Student Exam. No._____

GANPAT UNIVERSITY
M.TECH. SEM. IIND CAD/CAM & AMS (MECHANICAL ENGINEERING)
CBCS REGULAR EXAMINATION MAY/JUNE-2017 EXAMINATION
3ME201 COMPUTER AIDED MANUFACTURING

Time: 3 Hrs]   [Total Marks: 60

Instructions:-
1. Attempt **all** Questions.
2. Figure to the **right** indicate full marks.
3. Answers to the two section must be written in **separate** drawing papers
4. Assume suitable data if **necessary**.
5. Draw neat sketch wherever essential.
6. Programming codes (G and M Codes) are given at the end of paper

SECTION – I

Q.1 (A) What factor should be kept in mind during the design of spindles for CNC machine tools? (3)

(B) What is Part Programming? Explain Loop and Unconditional jump, Pattern Rotation with example. (4)

(C) Which are the characteristics consider for work holding device used in CNC Machine tool. (3)

OR

Q.1 (A) What is Adaptive control machining system? Explain Adaptive Control with Optimization machining system. (4)

(B) State the advantages of recalculating ball screws compared to the conventional Acme screws. (3)

(C) What is CAD CAM integration? Explain types of integration. (3)

Q.2 (A) Classified the Numerical Control system. Explain the Motion control systems. (3)

(B) Define DNC? Explain types of DNC machine tool. (3)

(C) Write appropriate steps for automation of Fabrication Shop using USA automation strategies. (4)

OR

Q.2 (A) Write merits of computer aided manufacturing and how it helps to world-class manufacturing and manufacturing Excellence (4)

(B) What is ATC? Explain the types of ATC. (3)

(C) Briefly explain the basis of designating the co-ordinate axes in CNC machine tools. (3)
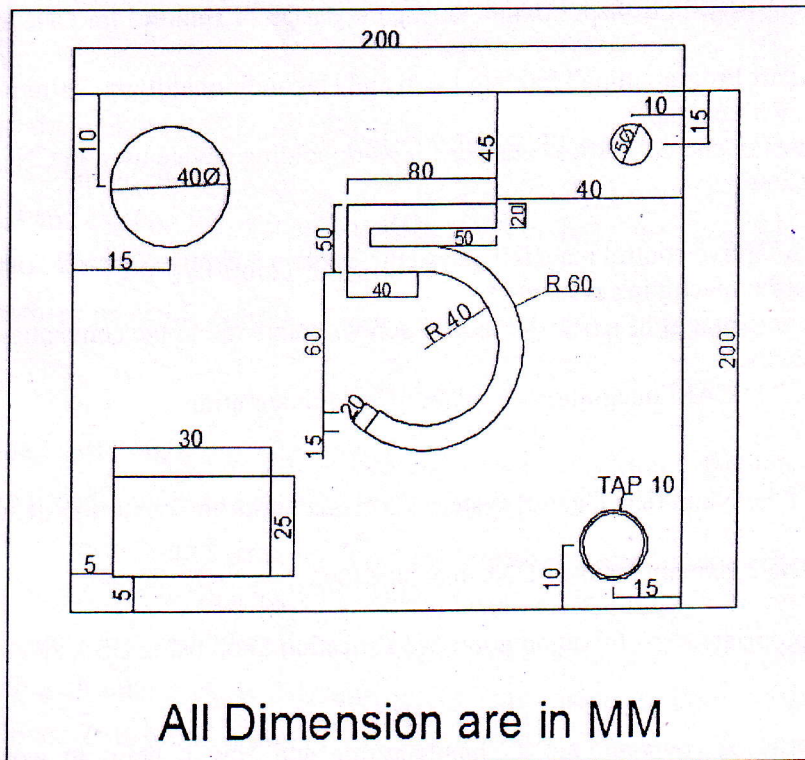
Q.3 Write a Following Answer

(A) Write a CNC Turning Center Program of given components. (4)
Raw Material size: 105 mm Long. X 36Φ

All Dimension are in MM
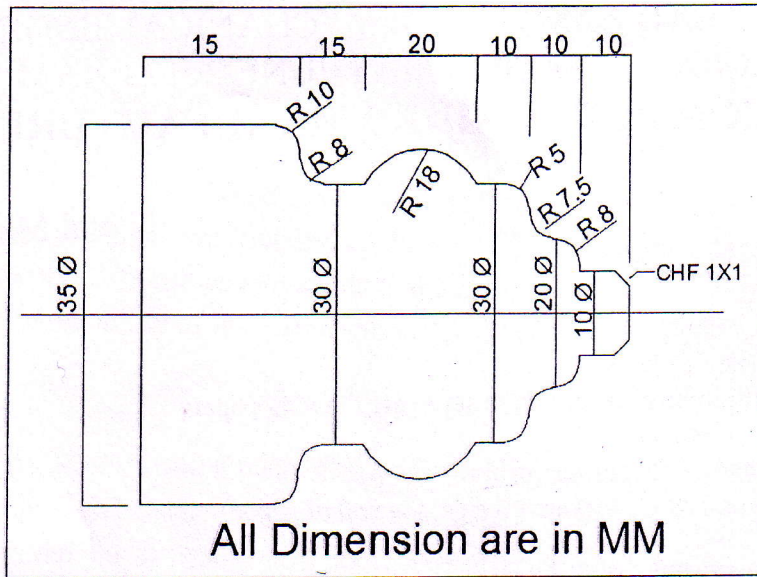
(B) Write a CNC Machining Center Program of given components. (6)
Raw Material size: 200 mm X 200 mm X 10 mm.

All Dimension are in MM

Depth of all the operations are 10 mm. (Throughout Cut)

SECTION – II

Q.4 (A) What are the benefits of FMS and explain the need of FMS in modern manufacturing environment. (5)

(B) What is GT? Explain methods of grouping parts into part families in brief. (5)

OR

Q.4 (A) Write a short note on Automated Guided Vehicle associated with FMS. (5)

(B) Explain General Layout, Benefits and Limitation of FMS. (5)

Q.5 (A) What do you mean by CIM? What are the benefits of CIM? Draw a CIM wheel. (5)

(B) Explain the nature and role of the elements of CIM system in brief. (5)

OR

Q.5 (A) Explain the DBMS model with neat sketch. (5)

(B) List some CIM hardware and CIM software and bring out the various benefits of implementing a CIM system. (5)

Q.6 (A) Consider the following machine-component incidence matrix with 5 machines and 5 components. Obtain the final machine-component cells using Bond Energy Algorithm. (5)

		Component(j)				
		1	2	3	4	5
Machine (i)	1	0	1	1	0	1
	2	1	0	0	1	1
	3	0	0	1	0	0
	4	1	0	0	1	0
	5	1	0	0	0	1

(B) Explain the use of Computer vision system in CIM. (5)

END OF PAPER