

16AG15-A0302

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Code No: 127BD

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B. Tech IV Year I Semester Examinations, November/December - 2018

CAD/CAM

(Common to AE, AME, MSNT, ME)

Time: 3 Hours

Max. Marks: 75

Note: This question paper contains two parts A and B.

Part A is compulsory which carries 25 marks. Answer all questions in Part A.

Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART- A

(25 Marks)

- 1.a) What is Parametric CAD system? [2]
- b) Differentiate between implicit and explicit functions. [3]
- c) What is meant by Surface Patch? [2]
- d) What are the Boolean operations used in solid modelling? [3]
- e) Define APT. [2]
- f) What are the different elements of NC system? [3]
- g) Define variant approach. [2]
- h) What is the need of Group Technology? [3]
- i) Give some advantages by the implementation of CIM. [2]
- j) How SME (Society of Manufacturing Engineers) defined CIM? [3]

PART-B

(50 Marks)

- 2.a) Briefly describe the types of storage devices used in computers.
- b) Explain the concepts of parametric and non-parametric curves with examples. [5+5]

OR

- 3.a) Differentiate the terms wire frame, surface and solid models, along with their benefits.
- b) Write the properties of Bezier and B-Spline curves. [5+5]

- 4.a) What are the different types of geometric relations? Why would you use them in 3D geometric modeling?

- b) What is Hermite cubic spline curve? Derive a general characteristic equation for cubic spline curve. [5+5]

OR

- 5.a) Find the equation of a Bezier curve which is defined by four control points as (80,30,0), (100,100,0), (200,100,0) and (250,30,0).

- b) Sketch the geometric parameters required to create these surface operations:

- i) Tabulated cylinder
- ii) Revolve
- iii) Sweep
- iv) Loft.

[5+5]

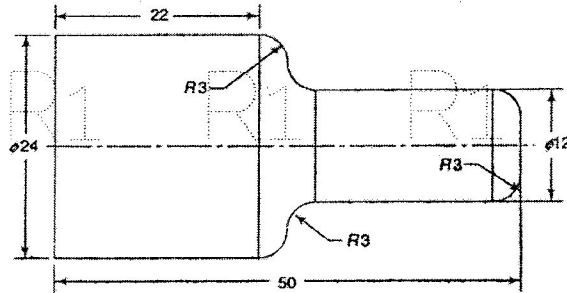
6.a) What are the main features of CNC Machine Tool? Write any 10 G-codes and 10 M-codes with a short description.

b) Discuss the advantages of computer assisted part programming over manual part programming. [5+5]

OR

7.a) Explain the difference between CNC and DNC along with neat sketches.

b) Write NC part program for the part shown in the below figure. All the dimensions are in mm only. [5+5]



8.a) Define and explain the principle of GT (Group Technology) in manufacturing.

b) What is the philosophy of JIT (Just in Time)? Give any simple example. [5+5]

OR

9.a) What are the OUTPUTS of MRP? Explain their uses.

b) Explain the difficulties in traditional process planning. [5+5]

10.a) Describe the following with respect to CIM.

- Process monitoring and control
- Quality control.

b) How does Lean manufacturing differ from Flexible manufacturing system? Explain.

[5+5]

OR

11.a) How do you evaluate the performance of FMS (Flexible Manufacturing System).

b) Explain the following terms:

- Online inspection
- Off line inspection
- In-Process inspection
- Post-process inspection.

[5+5]

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