

Total No. of Questions : 8]

SEAT No. :

P-9688

[Total No. of Pages : 2

[6179]-319

**S.E. (Robotics and Automation)  
MANUFACTURING TECHNOLOGY  
(2019 Pattern) (Semester - III) (211502)**

Time : 2½ Hours]

[Max. Marks : 70

Instructions to the candidates :

- 1) Solve Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6, Q.7 or Q.8.
- 2) Figure to the right indicates full marks.
- 3) Neat diagram must be drawn wherever necessary.
- 4) Electronic pocket calculator is allowed.

**Q1)** a) Explain in brief wire drawing. How stock preparation is done in wire drawing? [8]

- b) What are different wire drawing dies used in Industries? Which material is preferable in wire drawing dies and why? Brief reason of failure of wire drawing process and suggest remedies to minimize failure. [9]

OR

**Q2)** a) Enlist defects in extrusion, identify the reason why defects occurs and suggest remedies on this. [8]

- b) Explain the concept : Extrusion Ration; Circumscribing circle diameter and Shape factor also explain how metal flow is observed in extrusion? [9]

**Q3)** a) Compare and contrast MIG welding and TIC welding, highlighting their respective advantages and disadvantages. [9]

- b) Describe the role of a flux in flux-cored arc welding. How does it contribute to the welding process? [8]

OR

**Q4)** a) Describe the differences between oxyacetylene welding and oxyacetylene cutting. Discuss the equipment used and the key principles of each process. [9]

- b) Enlist the defects in welding process and suggest remedies for the same. [8]

P.T.O.

**Q5) a)** Explain the fundamental principles of Electrochemical Machining (ECM). How does ECM differ from traditional machining methods, and what are its key applications? [9]

b) Discuss the working principles and applications of Ultrasonic Machining (USM). What are the advantages and limitations of using ultrasonic energy in machining processes? [9]

OR

**Q6) a)** Examine the principles of Electro-discharge Machining (EDM). What considerations are important for achieving precision in EDM? [9]

b) Describe the concept of Plasma Arc Machining (PAM). How does the generation of a high-temperature plasma jet facilitate cutting, and what industries commonly use PAM for material processing? [9]

**Q7) a)** How have robots revolutionized traditional manufacturing methods, and what advantages do they offer in terms of efficiency and precision? [9]

b) Discuss the factors that industries consider when implementing robotic automation in manufacturing [9]

OR

**Q8) a)** Elaborate how the robot is suitable for repetitive operations in mass production? [9]

b) Describe in details, how the robots have contributed in any assembly line? Explain with suitable example. [9]

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