

**BACHELOR OF TECHNOLOGY (C.B.C.S.) (2020 COURSE)**  
**B.Tech.Sem - V Robotics & Automation Engineering : WINTER- 2022**  
**SUBJECT : MANUFACTURING TECHNOLOGY-II**

Day : Thursday  
Date : 8/12/2022

W-24796-2022

Time : 02:30 PM-05:30 PM  
Max. Marks : 60

**N.B.:**

- 1) All questions are **COMPULSORY**.
- 2) Figures to the right indicate **FULL** marks.
- 3) Draw neat labelled diagrams **WHEREVER** necessary.

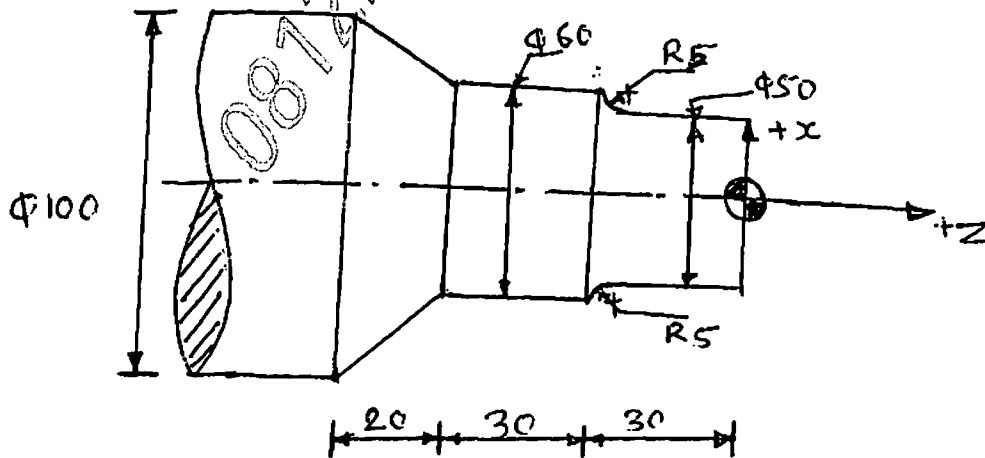
**Q.1** Draw a typical relaxation circuit used for the EDM power supply and derive (10)  
the expression for the material removal rate.

OR

**Q.1** Briefly explain with sketch the construction and working of an USM machine. (10)  
Write the advantages and disadvantages of USM.

**Q.2** How is cutter compensation given in case of a machining center? Elaborate (10)  
with an example how is it operational specify using this facility.

**Q.2** Write a manual part program for finishing a forged component as shown in fig. (10)  
Assume the speed and feed on the turning center are 400 rpm and 0.30 mm/rev.  
Assume 1mm material is to be removal radially from external diameter.



Note: Raw material: MS  $\phi 100 \times 80$  mm  
Spindle speed:  $S = 400$  rpm  
feed:  $f = 0.30$  mm/rev.  
All dimensions are in mm.

P. T. O.

- Q.3** With a schematic explain the working principle of sheet lamination process. (10)  
Also state various methods to manufacturing a component using this techniques.

**OR**

- Q.3** What is additive manufacturing (AM)? State its benefits over subtractive manufacturing processes and also name the seven categories of AM processes with suitable application of each. (10)

- Q.4 a)** Write classification of an automation. Compare different types of automation. (05)  
Explain concept of group technology with example.

- b)** Explain concept of group technology with example. (05)

**OR**

- Q.4** Explain concept of flexible manufacturing system. State subsystem of FMS. (10)  
Compare FMS with other manufacturing approaches.

- Q.5 a)** What are the different types of CAPP? Explain them in brief. (05)

- b)** What do you understand by machinability database system? Explain the different parameters required for machinability database system. (05)

**OR**

- Q.5 a)** Discuss the process of manual process planning with a suitable example. (05)

- b)** What is automated process planning system? List any four benefits of CAPP. (05)

- Q.6 a)** Explain various Industrial application of Robots. (05)

- b)** Define Robot visions? What are the applications of the machine vision system? (05)

**OR**

- Q.6 a)** What are the different types of material handling operations? (05)

- b)** Explain the role of robots in assembly and inspection with example. (05)

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