Roll No. | | | | | | | | | | | | |

Total No. of Pages : 02

Total No. of Questions : 08

M.Tech.(ME) (Sem.–3)

ADVANCED MANUFACTURING TECHNIQUES

Subject Code : MME-529

Paper ID : [E0427]

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 manufacturing system? Explain the important characteristics of low, medium and high quantity manufacturing organizations. Give one example of each type.

   b) What is the meaning of robust design methodology for quality engineering and management?

2. a) What is a design variable? Briefly explain the steps involved in the selection of design variables for Taguchi experimental design.

   b) What do you mean by factor effects in Taguchi optimization technique? Explain with the help of a suitable example.

3. a) Define Supply Chain Management. Describe the various activities involved in Supply Chain Management.

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

4. a) What is materials requirement planning? Explain the difference between independent demand and dependent demand.

   b) What is a just-in-time production system? What is the difference between a push type and a pull type system in production control?

5. a) Write a note on the benefits and applications of metal-matrix composites.

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

6. What is Rapid prototyping? Differentiate between FDM and SLS methods of rapid prototyping with reference to the principle, process capabilities and applications of each method.

7. a) What is a Flexible Manufacturing System? What are the different types of data associated with FMS?

   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) Concurrent Engineering.

   c) Lean manufacturing.

   d) Abrasive flow machining