B.Tech. MECHANICAL ENGINEERING (COMPUTER INTEGRATED MANUFACTURING)

00395 **Term-End Examination**

December, 2014

BME-023 : ADVANCED MANUFACTURING TECHNOLOGY

Time : 3 hours *Maximum Marks : 70*

Note : *Answer any* ***seven*** *questions. All questions carry equal marks.*

1. (a) What are the essential techniques used by industries for implementing concurrent engineering project ? 5

(b) Describe the methods of near net shape manufacturing. 5

2. (a) In product development process, when could the "Design for X" methodologies be used judiciously by the designers ? 5

(b) List down the different types of carbon nano-tube manufacturing processes. Explain any one of them. 5

3. Explain the various phases of QFD process with a neat sketch. *10*

4. (a) Explain in detail the various matrices in the house of quality. *5*

   (b) What is Stereolithography ? How does this process work ? *5*

5. (a) Explain the various steps involved in DFMA process. *5*

   (b) What is voice of customer ? Explain the various methods of gathering the voice of customer. *5*

6. What do you understand about rapid tool production ? How do you classify rapid tooling ? Explain. *10*

7. (a) Describe the 3-D Keltool process. What are the advantages of 3-D Keltool process ? *5*

   (b) Enumerate the steps of shell investment casting. *5*

8. What is reverse engineering ? What are the different uses of reverse engineering ? Explain. *10*

9. (a) Describe with the help of a block diagram the conversion of 3-D scanner data into CAD model. *5*

(b) Explain the e-maintenance architecture. Also describe the benefits of e-maintenance systems. *5*

10. Write short notes on any ***two*** of the following : *5+5*

(a) Topographic Shape Functions

(b) Index Mapping

(c) Spray Metal Deposition