BTS (C) – VIII – 09 – 001 – E

B. Tech Degree VIII Semester Examination, April 2009

ME 801 PRODUCTION TECHNOLOGY

(2002 Scheme)

Time : 3 Hours Maximum Marks : 100

I. (a) A solid steel gear having 24 teeth is to transmit a maximum torque of 18 Kg. m. Determine the module and width of gear. (10)

(b) Explain the following :

(i) Ray diagrams (ii) P.I.V. drive (10)

OR

II. (a) What is meant by Speed Structural Analysis? (10)

(b) Explain the basic rules in constructing admissible structural forms. (10)

III. (a) Describe the features of Electric Discharge Machining. (12)

(b) With simple sketches explain Abrasive Jet Machining. (8)

OR

IV. With neat sketches, explain

(i) Electron Beam Machining

(ii) Laser Beam Machining. (20)

V. (a) Explain the concept of Powder Metallurgy Process. (10)

(b) Discuss the characteristics of metal powders. (10)

OR

VI. (a) What are the secondary Operations in Powder Metallurgy? (10)

(b) Discuss the advantages, disadvantages and applications of Powder Metallurgy. (10)

VII. (a) What are the properties expected of a good hydraulic fluid? (10)

(b) With neat sketches, comment on the symbols used in hydraulic circuits. (10)

OR

VIII. (a) With sketches, explain *any three* types of valves used in hydraulic circuits. (12)

(b) With sketches, distinguish between meter-in and meter-out type flow control valves. (8)

IX. A container open on one side of size 0.25 x 0.25 x 1 m height is to be made from plates of 6 mm thickness. Take density of plate metal as 8 gm/cc and joints are to be welded. Estimate the cost of container from the following data :
Cost of plate = Rs. 4.50/Kg; Sheet metal scrap = 5% of material;
Cost of labour = 15% of material cost;
Cost of welding material = Rs. 7.5 per meter of weld. (20)

OR

X. (a) Find the time required for doing finish grinding of a 30 cm long steel shaft to reduce its diameter from 6 to 5.6 cm with the grinding wheel of 2 cm face width. Assume cutting speed as 15 m/min; over travel as 0.5 cm and depth of cut as 0.20 mm. (12)

(b) Find out the time required for shaping a block of 25 x 10 cm size in three cuts. Assume feed as 0.5 mm/stroke and cutting speed as 15 m/min. (8)

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