Total No. of Questions : 8]

SEAT No. :

P-655

[Total No. of Pages : 3

[6004]-616

B.E. (Mechanical Engineering)

Computer Integrated Manufacturing

(2019 Pattern) (Semester - VIII) (402048)

Time : 2½ Hours] *[Max. Marks : 70*

Instructions to the candidates:

1) ***Solve Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6, Q. 7 or Q.8.***
2) ***Neat diagrams must be drawn wherever necessary.***
3) ***Figures to the right indicate full marks.***
4) ***Use of electronic pocket calculator is allowed.***
5) ***Assume suitable data, if necessary.***

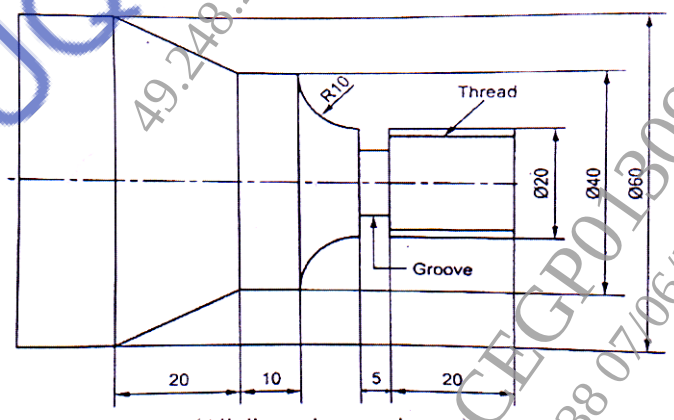
Q1) a) Define Computer aided Manufacturing (CAM). Explain CAM with its objectives & benefits to industry. **[6]**

b) Write a complete part program using G code & M code for given job Figure 1b as below. Assume suitable data and feed for machining. **[12]**

Billet size – Dia. 60mm & length – 90mm

Thread – Do = 20mm, Dc = 17mm & pitch = 2.5mm.

Groove – width – 5mm & depth – 5mm.



(All dimensions are in mm)

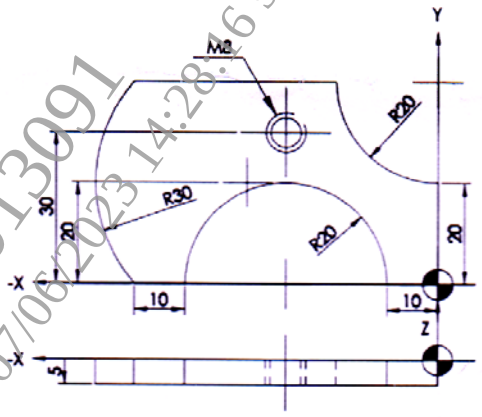
Fig. 1b

OR

P.T.O.

Q2) a) Differentiate between Numerical control Machine (NC) & Computerized Numerical control Machine (CNC). **[6]**

b) Write a CNC program for the part shown in Figure 2b. Assume suitable data. **[12]**



(All dimensions are in mm)

Fig. 2b

Q3) a) Explain Computer Aided Process Planning (CAPP) and its Benefits. **[8]**

b) Explain the importance of control system in automated production system. Write the concept in short Inventory & Shop floor control. **[9]**

OR

Q4) a) Write a note on Material Requirement Planning with input, working, outputs and benefits. **[8]**

b) Explain Computer aided inspection & quality control. Explain any two methods of computer aided inspection technique. **[9]**

Q5) a) Explain with neat sketch concept of Flexible Manufacturing System (FMS). Write Objectives & area of application. **[6]**

b) Consider a condition of 5 machines and 10 parts. Create group of machines by using Rank order clustering method. **[12]**

Machines	1	2	3	4	5	6	7	8	9	10
Ml	1	1	1	1	1		1	1	1	1
M2		1	1	1					1	1
M3	1				1	1	1			
M4		1	1	1				1	1	1
M5	1	1	1	1	1	1	1	1		

OR

Q6) a) What is Group Technology? Explain the part classification and Opitz Coding system. **[6]**

b) Five machines will constitute a GT cell. The from to data for the machines are shown in the table below. Determine the most logical sequence of machines for this data using hollier method. **[12]**

From :	1	2	3	4	5
1	0	10	80	0	0
2	0	0	0	85	0
3	0	0	0	0	0
4	70	0	20	0	0
5	0	75	0	20	0

Q7) a) What is Internet of Things (IoT)? Explain & illustrate the components of Internet of Things (IoT). **[8]**

b) What are the aspects of Digital manufacturing? Explain features and any five benefits of Digital Manufacturing. **[9]**

Q8) a) What is Industry 4.0? Explain the functions of components of Industry 4.0. **[8]**

b) Explain and illustrate Cyber-Physical Manufacturing Systems with Features of Cyber physical system (CPS). **[9]**

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