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BE /B TECH (FULL TIME) END SEMESTER EXAMINATION MAY 2012
MANUFACTURING ENGINEERING DEPARTMENT
SIXTH SEMESTER
MN 517 PROCESS PLANNING AND COST ESTIMATION

Time : 3 hr

Max. Marks: 100

Answer ALL Questions

Part – A (10 X 2 = 20 Marks)

1. Indicate the geometrical tolerance symbols for cylindricity and parallelism with an example.
2. List any two methods used for selection of the suitable machinery
3. What do you mean by selection of process parameters in process planning?
4. What are the aims of cost estimation?
5. Mention any four types of on-cost estimation.
6. What are the various allowances considered for the labour cost estimation?
7. Mention the various direct and indirect labour cost in forging cost estimation.
8. List any four types of foundry losses.
9. How the material cost is evaluated in welding process?
10. What are the importances of estimating machining time?

Part – B (5 X 16= 80 Marks)

11. Explain the steps involved in general process planning procedure 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.

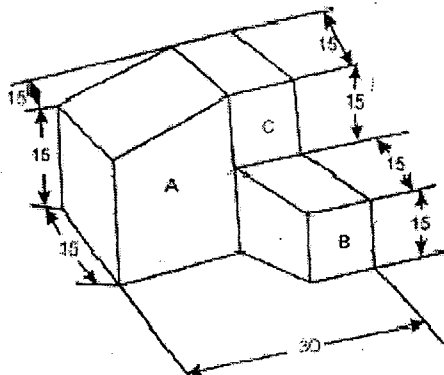
(or)

b. A component can be produced on either a capstan lathe or an automatic lathe. The different cost factors for the two machines are given below.

Machine I	Machine II
Fixed cost = Rs.500	Fixed cost = Rs.1500
Variable cost = Rs.3 per piece	Variable cost = Rs.1 per piece

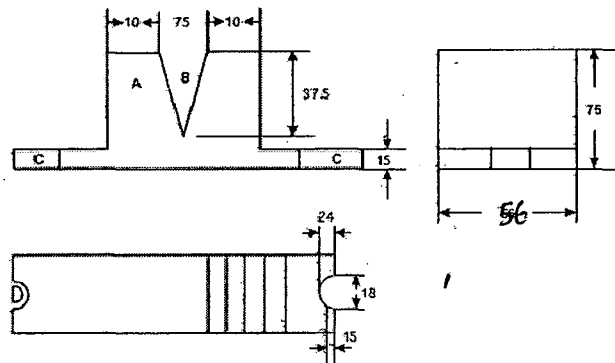
Assume that cycle time for production of the component is same for both the machines. Which machine will you select for producing (a) 800, (b) 700 components.

13. a. The following component is manufactured by forging from a rod 25 cm long. If the volume does not undergo any change, find the radius and surface area of the rod.

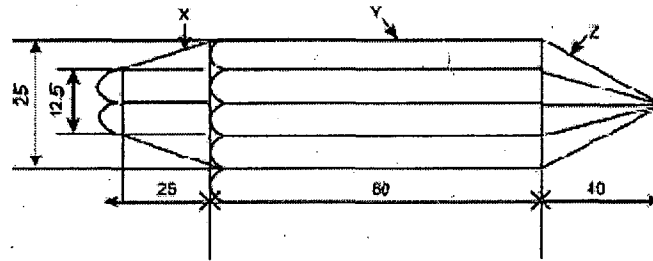


(Or)

b. Three orthographic view of a C.I. V-block are shown. What would be the weight of the material required for the block if CI weighs = 7.2 gm/cm^3 .

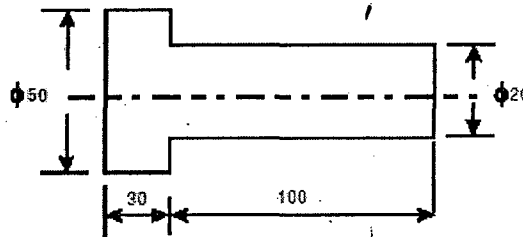


13.a. The figure shows a centre punch to be drop-forged. Calculate net weight, gross weight and length of M.S. bar. Density 7.83 g/cm^3

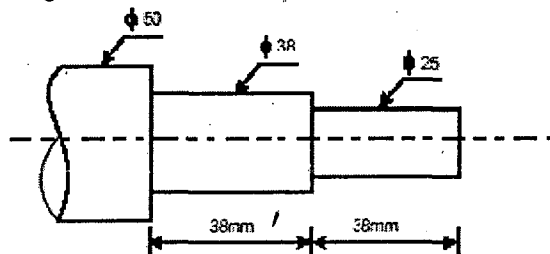


(or)

b. Two hundred components as in figure are to be made by upsetting a 20 mm diameter bar. Find the net weight and length of bar required, density of material = 7.88 g/cm^3 .



14. a. Determine the machining time to turn the dimensions given in figure. The material is brass, the cutting speed with H.S.S tool being 80 m/min and the feed is 0.8 mm.rev .



(or)

b. Find the time required to turn 25 mm dia bar to the dimension shown in figure. Cutting speed shall be 13.5 m/min . and feed 1.6 cuts per mm . All cuts shall be 3.125 mm deep.

