

**Duration: - 03 Hours**

**Total marks : 80**

- N.B.:** (1) Question No. 1 is **compulsory**.  
(2) Attempt any **THREE** questions from remaining **Five** questions.  
(3) Clearly mention the **assumption** made if any.  
(4) Draw **neat** sketches wherever **applicable**.

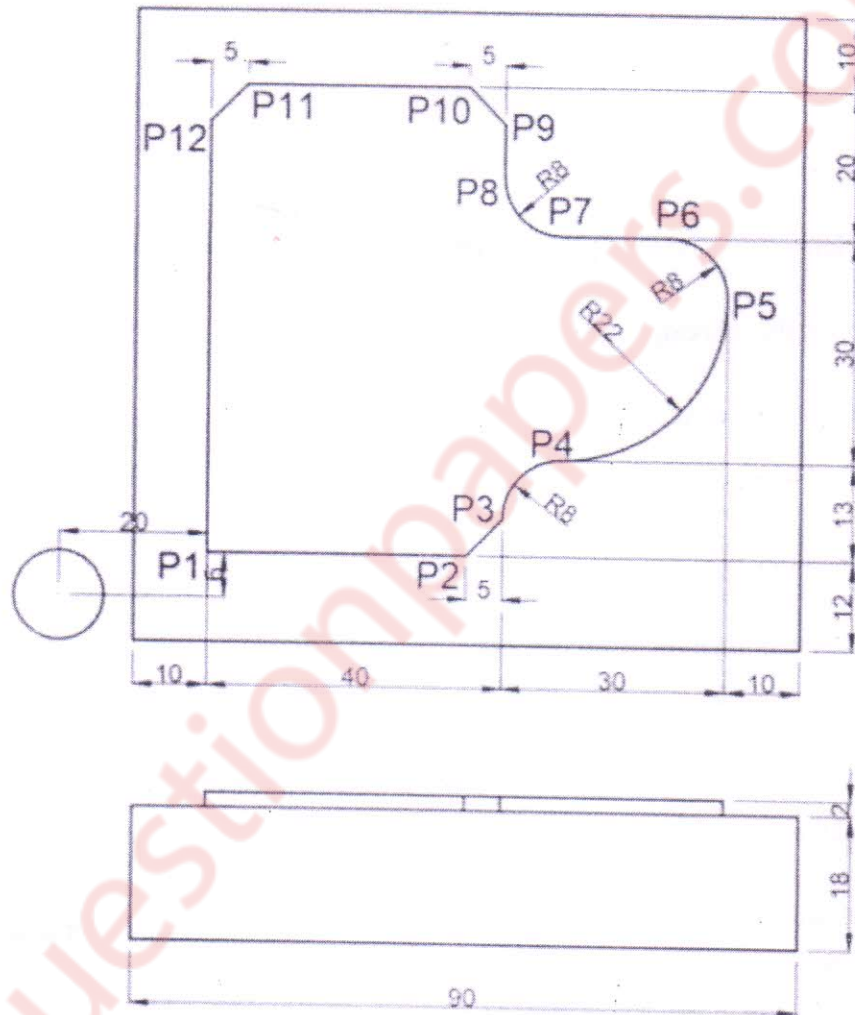
**Q1.** Attempt **ANY FOUR** from the following:

- (a) Differentiate between CNC and DNC. 05
- (b) Explain engineering analysis of NC system. 05
- (c) Explain the working of Automatic Tool Changer. 05
- (d) Explain the meaning of following codes for Fanuc system  
G28, G56, M09, M03 and G70. 05
- (e) Explain tool nose radius compensation. 05

- Q2.** (a) Explain the function of MDI mode, Auto mode, Edit mode, MPG mode and offset setting in CNC control. 10
- (b) What are the basic components of numerical control system? Explain briefly the functions of each component. 10

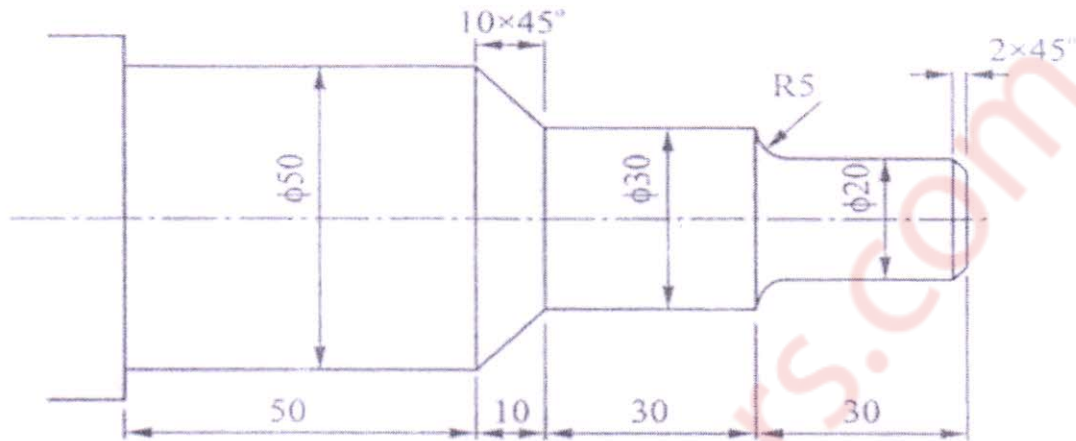
- Q3.** (a) What are the different types of CNC systems? Discuss the features of point to point, straight line and contouring CNC system with neat sketch. 08
- (b) Explain CNMG120408TR10 turning insert with specification. 08
- (c) Explain Linear interpolator, Circular interpolator and Helical interpolator. 04

- Q4. (a) Explain subprogram and MACROS with respect to CNC programs with suitable example. 12
- (b) What are the requirements of tool presetting in CNC? Explain any one tool presetter you are familiar with. 08
- Q5. (a) Develop a part program for given milling profile. Assume suitable data. 10



- (b) Explain motion statements used in APT language. Explain any five motion command words. 10

- Q6. (a) Develop a part program in absolute mode to machine the part from the rolled stock. Assume suitable speed, feed, and depth of cut. Raw material size (Length = 125 mm, Diameter = 64 mm) 10  
mm)



- (b) Explain adaptive control system with block diagram. 05
- (c) Write a short note on automated Turn-Mill CNC machine. 05