BTS (C) – VIII – (S) – 06 – 039 (E)

B. Tech Degree VIII Semester (Supplementary) Examination September 2006

ME 801 PRODUCTION TECHNOLOGY

(2002 Admissions onwards)

Time : 3 Hours Maximum Marks : 100

I. (a) What is the need of having provision to change cutting speeds and feeds of a machine tool? What are the advantages of hydraulic stepless drives? (10)

(b) Explain the feed mechanism employed in drilling machines. (10)

OR

II. (a) What is a ray diagram of a machine tool? (8)

(b) How is different cutting speeds obtained in the case of a lathe? (12)

III. (a) Explain with the help; of a neat sketch the construction and working of the following :
(i) Ultrasonic machining facility (ii) Laser beam machining facility. (10)

(b) Discuss the qualities of the products obtained from the above processes and list the advantages, limitations and applications of each process. (10)

OR

IV. Explain the working principle of the following machining facility with the help of a neat sketch and discuss the process capabilities, advantages and application of each :
(i) Electro Chemical machining (ii) Plasma Arc machining. (20)

V. (a) How is powder for the powder metallurgy process produced? (12)

(b) Discuss about the secondary P/M processes and give details of qualities achieved in each case. (8)

OR

VI. (a) What are the desirable characteristics of P/M powder? How are they achieved while the powder is being manufactured? (8)

(b) Describe the basic P/M process with the help of figures. Discuss about the product applications, advantages and disadvantages. (12)

VII. (a) Draw and explain working of hydraulic circuit used for the control of grinding machine. (10)

(b) What are the different methods of achieving variable speeds in hydraulic circuits? Explain. (10)

OR

VIII. (a) Draw the hydraulic circuit used in a drilling machine and explain the working. (11)

(b) Explain the working and use of the following hydraulic elements :
(i) Hydraulic power pack (ii) Relief valve
(ii) Reciprocating hydraulic actuator. (9)

IX. (a) Discuss the concept of costing. What are the objectives and elements of costing? (8)

(b) Calculate the time required to grind a shaft from 4 cms to 3.7 cm diameter using a grinding wheel of 5 cm face. Assuming a cutting speed of 12 m/min depth of cut of 0.002 cm give an allowance for grinding for the given diameter and length 0.03 cm and a compensation allowance of 0.01 cm. Length of the shaft is 22 cm. (12)

OR

X. (a) What are the constituents of estimation? Write down the procedure of estimation. (8)

(b) Calculate the machining time required to drill two holes of 12.5 mm diameter and 25 mm deep and one hole of 25 mm diameter and 37.5 mm deep in M.S plate. Assume feed for 12.5 mm diameter hole as 0.375 mm/rev. What cutting speed shall you select for these operations? If machining cost is Rs. 12/- per Kg of material removed and overhead cost is 50% of machining cost, calculate the manufacturing cost of 60 pieces as specified above excluding the material cost. (12)

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