[03 – 4121]

IV/IV B.E. DEGREE EXAMINATION.

First Semester

Mechanical Engineering

Elective III — COMPUTER NUMERICAL CONTROL AND COMPUTER AIDED MANUFACTURING

(Effective from the admitted batch of 2006–2007)

Time : Three hours   Maximum : 70 marks

Answer any FIVE questions.

$(5 \times 14 = 70)$

1. (a) Differentiate between Numerical Control (NC), Computer Numerical Control (CNC) and Direct Numerical Control (DNC) systems of CAM.

   (b) Discuss the application of NC machines.

2. (a) What is a part family in Group Technology? Name three parts classification and coding systems commonly used in GT. Explain anyone of them in detail with the help of suitable examples.

   (b) What is computer aided part programming? How does it help CAD/CAM Integration?

3. (a) Discuss the principle of variant process planning. What are its advantages?

   (b) Explain the working of typical robot with neat sketch consisting of various components of the robot.

4. (a) What is the working principle of a computer vision system is as applied to quality control.

   (b) Distinguish between contact inspection and non-contact inspection methods.

5. (a) Describe the steps involved in checking the dimensions of a typical component using CMM.

   (b) Briefly discuss about automation and CIM.

6. (a) What are the required considerations to be made for material handling system design?

   (b) What for an 'Automated Guided Vehicle (AGV)' is used? Describe the role of sensors in controllers.

7. (a) Discuss the major elements of FMS.

   (b) What is meant by palletizing? Discuss the importance of palletizing in FMS stations.

8. (a) Discuss the various inputs to the Material Requirement Planning System.

   (b) Discuss various statistical tools for Quality control. Explain graphical view of a Frequency distribution curve.