

**Model Question Paper****COURSE:** M.TECH.**BRANCH:** Manufacturing Science & Engineering**SEMESTER:** 1**SUBJECT:** ADVANCE WELDING TECHNOLOGY**Note: Attempt all questions.****1. Attempt any four parts of the following.****5x4 = 20**

- A. Explain the process of welding of stainless steel?
- B. Write a short note on modes of metal transfer in arc welding?
- C. Describe and distinguish basic types of welding process?
- D List the factor which affects the selection of electrodes?
- E. Write short notes on modes of metal transfer in arc welding?
- F. Write short notes on:
  - (I) spray welding
  - (II) Laser beam welding

**2. Attempt any two parts of the following.****10x2=20**

- A. Explain weld-defects .Explain cracking specially hot-cracking and cold-cracking?
- B. Describe with neat sketches the mechanism of explosive welding and explain the importance of re-Entrant jets also write about weld interface and welding
- C. Define the TIG welding process; also state the advantages and limitations of TIG welding process, Show diagrams in your answer..

**3. Attempt any two parts of the following.****10x2=20**

- A. Write down the advantages and application of electron beam welding, and explain how electron penetrates very deep into narrow weld.
- B. Define the plasma arc welding and explain the different types of plasma arc welding process.
- C What is the difference between electroslag and electrogas welding?

**4. Attempt any two parts of the following.****10x2=20**

- A. What do you understand by the term “heat balance”? Explain its relevance
- B. What is plasma? Explain the term “Transferred modes” and “Non – transferred modes” used in Plasma arc welding?
- C Describe with sketches the principle and working of Electron Beam welding and mention Its advantages and applications?

**5. Attempt any two parts of the following.****10x2=20**

- A. Calculate the melting efficiency in case of arc welding of steel with a potential of 20 V and Current of 200 A. The travel speed is 5 mm/s and the cross –sectional of the joint is 20 mm<sup>2</sup>. Heat required to melt steel may be taken as 10 J/mm<sup>3</sup> and the heat transfer efficiency as 0.85.
- B. Explain the process of electro slag welding? What are the properties of the flux used in this? Process ?
- C. Describe with sketches the principle and working of laser beam welding and mention its advantages?