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1422TME004052402



Reg No.: _____

Name: _____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

Second Semester M.Tech Degree (R, S) Examination May 2024 (2022 Scheme)

Discipline: MECHANICAL ENGINEERING

Course Code & Name: 222TME004 MODERN MANUFACTURING SYSTEMS

Max. Marks: 60

Duration: 2.5 Hours

PART A

Answer all questions. Each question carries 5 marks

Marks

- 1 Explain the process parameters in Ultra Sonic Machining (USM) process. (5)
- 2 Explain the material removal mechanism in Electro Chemical Grinding (ECG) process. (5)
- 3 Explain the spark erosion generators in Electrical Discharge Machining (EDM) process. (5)
- 4 Explain the concept of Non-Traditional Machining (NTM) processes. Provide examples of NTM processes and discuss their advantages over conventional machining methods. (5)
- 5 Explain the principle in magnetic pulse forming process. (5)

PART B

Answer any 5 questions. Each question carries 7 marks

- 6 Explain the process parameters in Abrasive Jet Machining (AJM) process. (7)
- 7 Explain the working principle of Electro Chemical Machining (ECM) process. Discuss the factors influencing material removal rate and surface integrity in ECM process. (7)
- 8 Discuss the application of Electrical Discharge Machining (EDM) in the manufacturing industry. Explain the differences between Wire EDM and Sinker EDM processes. (7)
- 9 With the help of neat sketches explain the two variants in the Plasma Arc Machining (PAM) process. List any four parameters of the process. (7)
- 10 With the help of neat sketches explain the two variants in the explosive forming process. (7)

- 11 Explain the key components of a USM setup and their functions in the machining process. (7)
- 12 Describe the concept of Laser Beam Machining (LBM) and its variants such as Laser Cutting and Laser Drilling. How does LBM differ from conventional machining methods in terms of heat-affected zone, kerf width, and cutting speed? (7)
