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Code No: 117BD

**R13**

**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD**

**B. Tech IV Year I Semester Examinations, April/May - 2018**

AG AG AG AG AG AG AG A  
**CAD/CAM**  
**(Common to ME, AE, AME, MSNT)**

**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.

AG AG AG **PART-A** AG AG AG (25 Marks) AG A

- 1.a) List out input and output devices of CAD. [2]
- b) What are the importance's of continuity curves? [3]
- c) What is subdividing? [2]
- d) Write the parametric equation of ruled surface [3]
- e) What do you understand the M and G functions? [2]
- f) Compare the NC, CNC and DNC [3]
- g) What is the need of part analysis? [2]
- h) What is composite part? Give an example of your own? [3]
- i) Define the FMS [2]
- j) What is the role of computers in quality control? [3]

AG AG AG **PART-B** AG AG AG (50 Marks) AG A

- 2.a) Compare the traditional and CAD/CAM of product cycle.
- b) What are the applications of computer in design? [5+5]

**OR**

- 3.a) Differentiate between the interpolation and approximation of curves.
- b) Derive the parametric equation for Hermite cubic curve? List out its characteristics. [5+5]

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- 4.a) Define Bezier surface? Explain various characteristics of this surface.
- b) A circle with radius 5 units having center located at point (20, 10, 0) is rotated about the x axis by an angle  $2\theta$  to obtain a surface revolution. Calculate the surface point at  $\theta = \theta_1$  and  $\Phi = \Phi_1$ . [5+5]

**OR**

- 5.a) Enlist and explain with different Boolean operations in solid modeling.
- b) Explain the cell decomposition and spatial occupancy enumeration. [5+5]

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- 6.a) How are NC machines are classified? Explain them with neat sketches.
- b) With neat sketches, write down the neat procedure for manual part programming. [5+5]

**OR**

- 7.a) Explain the concept of adaptive control of NC machines.
- b) List out various types G and M codes functions. [5+5]

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- 8.a) Discuss advantage and disadvantages of OPITZ code system.  
b) What is a production Flow Analysis? Discuss various steps involved in PFA. [5+5]

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- 9.a) How do you overcome the difficulties in traditional process planning by adopting CAPP method.  
b) Explain the machine cell design. [5+5]

10. Discuss the following types of layouts in the design of FMS.

AG a) Circular layer  
AG b) Linear layers  
AG c) Loop layers  
AG d) Free layout. [10] A

OR

11. Explain following inspection systems:

AG a) On-line inspection  
AG b) Off-line inspection  
AG c) In-process inspection  
AG d) Process inspection. [10] A

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