Code No: 157SA **RA**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech IV Year I Semester Examinations, July/August - 2022
CAD/CAM
(Mechanical Engineering)

Time: 3 Hours **Max. Marks: 75**

Answer any Five Questions
All Questions Carry Equal Marks
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1.a) How does CAD/CAM help manufacturing?
b) Differentiate between the system software and application software.
c) Discuss the advantage of using STEP as a standard data format. [5+5+5]

2.a) "A wireframe model may cause the ambiguity of a represented geometry". Give the opinion with suitable examples.
b) Discuss the stages in the product life cycle and the importance of each stage. [3+12]

3.a) Explain the procedure to obtain a cylindrical surface, ruled surface and sweep surface for a given straight line with end points.
b) Enumerate the most common primitives used in constructive solid geometry. [9+6]

4.a) Differentiate between NC and CNC machines.
b) With the help of a neat sketch, explain the coordinate position system for a lathe, vertical drill and horizontal milling machine. [6+9]

5.a) Explain the concept of 'floating datum' and 'set point' with reference to CNC part programming.
b) Write a manual part program to drill holes in a plate as shown in figure 1. Assume plate thickness as 10 mm, spindle speed as 1500 rpm and feed rate as 150 mm/min. [5+10]

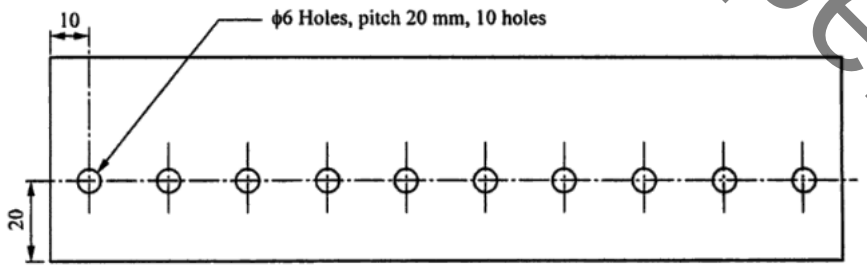

Figure 1

6.a) What is production flow analysis (PFA)? List the various steps involved in PFA.
b) Obtain the part families for the incidence matrix given in the following Table. [5+10]

Parts → Machines ↓	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*
A	1			1	1			1	1	
B						1				1
C	1	1		1				1		
D			1			1	1			
E		1		1	1				1	
F			1				1			1

7.a) Briefly explain the need for computer-aided process planning.
b) How does an increase in quantity in the Master Production Schedule gross requirements affect the Manufacturing Resource Planning output? [7+8]

8.a) Discuss the need for flexibility in manufacturing in the present manufacturing scenario.
b) Enumerate the major noncontact inspection methods.
c) What are the basic components of a CIM system? [7+4+4]

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