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# INSTITUTE OF AERONAUTICAL ENGINEERING

(Autonomous)

M.Tech II Semester End Examinations (Regular) - July, 2017

Regulation: IARE-R16

## COMPUTER AIDED MANUFACTURING (CAD/CAM)

Time: 3 Hours

Max Marks: 70

Answer ONE Question from each Unit

All Questions Carry Equal Marks

All parts of the question must be answered in one place only

### UNIT – I

1. (a) Write complete APT program to machine the profile of the part drawing shown in Figure 1. Assume suitable machining data and cutting tool. All dimensions are in mm. [10M]

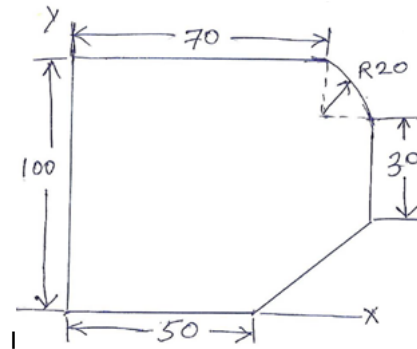


Figure 1

- (b) Differentiate between GOTO and GO\TO statement using suitable example in detail with neat sketches. [4M]
2. (a) Explain about automatic tool path generation using CAD/CAM software with suitable examples. [7M]
- (b) Explain the design of postprocessors in CAM systems. [7M]

### UNIT – II

3. (a) Discuss about the different advantages of DNC system. [7M]
- (b) Explain adaptive control system for grinding machine in detail. [7M]
4. (a) Discuss about adaptive control systems and its applications in CAM systems. [7M]
- (b) Explain adaptive control with optimization for CNC milling machine. [7M]

### UNIT – III

5. (a) Explain the general structure of a postprocessor with neat sketches. [7M]  
(b) Discuss about of a DAPP based postprocessor in detail. [7M]
6. (a) Explain about various functions of communication channels. [7M]  
(b) Explain major variables in DAPP based postprocessor. [7M]

### UNIT – IV

7. (a) Explain about microcontroller and its applications using suitable examples. [7M]  
(b) Explain about the programming of microcontroller. [7M]
8. (a) Explain in detail about the ladder logic diagram. [7M]  
(b) Explain about various applications of PLC in CAM systems using suitable case study. [7M]

### UNIT – V

9. (a) Explain about coordinate measuring machine and also discuss, briefly about any two types of coordinate measuring machine using suitable diagrams. [8M]  
(b) Explain about artificial neural networks and its applications. [6M]
10. (a) Explain in detail about the working principle of scanning laser system with neat sketches. [7M]  
(b) Explain about expert systems in CAM. Also discuss about the various parts of internal structure of expert systems . [7M]

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