

Reg. No. :

Question Paper Code : 20760

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2023.

Fifth Semester

Mechanical Engineering

CME 396 — PROCESS PLANNING AND COST ESTIMATION

(Common to : Industrial Engineering and Management/
Manufacturing Engineering/Mechanical and Automation Engineering/Mechatronics
Engineering and Robotics and Automation)

(Regulations 2021)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. List the functions of process planning.
2. What are the stages of material selection process?
3. Identify the factors to be considered for process and equipment selection.
4. How does the fixture differ from jig?
5. List a few objectives of the cost estimation.
6. What is meant by overhead expenses?
7. Mention the different types of jobs.
8. Specify the purpose of welding.
9. What is meant by machining time?
10. Define milling.

PART B — (5 × 13 = 65 marks)

11. (a) Explain process planning activities in detail and documentation involved in preparation of process plan.

Or

- (b) Describe various approaches to process planning.

12. (a) Describe the main process parameters that can influence the success of the machining.

Or

- (b) Discuss the set of documents that are required for process planning.

13. (a) Explain the step by step cost estimation procedure in detail.

Or

- (b) Illustrate the calculation of depreciation with suitable examples.

14. (a) How different jobs are estimated? Discuss in detail.

Or

- (b) Outline the estimation of a foundry shop.

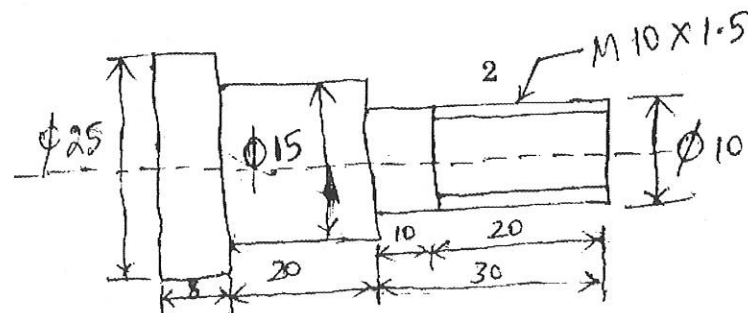
15. (a) Distinguish between drilling, boring and milling.

Or

- (b) Illustrate machining time calculation for grinding with a suitable example.

PART C — (1 × 15 = 15 marks)

16. (a) Calculate the machining time required to produce one piece of the component shown in Fig. 1. Starting from $\phi 25$ mm bar. The following data is available. For turning: Cutting Speed = 40 m/min; Feed = 0.4 mm/rev; Depth of cut = 2.5 mm/per pass; For thread cutting: Cutting speed = 8 m/min;



Or

- (b) A manufacturer is making 100 units of an item per hr and incurs the following expenses: Direct Material cost Rs. 35/-
 Direct labour cost Rs. 200/-
 Direct Expenses Rs. 75/-
 Factory on cost 150% of labour cost
 Office on cost 30% of factory cost
 Find out the selling price for a profit of 15% on the selling price.