

Total No. of Questions : 10]

SEAT No. :

P46

[Total No. of Pages : 2

[5871]-546

B.E. (Mechanical Engineering)

ADVANCED MANUFACTURING PROCESSES

(2015 Pattern) (Semester - II) (Elective - IV) (402050A)

Time : 2½ Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *All question are compulsory. Q.No.1 or Q.No.2, Q.No.3 or Q.No.4, Q.No.5, or Q.No.6, Q.No.7 or Q.No.8, Q.No.9 or Q.No.10*
- 2) *Figures to the right indicate full marks.*
- 3) *Neat diagrams must be drawn wherever necessary.*
- 4) *Assume suitable data, if necessary.*

Q1) a) Explain with neat sketch Electro Hydraulic Forming and list their applications. **[6]**

b) Explain with sketch working principle of Thermal Spray Coating process. **[4]**

OR

Q2) a) Explain with neat sketch Hydro Forming process and list their applications. **[6]**

b) Explain with sketch working principle of Electron Beam Welding. **[4]**

Q3) a) Explain with schematic the working principle and material removal mechanism of Electrolytic In Process Dressing. **[6]**

b) State the advantages and disadvantages of Explosive Welding. **[4]**

OR

Q4) a) Explain with neat sketch working principle of Abrasive Water Jet Machining **[6]**

b) Explain the working principle of Adhesive Bonding. **[4]**

Q5) a) With a schematic describe the five components of Diamond Turn Machine based on their functionality. **[8]**

b) Write a short note on Focused Ion Beam Mechanism. Also explain the challenges in Micro and Nano fabrication Techniques. **[8]**

OR

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Q6) a) With a schematic explain the set up and the working principle of Ultrasonic Micromachining process. [8]

b) With a schematic explain the steps involve in Photochemical Machining. [8]

Q7) a) With neat sketch explain the Sheet Lamination Process. [6]

b) Explain in detail post processing of parts manufactured by Additive Manufacturing Process. [6]

c) Write short note on software issues in Additive Manufacturing. [4]

OR

Q8) a) With neat sketch explain the Powder Based Additive Manufacturing Process. [6]

b) What are the advantages of Additive Manufacturing Process over Subtractive Manufacturing Process. [6]

c) Write short note on Design for Additive Manufacturing. [4]

OR

Q9) a) Explain with schematic working principle of Atomic Force Microscope. [6]

b) State the advantages of Electron Microscope over Optical Microscope. [6]

c) Describe the applications of Spectroscope. [6]

OR

Q10) a) Explain with schematic working principle of X-ray Diffraction. [6]

b) Describe the applications of Microscope. [6]

c) Compare scanning Tunnelling Microscope with Transmission Electron Microscope. [6]

