MMCM-102

M.E/M.Tech., I Semester

Examination, June 2016

Advances in Manufacturing Technology

Time : Three Hours

Maximum Marks : 70

Note: Attempt any five questions out of eight questions given. Draw neat diagrams in support of your answers. Assume suitable data, if any missing.

1. a) Define Metal cutting. Discuss orthogonal and oblique cutting.
   b) Draw a table to compare the properties of cutting tool materials.

2. a) Write short note on tool life and its prediction.
   b) How selection of machine parameters and tools are done in metal cutting? Discuss.

3. a) What do you mean by term "honing"? How it is different than lapping?
   b) Discuss principle of high speed machining.

4. a) What do you mean by unconventional machining? Explain the working principle of ultrasonic machining.
   b) State working principle and applications of water jet machining.

5. a) What is Rapid prototyping? Why it is so important in product development? Discuss Stereo Lithography technique.
   b) Define Surface roughness. Discuss the concept of micro finishing process.

6. a) Define artificial intelligence. State its applications in metal cutting.
   b) What is an Expert system? Draw a basic structure of it. Discuss any three expert systems used in manufacturing.

7. a) Discuss forward and backward reasoning related to expert system.
   b) What is knowledge representation in expert system? Discuss briefly.

8. Write short note on following (any two):
   a) Game theory and its applications in manufacturing
   b) Heuristic search
   c) Electro discharge Machining
   d) CBN and PCD

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