R18

Code No: 156AG

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B. Tech III Year II Semester Examinations, July - 2023

CAD AND CAM

(Mechanical Engineering)

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

Note: i) Question paper consists of Part A, Part B.
ii) Part A is compulsory, which carries 25 marks. In Part A, Answer all questions.
iii) In Part B, Answer any one question from each unit. Each question carries 10 marks and may have a, b as sub questions.

PART-A

(25 Marks)

1.a)	What is interpolation and approximation of curves?	[2]
b)	What are the different types of wire frame entities?	[3]
c)	What are the applications of surface modeling?	[2]
d)	What is cell composition and spatial occupancy enumeration?	[3]
e)	What is M-code? Explain any two M- codes with examples.	[2]
f)	Explain the concept of a post-processor in NC systems.	[3]
g)	Explain about CAPP.	[2]
h)	What is the difference between MRP and ERP?	[3]
i)	What are Coordinate Measuring Machines (CMMs) and their role in quality control?	[2]
j)	Discuss the concept of machine vision and its applications in quality control.	[3]

PART – B

(50 Marks)

2.a) Explain the difference between parametric and non-parametric representation of curves with suitable example.
b) Explain the characteristics of B-spline cure. [5+5]

OR

3.a) What are the different types of curve fitting techniques? Explain any one of them.
b) What is blending of curves? What is the need of blending? [5+5]

4.a) State and explain different types of features used in CSG.
b) Explain the concept of composite surfaces in geometric modeling. Discuss the advantages of using composite surfaces. [5+5]

OR

5.a) What are the limitations of boundary representations in representing complex solids?
b) Discuss the role of solid modeling in Computer-Aided Manufacturing (CAM) and CNC machining processes. [5+5]

6.a) Explain the concept of automatic tool selection and tool path generation in computer-aided part programming. Discuss the benefits of automation in tool selection.

b) What is feedback signal? Explain its importance in adaptive controlling system. [5+5]

OR

7. Explain the different elements of an NC system and their roles in the overall functioning of the system. [10]

8.a) Compare and contrast retrieval type and generative type computer-aided process planning methods.

b) Discuss the role of parts classification and coding in Group Technology and its impact on production efficiency. [5+5]

OR

9.a) Explain the difficulties faced in traditional process planning and how computer-aided process planning addresses these challenges.

b) Discuss the key factors to consider in machine cell design and its role in implementing Group Technology. [5+5]

10. Explain the difference between contact and non-contact inspection techniques in quality control, and provide examples of each. [10]

OR

11. Discuss the advantages of integrating CAD and CAM systems in CIM. Explain how the seamless exchange of data between CAD and CAM systems enhances efficiency and accuracy. [10]

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