Roll No. | | | | | | | | | | |

B.E. / B.Tech (Full Time) DEGREE END SEMESTER EXAMINATION, APRIL / MAY 2014

MANUFACTURING ENGINEERING

Seventh Semester

MF 9026 – PROCESS PLANNING AND COST ESTIMATION

(Regulation 2008)

(Tables Permitted)

Time: 3 Hours | Answer ALL Questions | Max. Marks: 100

PART – A (10 X 2 = 20 Marks)

1. What are the factors that influence process planning?
2. List the advantages of generative CAPP
3. Write the procedure for estimating the material cost
4. Why costing is important in manufacturing sector?
5. What do you understand by overhead expenses? Give some examples of overhead items
6. How can you fix the selling price of manufacturing product?
7. List the various requirements for effective budgeting
8. Define make (or) buy decision
9. Estimate the machining time to turn a 4 cm diameter mild steel bar 10 cm long, down to 3.5 cm diameter in a single cut, using high speed steel tool. Assume the cutting speed of the tool to be 30 m/min and a feed of 0.30 mm per revolution.
10. Write the estimation procedure for calculating cylindrical grinding time.

PART- B (5 x 16 = 80 Marks)

11. (i). Explain the manual process planning approach and its advantages and limitations (12)

    (ii) Write short note on various activities associated with process planning (4)

12. (a) (i). What is estimation? and what are the objectives and functions of estimating department? (12)

    (ii) Differentiate under estimate and over estimate and how its affect manufacturing cost of the product. (4)

(OR)

(b). (i). Define costing and list the advantages of efficient costing (8)

(ii). Explain the various methods of costing (8)

13. (a).(i) Explain the various elements of cost with suitable example (12)

(ii) A factory is producing 1000 bolts and nuts per hour on a machine. Its material cost is Rs.375, labour cost Rs.245 and the direct expense is Rs. 83. The factory on- cost is 15% of the total labour cost and office on-cost is 30% of the total factory cost. If the sealing price of each bolt and nut is Rs. 1.30, calculate whether the management is going in loss or gain and by what amount. (4)

(OR)

(b). (i). An industrial plant with initial value of Rs. 400,000 has the salvage value of Rs.40,000 at the end of 10 years but is sold for Rs.250,000 at the end of 5 years. What is the profit or loss if sinking fund method at 10% compounded interest was adopted. (8)

(ii). The elevation of a work piece is shown in fig.1. What will be the weight of the material required to produce it, if the density of the material is 8.2 g/cm^3 (8)

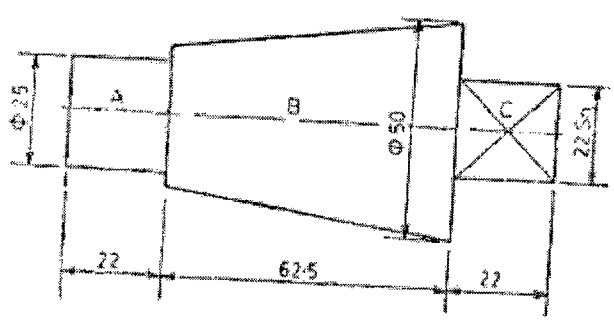


Fig.1

14. (a).Explain the concept of budget and its various types with simple examples (16)

(OR)

(b). Describe the concept of cost economics and explain with suitable example (16).

15. (a).(i) Calculate the machining time for the manufacturer if pins shown in fig.2. Assume the following data:

Cutting speed for turning = 22 m/min

Feed for turning = 0.8 mm/ rev

Depth of cut not exceed = 3 mm

Cutting speed for threading = 6 m/min

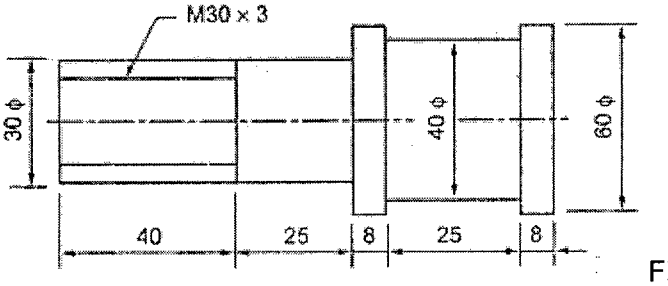


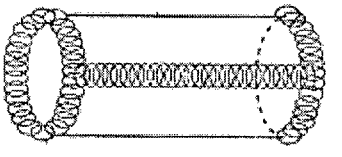
Fig.2

(12)

(ii). Write the procedure to estimate the cost of a cast component in a foundry shop (4)

(OR)

(b). Estimate the electric arc welding cost for a cylindrical boiler drum 3 m x 1.2 m diameter which is to be made from 15 mm thick mild steel plates. Both the ends are closed by welding circular plates to the drum. Cylindrical portion is welded along the longitudinal seam and welding is done both in inner and outer sides. Assume the following data.



Rate of welding	2 m/hr on inner side and 2.5 m/hr on outer side
Length of electrode required	1.5 m/ metre of welding
Cost of electrode	Rs. 2.75/ metre
Power consumption	4kWhr/ metre of weld
Power charges	45 paise / kWhr
Labour charges	Rs. 9 / hour
Overhead charges	90% of prime cost
Discarded electrodes	6%
Fatigue and setting up time	5% of welding time

(16)