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Total number of printed pages – 2

**B. Tech**  
**PENT 5404**

**Seventh Semester Back Examination – 2014**

**JOINING OF MATERIALS**

**BRANCH : MME**

**QUESTION CODE : L 183**

**Full Marks – 70**

**Time : 3 Hours**

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



1. Answer the following questions : 2×10
- (a) Name two metals which can be welded by using oxidizing flame in gas welding process.
  - (b) What are the advantages of welding over other metal joining processes ?
  - (c) The hanging bridges are welded by which process and why ?
  - (d) Why DC straight polarity is preferable in single carbon arc welding ?
  - (e) State the functions of flux in flux shielded metal arc welding.
  - (f) State the equations for gas reaction in acetylene gas welding.
  - (g) What are the various positions of welding ?
  - (h) Write down the major two metallurgical problems involved in dissimilar metal welding.
  - (i) List out the different types of micro-stresses in welds.
  - (j) AC supply is recommended for twin carbon welding-why ?
2. (a) What are gas-tungsten arc welding (GTAW) and gas-metal arc welding (GMAW) ? 5
- (b) Write down the advantages and limitations of resistance welding over fusion welding. 5

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3. (a) Write down the different types of arc welding processes. Discuss their advantages and disadvantages over resistance welding processes. 5
- (b) Describe the process of submerged arc welding process. Write its advantages and disadvantages over arc welding processes. 5
4. Describe the characteristics of Steel and explain the welding characteristics of ferritic, austenitic and martensitic steels. How the welding characteristics of high carbon steel differ from that of low carbon steel ? 10
5. (a) What is resistance welding ? Discuss briefly different types of resistance welding processes. 5
- (b) What is meant by soldering ? Explain how it is different from brazing. 5
6. (a) Explain the welding characteristics of copper and its alloys. 5
- (b) Describe the factors that are considered for welding of Austenitic stainless steel. 5
7. (a) Explain the submerged arc welding process. 5
- (b) Mention the advantages and disadvantages of submerged arc welding over oxy-acetylene gas welding. 5
8. Write short notes on any **two** of the following : 5×2
- (a) Residual welding stresses
- (b) Seam welding
- (c) Double carbon arc welding
- (d) Plasma arc welding.

