Roll No. ☐☐☐☐☐☐☐☐☐☐☐☐☐   Total No. of Pages : 02

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M.Tech.(ME) PT   (Sem.–5)

ADVANCED MANUFACTURING TECHNIQUES
Subject Code : MME-529
M.Code : 38218

Time : 3 Hrs.   Max. Marks : 100

INSTRUCTION TO CANDIDATES :

1. Attempt any FIVE questions out of EIGHT questions.
2. Each question carries TWENTY marks.

1.   a) What is a virtual manufacturing system? Briefly describe the various components of a virtual manufacturing system.

     b) What is QFD? What are its benefits? Explain the inter-relationship matrix between WHATs and HOWs.

2.   a) Explain the concept of Taguchi's loss function. What are the three types of loss function?

     b) What are dependent and independent variables in Taguchi experimental design?
     Explain the steps involved in the selection of design variables for Taguchi experimental design.

3.   a) What is the difference between FMS and CIMS? Describe the hardware configuration of CIMS with the help of a neat sketch.

     b) What is Kanban? Name the two most common types of Kanbans and compare them.

4.   a) What is materials requirement planning? What are the various inputs of MRP? Explain the difference between independent demand and dependent demand.

     b) What is the primary goal of Total Productive Maintenance? Differentiate between periodic and predictive maintenance.

5.   a) What is the basic principle of abrasive flow machining? Describe the various types of abrasives used in this process.

     b) What are radiation welding processes? Describe the principle and working of any one type of radiation welding processes.

6. a) What do you understand by additive rapid prototyping processes? Give examples. Why are cleaning and finishing operations necessary for rapid prototyping operations?

   b) Describe the retrieval-type computer-aided process planning with the help of a neat diagram. What are its benefits?

7. a) What is concurrent engineering? Name the essential elements of concurrent engineering and explain any two of them in detail.

   b) Describe the generative-type computer-aided process planning with the help of a neat diagram. What are its benefits?

8. Write short notes on :

   a) Kaizen

   b) JIT

   c) Agile manufacturing

   d) Supply Chain Management

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.