BTS(C) – VIII – 07 - 006 (E)

B. Tech Degree VIII Semester Examination, April 2007

ME 801 PRODUCTION TECHNOLOGY

(2002 admissions onwards)

Time : 3 Hours Maximum Marks : 100

I. (a) Explain any three methods of obtaining different speeds of machine tool spindle. (12)

(b) Discuss control systems in machine tools. (8)

OR

II. A 4 speed (1 x 4) gear box is required to be designed with speed ranging from 45rpm with ϕ=1.25. Determine the number of teeth of gears. (20)

III. (a) With a neat sketch, explain the process of Laser Beam Machining. (10)

(b) Describe the principle of Abrasive Jet Machining. (10)

OR

IV. (a) Explain with neat sketches, electro chemical machining. Also mention the advantages and disadvantages of the process. (12)

(b) Explain the concept of plasma arc machining. (8)

V. (a) What is Powder metallurgy? Explain any four methods of manufacturing metal powders. (12)

(b) List out and explain secondary operations in powder metallurgy. (8)

OR

VI. (a) What is sintering? Why maintenance of sintering temperature at a particular value is important in sintering process? (8)

(b) Explain the process of hot pressing. Mention its advantages and limitations. (12)

VII. (a) Write short notes on the following:

(i) Relief valves (ii) Safety valves

(iii) Hydraulic fluids used in machine tool drive. (12)

(b) With sketches, explain the function of pressure reducing valve in hydraulic circuits. (8)

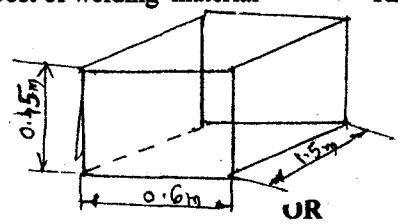
OR

VIII. (a) With sketches, briefly describe open and closed circuit used in hydraulic drives. (10)

(b) Comment on hydraulic stepless drives. (10)

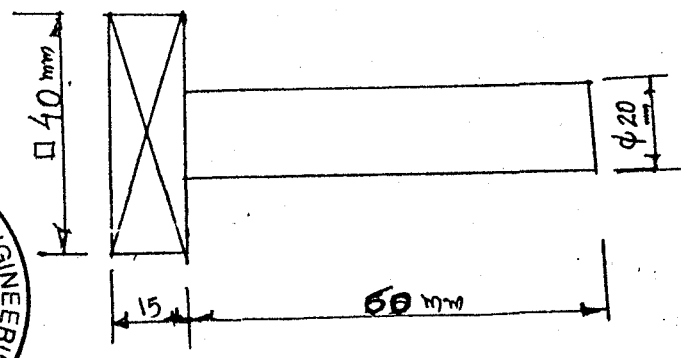
IX. A rectangular container open on one side of size 0.6 x 0.45 x 1.5m height is to be made from plates of 5mm thickness. Take density of plate materials as 8gm/c.c and joints are to be welded. Estimate the cost of container from the following data.

Cost of plate	=	Rs.6.00 per Kg.
Labour cost	=	10% material cost
Sheet metal scrap	=	5% of material
Cost of welding material	=	Rs.5/metre of weld. (20)



OR

X. Calculate the gross weight of the mild steel bolt (square head as shown in the figure), if it is produced in a lot of 5000. If the steel weighs 7.9g/cm^3 and method used is upsetting. Also calculate the length of the bar required. (20)



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