

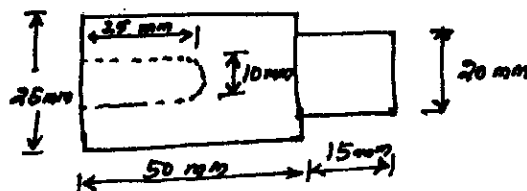
**B. Tech Degree VIII Semester Examination, April 2010****M.E 801 PRODUCTION TECHNOLOGY**

(2002 Scheme)

Time : 3 Hours

Maximum Marks : 100

- I. (a) Explain the advantages of using geometric progression for speed steps in machine tools. (10)  
 (b) Explain the construction of structural diagram. What are the factors to be considered for the selection of the best diagram? (10)  
**OR**
- II. Plot the speed chart for the following data. (20)  
 $N_{\min} = 30 \text{ rpm}$ ,  $N_{\max} = 1500 \text{ rpm}$ ,  $N_{\text{motor}} = 1440 \text{ rpm}$ , number of speed steps  $Z = 12$ ,  $\phi = 1.41$ .
- III. Briefly explain the following non-traditional machining operations with applications. (10)  
 (i) Electro chemical machining (10)  
 (ii) Electro discharge machining (10)  
**OR**
- IV. Write short notes on : (10)  
 (i) Ultrasonic machining (10)  
 (iii) Abrasive jet machining (10)
- V. (a) Explain the various methods of producing metal powders for powder metallurgy applications. (12)  
 (b) Explain how sintering is done during powder metallurgy process. (8)  
**OR**
- VI. Write notes on : (20)  
 (i) Compacting (ii) Infiltration  
 (iii) Impregnation (iv) Hot pressing
- VII. Explain the working of the following with neat sketches. (20)  
 (i) Pressure relief valve (ii) Sequence valve  
 (iii) Unloading valve (iv) Pressure reducing valve.  
**OR**
- VIII. (a) Explain the working of accumulators with sketches. What are the different types of accumulators? (10)  
 (b) Explain meter-in-circuit and meter-out-circuit with neat sketches. (10)
- IX. A manufacturer desires to manufacture 100 bolts/day from mild steel bar of length 10cm and diameter 25mm. Assume.  
 (i) feed for turning = 0.2cm/rev  
 (ii) cutting speed for turning = 20m/min.  
 (iii) cutting speed for threading = 10m/min  
 (iv) depth of cut = maximum 3mm  
 (v) pitch of thread = 2.5mm  
 (vi) number of cuts required for threading = 6  
 Calculate the machining time for 100 bolts, if the operator is paid at the rate of Rs.4.25/hr. Estimate the labour charges, considering other allowances for fatigue etc as 100%. (20)  
**OR**
- X. Find the time taken to prepare a job according to the following dimensions from a rod of 30mm diameter, exclude the time for facing and parting off. Assume  
 (i) Cutting speed = 20 m/min  
 (ii) Feed for facing and parting off = 0.15mm/rev  
 (iii) Feed for turning = 0.35 mm/rev  
 (iv) Feed for drilling = 0.06 mm/rev  
 Depth of cut not to exceed 1.5mm (20)



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