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B.E /B .TECH (FULL TIME) END SEMESTER EXAMINATION - NOV 2013

MANUFACTURING ENGINEERING DEPARTMENT

SIXTH SEMESTER

MF 9026 PROCESS PLANNING AND COST ESTIMATION

Time : 3 hr

Max. Marks: 100

Answer ALL Questions

Part – A (10 X 2 = 20 Marks)

1. What is the importance of geometrical drawing in process planning?
2. List any two methods used for selection of the suitable machinery?
3. Why surface finish specifications for parts are important in process planning?
4. What is job and batch costing?
5. List down any four methods of calculating depreciation cost.
6. Mention the various direct and indirect labour cost in forging cost estimation.
7. Differentiate fixed and variable cost.
8. List any four types of foundry losses.
9. How the material cost is evaluated in welding process?
10. What are the factors to be considered for machining time estimation?

Part – B (16X 5= 80 Marks)

11. Discuss the generative and variant process planning in detail.
12. a. A semi automatic turret lathe costs Rs. 80000 and it produces 16 pieces per hour and its operator receives Rs. 2 per hour. An engine lathe which costs Rs. 32000 produces 10 pieces per hour and its operator receives Rs. 2.50 per hour. Calculate the minimum number of pieces which makes turret lathe more economical.

(Or)

b. A firm producing air circulator wants to place an improved design in the market. Suggest a selling price covering the on cost and keeping the previous profit proportions on sales. The materials in new model will cost Rs. 350 and the direct wages would be Rs. 200. The following figures relate to the previous Year

Stock of material on 1<sup>st</sup> April 1996 =Rs 25,000

Stock of material on 31<sup>st</sup> March 1995 = Rs 27,000

Purchase of raw materials in this period = Rs 50,000

Manufacturing wages = Rs. 15,000

Works on cost = Rs. 7,500

Administrative and sales on cost = 7,500

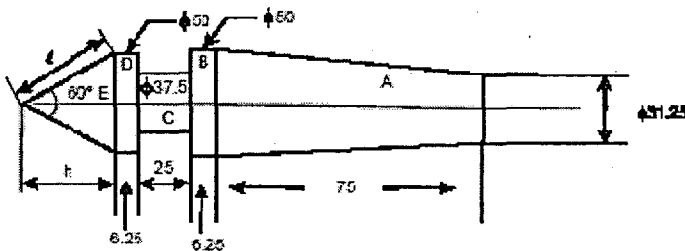
Sales during the Year = Rs. 95,000

13. a) A factory has 15 lathes and 5 shapers. Lathes occupy 30 m<sup>2</sup> area while shapers occupy 15 m<sup>2</sup>. In a calendar year, the expenses are (i) Building rent and depreciation Rs. 5000 (ii) Indirect labour and material Rs. 15000 (iii) Insurance Rs. 2000 (iv) Depreciation charges of lathes Rs. 5000 (v) Depreciation charges of shapers Rs. 3000 (vi) Power consumption for the lathes Rs. 2000 and for the shapers Rs. 1000. Find out the machine hour rate for lathes and shapers work for 25000 hours and 8000 hours respectively.

(or)

- b) In a production concern the variable overhead charges are Rs 2.00 per article and the fixed overhead charges per month are Rs. 35,000. It is estimated that 65,000 articles are produced each month under normal conditions Find : (i) The normal overhead cost per article. (ii) If the factory cost drops to 85% production, overhead charges that are unrecovered (iii) If the production is increased to 130% by what amount these charges will be over recovered.

14. a. The following figure shows a "lathe stock". Estimate the weight and cost of material if C.I. weighs 7.787 gm/cm<sup>3</sup> and material cost is 11.45 kg.



(or)

- b. Figure represents a face chuck and the dimensions shown are finished dimensions.

You are required to find out the cost of manufacturing and the selling price of the face chuck on the basis of the data supplied below. CI casting = Rs. 70 per 120 kg, Fettingling = 90 paisa/piece, Turning and facing at 7 paisa per cm<sup>3</sup> of material removed, Reaming and boring at 7 paisa/mm depth of hole, Overhead charges at 100% on labour cost, Profit at 15% on total cost.

