Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

DIPLOMA ENGINEERING – SEMESTER –VIII • EXAMINATION – SUMMER 2014

Subject Code: 385504 Date: 28/05/2014

Subject Name: Automation in Fabrication Technology

Time:02:30 pm – 5:00 pm Total Marks: 70

Instructions:

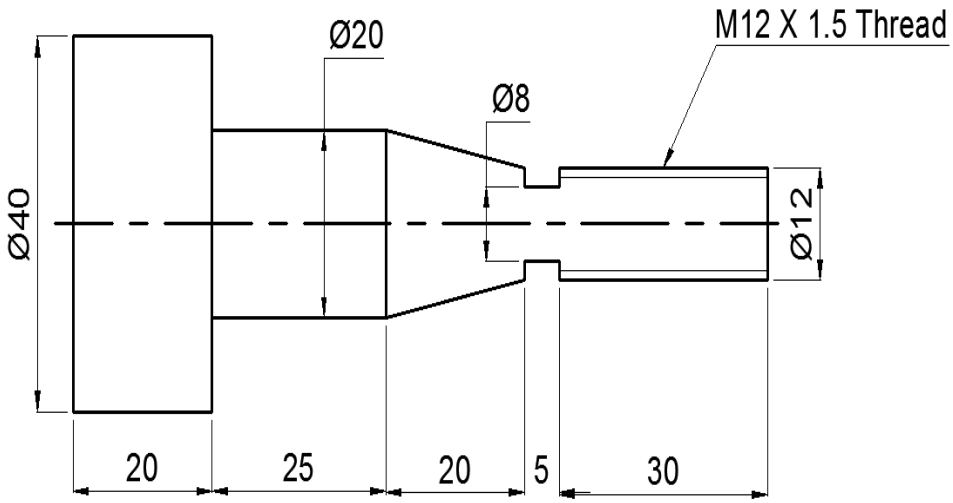
1. **Attempt any five questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**
4. **Each question carry equal marks (14 marks)**

Q.1	(a)	Define the term "Automation". Explain need of Automation in modern industry.	**07**
	(b)	Explain basic element of Automation with neat sketch.	**07**
Q.2	(a)	List different analogues sensors and explain any 3 with neat sketch.	**07**
	(b)	Explain components of PLC with neat sketch.	**07**
		OR	
	(b)	Compare conventional machine tool and CNC machine tool.	**07**
Q.3	(a)	Analogue signal is 8.2 volts. Encode, using successive Approximation Method, the signal for a 6 bit register with a full scale range of 10 volts.	**07**
	(b)	ADAC has a reference voltage of 100 v and has 6-bit precision. Three successive sampling instances 0.5 sec apart have the following data in the data register.	**07**

INSTANCES	BINARY DATA
1	101000
2	101010
3	101101

OR

Q.3	(a)	Explain different problems affecting welding design and their solutions	**07**
	(b)	Write brief note on software and hardware requirement of SUPERWELDBEST & FERRITE PREDICTOR.	**07**
Q.4		Prepare part program for CNC turning center for job shown in Fig-1	**14**
		OR	
Q. 4	(a)	Define the term "Industrial Robot". Explain different application of robotics.	**07**
	(b)	Explain roll, pitch and yaw configuration with neat sketch. Explain joint notations system.	**07**
Q.5		Prepare part program for CNC thermal cutting machine for job shown in Fig-2	**14**
		OR	
Q.5	(a)	Explain direct arc sensing robot weld joint tracking system with neat sketch	**07**
	(b)	Explain concept, advantages and limitations of automatic welding.	**07**



Raw material = M.S. Round Bar
Size = ø 40 x 100 mm long
All Dimensions are in mm

Tool no	Tool name	Speed (rpm)	feed
T01	Roughing tool	600	0.4 mm/rev
T02	Finishing tool	400	0.2 mm/rev
T06	Thread cutting tool	100	1.5 mm/rev
T09	Grooving tool	400	0.1 mm/rev

FIG.-1 TURNING CENTER JOB

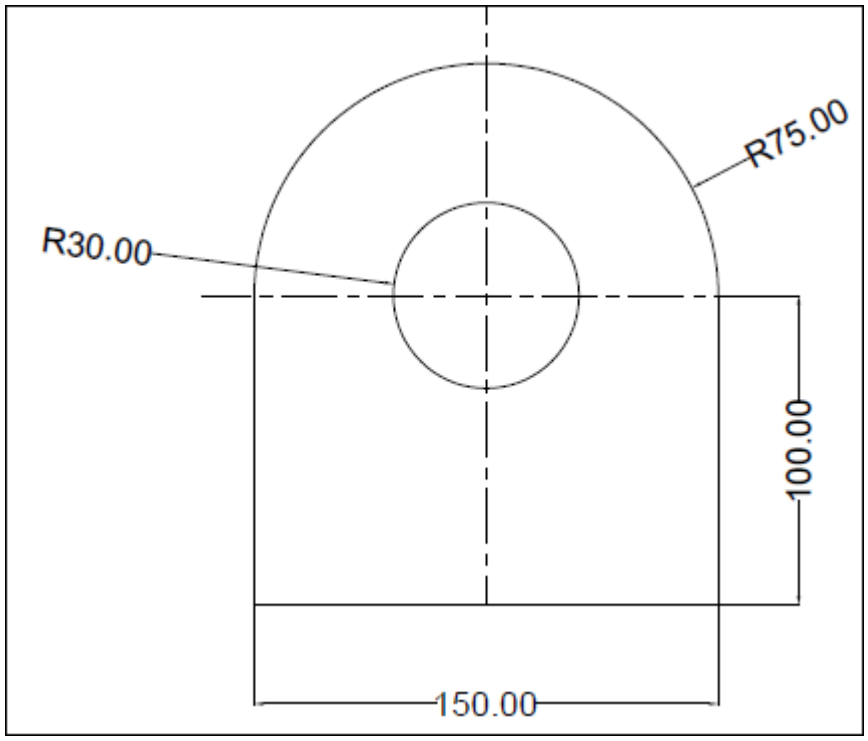


FIG.-2 THERMAL CUTTING JOB
Plate size available = 200 mm X 200 mm X 6 mm thick
All dimensions are in mm