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Total number of printed pages – 2

B. Tech
PEMT 5404

Seventh Semester Examination – 2013

JOINING OF MATERIALS

BRANCH : MM, MME

QUESTION CODE : C-214

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) AC supply is recommended for twin-carbon welding, why?
- (b) The _____, _____ and _____ remain completely hidden and are invisible in submerged arc welding.
- (c) Why DC straight polarity is preferable in single carbon arc welding ?
- (d) _____ Flux and _____ electrode is used instead of flux covered electrode in submerged arc welding.
- (e) State the four definite segments of timing on a spot welding.
- (f) The inclined angle of torch and filler metal is generally kept _____ and _____ respectively with the workpiece.
- (g) The flux used in MIG is _____, whereas the molten pool metal are shielded by _____.
- (h) State the functions of flux in flux shielded metal arc welding.
- (i) Write down the two major metallurgical problems involved in dissimilar metal welding.
- (j) State the equations for gas reaction in acetylene gas welding.
2. (a) Explain the factors that are responsible for resistance welding. 5
- (b) Write down the advantages and disadvantages of resistance welding. 5

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3. (a) Describe the GTAW and GMAW processes. 5
(b) What are the advantages and disadvantages of MIG over TIG welding? 5
4. Describe the types of welding defects. Explain the causes and their remedies. 10
5. (a) Explain the welding characteristics of aluminium and its alloys. 5
(b) Explain the causes and the remedies of welding defects of cast-iron. 5
6. (a) State the types of residual stresses in metal joining processes. 5
(b) Explain the residual stresses due to welding that arise from differential heating. 5
7. (a) Explain the characteristics of stainless steel. 5
(b) Describe the factors that are considered for welding of austenitic stainless steels. 5
8. Write short notes on any **two** : 5×2
(a) Welding pool solidification
(b) Types of flames in gas welding
(c) Projection welding
(d) Spot welding.

