Question Paper Code : P 1396

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2009.

Seventh Semester

(Regulation 2004)

Mechanical Engineering

ME 1007 — PROCESS PLANNING AND COST ESTIMATION

(Common to Production Engineering)

(Common to B.E. (Part-Time) Sixth Semester Regulation 2005)

Time : Three hours   Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1.   What are the benefits of motion study?

2.   Name important techniques used in method study.

3.   What are the functions of process planning?

4.   What is sequencing?

5.   What are the objectives of costing?

6.   State the functions of estimating.

7.   Describe various allowances of time in estimating.

8.   Describe the sources of errors in estimating.

9. Define prime cost?

10. A machine is costing Rs. 25,000 and is expected to run for 10 years, at the end of which its scrap value is likely to be Rs. 2500. Machine is expected to run 2000 hours/year on an average. Estimate the depreciation charges per hour of the machine.

PART B — (5 × 16 = 80 marks)

11. (a) Define method study. State its objectives. Outline and justify the general procedure of method study. (16)

Or

(b) (i) Define work study and state clearly its uses in industry. (6)

(ii) What is time study? Explain briefly its equipments and benefits. (10)

12. (a) (i) Explain the components retrieval type CAPP system with a block diagram. (12)

(ii) Compare manual and computer aided process planning. (4)

Or

(b) Explain the criteria of selecting operating sequences and machine selection in process planning. (16)

13. (a) (i) Discuss about commonly used methods of costing. (8)

(ii) Discuss the objectives of estimating. (8)

Or

(b) (i) What is meant by classification of costs? Briefly discuss with examples. (12)

(ii) Differentiate between estimation and costing. (4)

14. (a) (i) Describe in detail the procedure for estimating. (10)

(ii) Explain the various constituents of estimation. (6)

Or

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(b) (i) Calculate the material cost of 20 gun metal bushes as per the diagram given Fig. 1. Assume the density of gun metal as 8.3 gm per cc and its cost is Rs. 70 per kg. Consider 10% material loss during process. All dimensions are in mm. (11)
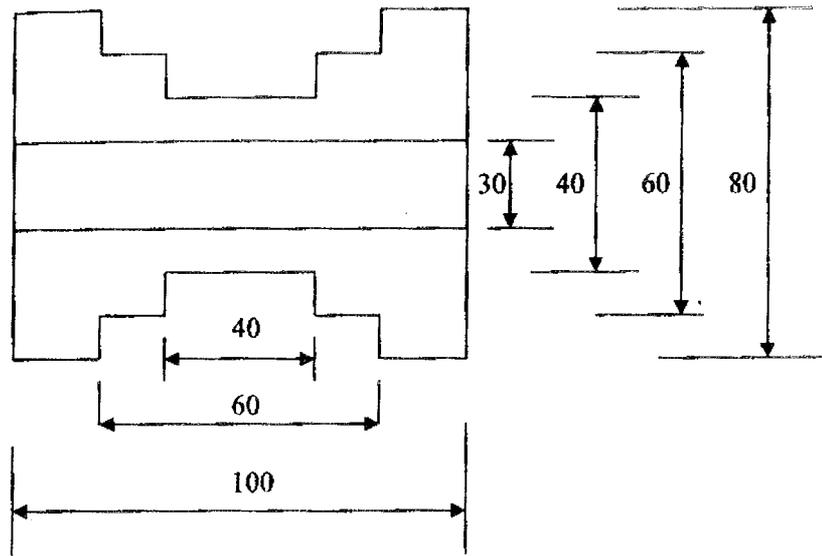

Fig. 1

(ii) List down the various items that constitutes the overhead expenses.
(5)

15. (a) 200 pieces of a component as shown in Fig. 2 are to be drop forged from a 4 cm diameter stock bar. Calculate the cost of manufacture, if

(i) Material cost is Rs. 100 per metre cube.

(ii) Forging charges @ Rs. 0.01 per cm^2 of surface area to be forged.

(iii) On cost is 10% of material cost. Consider all possible losses during operations.
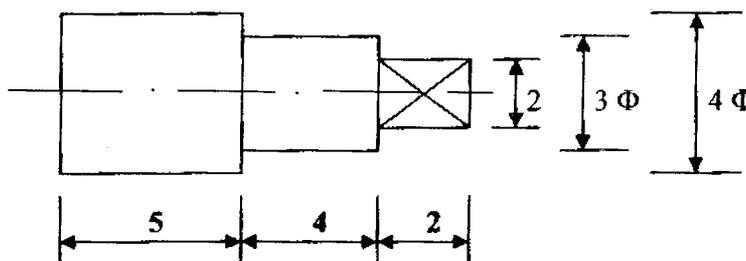
All dimensions are in cm. (16)

Fig. 2

Or

(b) (i) Estimate the machining time to turn a M.S bar of 3 cm diameter down to 2.5 cm for a length of 10 cm in a single cut. Assume cutting speed = 30 m/min and feed = 0.4 mm/rev. (8)

(ii) Find the time required to drill 6 holes in a casted flange each of 1 cm depth, if the hole diameter is 1.5 cm. Assume cutting speed as 20 m/min and feed as 0.02 cm/rev. (8)

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