Name : ....

Roll No. : ....

Invigilator's Signature : ....

CS/M.Tech (ME)/SEM-2/PTM-201/2011

2011
AUTOMATION IN MANUFACTURING SYSTEM AND PROCESSES

Time Allotted : 3 Hours   *Full Marks :* 70

The figures in the margin indicate full marks.

*Candidates are required to give their answers in their own words
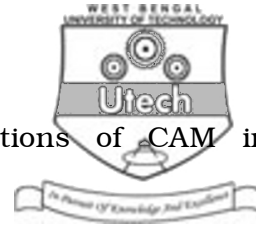as far as practicable.*

Answer any *five* of the following.   5 × 14 = 70

1. What do you mean by automation ? Name the basic elements of an automated system. Describe briefly the levels of automation.   3 + 2 + 9

2. What is an FMS ? Briefly describe different types of flexibility.   4 + 10

3. What is CNC ? Discuss the features of CNC. How does CNC differ from DNC ?   3 + 7 + 4

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4. What is CAM ? Describe the applications of CAM in manufacturing planning and manufacturing control.   3 + 11

5. Define a robot. Discuss the types of drive systems used in robots. Mention different areas of application of an industrial robot.   2 + 9 + 3

6. Discuss the toolings of CNC machines. What is adaptive control machining system ?   8 + 6

7. What is automated guided vehicle system ? Name different types of AGVS. Briefly discuss the AGVS guidance system. State the advantages of AGVS over other material handling systems.   3 + 2 + 6 + 3

8. Write short notes on any *four* of the following : $4 \times 3\frac{1}{2}$

a) Computer Aided Design

b) Computer integrated manufacturing

c) Joint space and world space representation of a robotic arm

d) Automated storage and retrieval systems

e) Programmable automation

f) Advantages of AS/RS.

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