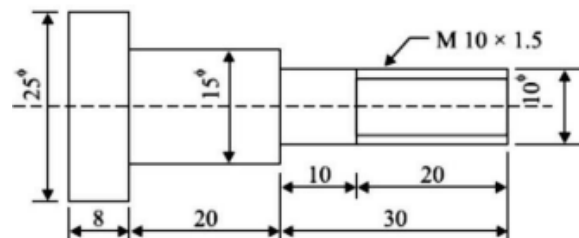


Figure 4
