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

Total No. of Pages : 02

Total No. of Questions : 08

M.Tech (ME) (2017 Batch) (Sem.–2)

MODERN MANUFACTURING PROCESSES

Subject Code : MTME-203

Paper ID : [74979]

Time : 3 Hrs. Max. Marks : 100

INSTRUCTIONS TO CANDIDATES :

1. **Attempt any FIVE questions in all, out of EIGHT questions.**
2. **Each question carries TWENTY marks.**

1. a) What is the need of Modern Manufacturing Process in today's industrial world? Explain their applications giving specific examples.

   b) Give a classification of Modern Manufacturing Process based on type of energy used for machining.

2. a) How is water jet machining different from abrasive water jet machining? Discuss elements required in these machining systems.

   b) What are the parameters which define process performance in any machining process? How do you measure these metrics?

3. a) What are the elements in electrical discharge grinding? Explain with a schematic diagram. Give the chief applications of the process for industrial adoption.

   b) Discuss the effect of following parameters on MRR in EDM process.

      i) Current Density

      ii) Pulse on-Pulse off.

      iii) Work Material Conductivity

4. What factors influence the performance of laser beam machining?

   a) Give the typical applications of the process in industry and research.

   b) Develop a dimensioners analysis relation for the EBM.

5. a) What are the electrolyte properties that influence the ECM process? Discuss the suitable electrolyte that are selected for this process.

   b) What are the typical applications of Shaped Tube Electrolyte Machining (STEM) Process? Give its Schematic diagram with explanations.

6. a) How are miniature products achieved in Power Metallurgy? Discuss the relevant process.

   b) Differentiate the various 3D printing process adopted in the industry. Also discuss their applications and limitations.

7. What are the applications of chemical vapour

   a) Deposition process? Which industries have been benefitted by this technology?

   b) How are metal powder characterized for their properties and behavior? Discuss.

8. Write short notes on the following :

   a) Thermal Metal Spraying Process

   b) Chemical Machining and its applications

   c) Plasma Arc Machining Process