Reg. No. : E N G G T R E E . C O M

Question Paper Code : 90807

B.E./B.Tech. DEGREE EXAMINATIONS, APRIL/MAY 2025.

Fifth/Sixth Semester

Mechanical Engineering

CME 396 – PROCESS PLANNING AND COST ESTIMATION

(Common to : Manufacturing Engineering)

(Regulations 2021)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Define planning.
2. State the material evaluation in process planning.
3. What are the jigs and fixtures in manufacturing?
4. List the document commonly included in a process planning set.
5. What is the main purpose of cost estimation in manufacturing?
6. Name one element of cost estimation.
7. What is the factor to consider when estimating jobs in a forging shop?
8. State the common cost component in estimating jobs in a welding shop.
9. Why is machining time calculation important in manufacturing?
10. What are the factors that affect machining time for lathe operations?

PART B — (5 × 13 = 65 marks)

11. (a) Discuss in detail about the key steps involved in process selection.

Or

(b) Brief the factors to consider when selecting production equipment and tooling in process planning.

12. (a) Describe in detail about how the process parameters are calculated for production processes?

Or

(b) Discuss the economic considerations in process planning.

13. (a) Explain the steps involved in estimating labor and material costs in manufacturing.

Or

(b) Describe the significance of allocating overhead charges and calculating depreciation in cost estimation.

14. (a) Elaborate the unique considerations involved in estimating jobs for a foundry shop compared to a welding shop.

Or

(b) Explain the steps involved in estimating a job in a forging shop.

15. (a) Enumerate the steps involved in calculating machining time for lathe operations.

Or

(b) Compare the machining time calculation methods for drilling and milling operations.

PART C — (1 × 15 = 15 marks)

16. (a) You are a production manager at a medium-sized manufacturing facility that specializes in automotive components. The facility includes a forging shop, a welding shop, and a foundry shop. The company is preparing to take on a new contract that requires producing a batch of complex automotive parts. You need to estimate the costs associated with each shop to provide a comprehensive bid for the project.

Or

(b) A manufacturing company is planning to launch a new product, a high-efficiency electric motor. As the project manager, you are responsible for preparing a detailed cost estimate to present to the management for approval. Your goal is to ensure the estimate is comprehensive and accurate to guide financial decisions and pricing strategies. Prepare a sample report.
