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**M.Tech.**

**WELDING TECHNOLOGY**

**SUBJECT CODE : PE - 504**

**Paper ID : [E0444]**

[Note : Please fill subject code and paper ID on OMR]

**Time : 03 Hours**

**Maximum Marks : 100**

**Instruction to Candidates:**

- 1) Attempt any **Five** questions.
- 2) **All** questions carry equal marks.

**Q1)** (a) What is welding? Describe the solidification mechanism occurred in fusion of weldments?

(b) Explain the effects of alloying of various elements on welding of carbon alloy steel?

**Q2)** Define welding arc? Explain the mechanism of arc initiation and its maintenance?

**Q3)** (a) What is arc blow? Describe in brief the factor which causes the arc blow?

(b) Why coating of electrode is necessary? What are the different types of coating? Explain in brief.

**Q4)** How GTAW and GMAW differentiated from each other on the basis of process, parameters, equipments, uses and applications?

**Q5)** What are the requirements of an electric arc welding power source? Describe in brief the A.C. welding power sources with the help of suitable sketches?

**Q6)** Explain the various forces affecting the transfer of material in welding? Also describe in brief the different modes of metal transfer in welding?

**Q7) (a)** Explain the theory and mechanism of solid state welding with the help of suitable diagrams?

(b) What is the scope and applications of laser beam welding?

**Q8)** Write short note on *any two* of the following:

(a) Metallurgical changes occurred in weld metal

(b) Ultrasonic welding

(c) DC rectifiers

