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BME-023

B.Tech. MECHANICAL ENGINEERING (COMPUTER INTEGRATED MANUFACTURING)

Term-End Examination

December, 2015

BME-023 : ADVANCED MANUFACTURING TECHNOLOGY

Time : 3 hours *Maximum Marks : 70*

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

1. (a) Give the applications of Near net shape manufacturing in Advanced Manufacturing Technology. *5*

(b) List any seven micro fabrication processes. Describe any one in detail. *5*

2. (a) Describe the various applications of nano-materials. *5*

(b) Name the essential techniques for implementing Concurrent engineering. Write the important guidelines of Design For Manufacture (DFM). *5*

3. (a) Explain the various phases of product development process. *5*

(b) Briefly describe the importance of design for aesthetics. *5*

4. What is voice of customer ? Explain the various methods of gathering the voice of customer. *10*

5. Define Rapid Prototyping. Discuss the advantages and limitations of rapid prototyping. Give the main application of this process. *10*

6. Define the term Rapid Tooling. Explain the direct metal tooling using 3-DP with the help of neat sketches. *10*

7. With the help of a suitable sketch, describe the steps involved in investment casting. Compare shell investment casting with MCP solid flask investment casting. *10*

8. (a) Compare the information flow in a conventional and e-manufacturing set-up. *5*

(b) Briefly highlight the three types of LAN topologies. *5*

9. Write short notes on any ***two*** of the following : $2 \times 5 = 10$

(a) E-maintenance Architecture

(b) Micro-Milling and Micro-Drilling

(c) Parallel Kinematic Machines