



**B.E/B.Tech(Full-Time) DEGREE END SEMESTER EXAMINATIONS, APRIL/MAY2012
MATERIALS SCIENCE AND ENGINEERING BRANCH
SEVENTH SEMSTER-REGULATION 2008**

ML9403 – WELDING METALLURGY

Time: 3Hr

Max.Mark:100

Answer ALL Questions

Part –A (10x2=20 Marks)

1. What do you mean by edge preparation?
2. Compare between GTAW and GMAW process.
3. "Iron carbide is a metastable phase"-State whether the statement is true or false and justify your answer.
4. Mention some of the uses of CCT diagram.
5. How the problem of underbead cracking in the welding of martensitic stainless steel be avoided?
6. Write short notes on the braze welding of grey cast iron?
7. What do you mean by Haste alloy?
8. Why stringent protection from atmosphere is required while welding Titanium?
9. What are the sources of weld spatter? How can spatter be controlled?
10. How the ductility of a weld can be assessed?

Part – B (5x16 = 80 Marks)

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| 11 | Explain the different zones of a welded joint of medium carbon steel. | 16 |
| 12a | How are the T-T-T curves developed? Explain the structural change indicated by a cooling curve on the T-T-T diagram of an eutectoid steel.
(OR) | 16 |
| 12b | What do you mean by Cold cracking or Hydrogen assisted cracking .State it's harmful effects? How this problem can be tackled? | 16 |
| 13a | What do you mean by i) Ferrite and Sigma Phase transformations ii) weld decay in stainless steel and state their harmful effects. How these problems can be minimised?

(OR) | 16 |
| 13b | Discuss the welding characteristics of Grey cast iron.Explain in detail the arc welding of cast iron with the help of neat sketch. | 16 |
| 14a | Describe the weldability of aluminium explaining clearly the chief problems encountered in its welding. What fluxes do you recommend for welding | 16 |

aluminium?

(OR)

14b How you will weld bronze? Explain the oxy- acetylene method of welding bronze? 16

15a A dye penetrant method may be used for detecting defects in a welded joint: Outline the principle of this method, What type of defects may be detected by this method? 16

(OR)

15b Discuss the causes and cures for (i) Porosity (ii) Under cutting (iii) Distortion (iv) Poor fusion (4 Marks each) 16