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Total Number of Pages: 02

**B.TECH**  
**PEMT5404**

**7<sup>th</sup> Semester Regular / Back Examination 2015-16**

**JOINING OF MATERIALS**

**BRANCH(S): MM,MME**

**Time: 3 Hours**

**Max marks: 70**

**Q.CODE: T493**

**Answer Question No.1 which is compulsory and any five from the rest.  
The figures in the right hand margin indicate marks.**

- Q1 **Answer the following questions:** (2 x 10)
- a) AC supply is recommended for twin-carbon welding, why?
  - b) State the equations for gas reaction in acetylene gas welding.
  - c) The inclined angle of torch and filler metal is generally kept \_\_\_\_\_ and \_\_\_\_\_ respectively with the work piece.
  - d) State the functions of flux in flux shielded metal arc welding.
  - e) State the four definite segments of timing on a spot welding.
  - f) The flux used in MIG is \_\_\_\_\_, where as the molten pool metal are shielded by \_\_\_\_\_.
  - g) Define weldability?
  - h) White cast irons are not generally recommended for welding. Why?
  - i) What are the types of flames used in gas welding processes.
  - j) Write down the major two metallurgical problems involved in high carbon steel welding.
- Q2 a) Explain the factors that are responsible for resistance welding and Write down the advantages and disadvantages of resistance welding. (5)
- b) Describe the process of submerged arc welding process. Write the advantages and disadvantages over arc welding processes. (5)
- Q3 a) Describe the gas-tungsten arc welding (GTAW) and gas-metal arc welding (GMAW). (5)
- b) Write down the advantages and limitations of MIG over TIG welding. (5)
- Q4 Describe the types of welding defects. Explain the different types residual stresses in welds. (10)
- Q5 a) Explain the characteristics of Austenitic, Ferritic and Martensitic stainless steel. (5)
- b) Describe the factors that are considered for welding of austenitic stainless steels. (5)

- Q6 a) Explain the welding characteristics of aluminum and its alloys. (5)  
b) Explain the causes and the remedies of welding defects of cast iron. (5)
- Q7 a) What is fusion welding? Write down the types of basic weld joint designs in fusion welding. (5)  
b) What is meant by soldering? Explain how it is different from brazing? (5)
- Q8 Write short notes on (any two) (5 x 2)  
a) Explosion welding  
b) Welding pool solidification  
c) HAZ  
d) Spot welding