

B.E/B.Tech DEGREE EXAMINATIONS APRIL/MAY 2011

Manufacturing Engineering (Reg 2004)

Sixth Semester

MN 517- PROCESS PLANNING AND COST ESTIMATION

TIME: 3 Hrs

MAX.MARKS:100

Answer ALL questions.

PART –A (10 x 2 =20 Marks)

1. What do you mean by simplification?
2. What are characteristics of Batch production?
3. Why estimation is essential to a business organization?
4. What are the three stages of estimating procedure?
5. What do you understand by the term direct material?
6. List the components of a cost of a product.
7. Write short note on factors affecting welding cost.
8. How the size of stock determined in forging?
9. Define approach length of milling cutter.
10. What do you meant by effective speed in planning and shaping operations?

PART –B (5 x16 = 80 Marks)

- 11.i) Explain what are the steps involved in manual experience based process planning (8)
- ii) Explain with assembly chart how product analysis is done for a typical product. (8)
12. a) i) What do you understand by realistic estimate? Explain its importance in production. (8)
- ii) Differentiate between Estimating and Costing. (8)

(OR)

b) i) Explain the major aims and objectives of cost accounting. (8)

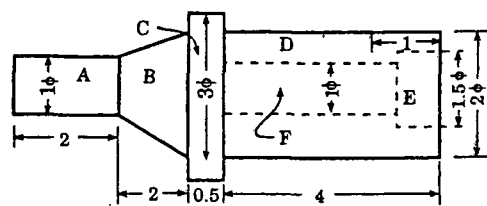
ii) Describe the estimating procedure. What are the qualities of a good estimator? (8)

13. a) i) What is meant by depreciation? Explain the sinking fund method. (8)

ii) is it necessary to classify overhead expenses as fixed and variable? Describe briefly how this classification would be of help in costing and in fixing selling prices. (8)

(OR)

b) i) Calculate the volume and weight of C.I block shown below, if the density of the material is 7.2 gm/cm^3 . 25% of the finished material required for the job is lost in various machining processes. (8)



All dimensions are in cm.

ii) A company has purchased equipment whose purchase cost is Rs.2,00,000 with an estimated life of eight years and a salvage value of Rs. 40,000. Determine the depreciation and book value at the end of various years using reducing balance method where the fixed % is 20. (8)

14. a) i) Discuss various material losses associated with forging process. (8)

ii) Estimate the material cost for welding 2 flat pieces of M.S 15 x 6 x 1 cm in size, at an angle of 90° by gas welding. Neglect edge preparation cost and assume: (8)

a) Cost of oxygen = Rs $10/\text{m}^3$

b) Cost of Acetylene = Rs $60/\text{m}^3$

c) Density of filler metal = 7 gm/cm^3

d) Cost of filler metal = Rs 12/Kg

(OR)

b i) Find the cost of 2000 CI pulleys shown in figure below. Its surfaces are to be machined after casting. The pattern is supplied by the customer itself. Following data can be used. (8)

Cost of metal: Rs 5/ kg

Moulds prepared by each worker/day = 20

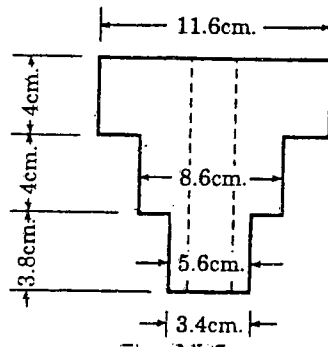
Melting charges = 20% of the metal cost

Machining allowance on each side may be taken as 2 mm

Wages of each molder= Rs 16/day

Density of CI = 7.2 gm/cc

Overhead charges = 25% of metal cost.



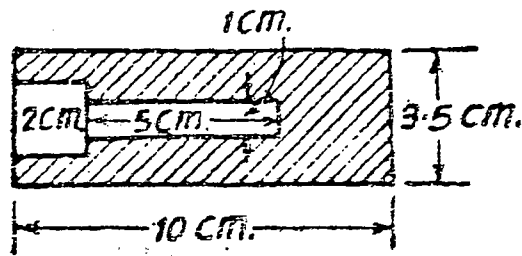
ii) Give the procedure of estimating the cost of a wooden pattern for sand moulding. (8)

15. a i) Explain the method of Machining time Estimation for turning operation. (8)

ii) Find the time required for doing rough grinding of a 15 cm long steel shaft to reduce its dia from 4 to 3.8 cm with the grinding wheel of 2cm face width. Assume cutting speed as 15 m/min and depth of cut as 0.25 mm. (8)

(OR)

b i) Calculate the time required for drilling a component as shown below. Assume the cutting speed as 22 m/min and feed as 0.02 cm/rev. (8)



ii) A slot is to be made on a milling machine with the help of a cutter, revolving at 120 rpm find the time required to prepare the slot in two cuts, if it is 2 cm deep and 10 cm long with a cutter 8 cm dia. Assume the feed as 0.5 mm/revolution. (8)