

III B.Tech I Semester Supplementary Examinations, May 2005
TECHNIQUES OF METAL JOINING
(Metallurgy & Material Technology)

Time: 3 hours

Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks

1. (a) Define the term welding. What are the major advantages and limitations of welding.
(b) Classify the different welding processes.
(c) Explain oxy-acetylene gas welding process in detail. What are the advantages and limitations of the process.
2. (a) What effect does welding have on the grain size of the metal in the heat affected zone of the parent metal.
(b) What effect will preheating have on the microstructure of the weld area in medium and high carbon steels.
(c) Explain why stresses are developed in a rigidly clamped welded structure as it cools.
3. (a) Compare and contrast AC arc welding and DC arc welding.
(b) Explain with the help of a neat sketch the submerged arc welding process.
4. (a) What is the principle of Electron beam welding? Explain the process in detail. List out the advantages and disadvantages of the method.
(b) Why doesn't the Electron gun in Electron beam welding require water cooling.
5. Explain the following:
(a) Spot welding
(b) Diffusion welding.
6. Describe the welding of the following materials:
(a) Welding of Aluminium and its alloys
(b) Welding of stainless steels.
7. (a) What are the common welding defects that are observed in welded Joints. Why are they developed? Suggest suitable remedies for the same.
(b) Briefly explain the adhesive bonding process.
8. Write short notes on THREE of the following:
(a) Brazing

- (b) Soldering
- (c) Plasma arc welding
- (d) Joining of dissimilar alloys.

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