

III B.Tech I Semester Supplementary Examinations, November 2006
TECHNIQUES OF METAL JOINING
(Metallurgy & Material Technology)

Time: 3 hours

Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks

1. (a) Give a brief history of the development of welding practice and welding industry.
(b) Differentiate between plastic welding and fusion welding with examples. [10+6]
2. Explain the design of welds, subjected to the following types of combined stresses.
 - (a) Torsion and direct stress
 - (b) Shear and bending stresses
 - (c) Shear and Torsion stresses. [6+5+5]
3. (a) What factors are to be considered and why in the selection of
 - i. Welding current
 - ii. Welding electrode.In Dc arc welding process?
(b) Explain how you can compute standard welding time and welding costs in Arc welding processes. [4+4+8]
4. (a) What is Nugget? How is the size of the resistance spot weld determined? Explain.
(b) Compare spot welding with upset welding. [8+8]
5. (a) What is weldability? Explain how and on what basis weldability can be assessed.
(b) Discuss in detail the welding of stainless steels and other high alloyed steels. [8+8]
6. (a) Why is it difficult to weld copper alloys? Suggest suitable remedies and precautions to weld the same.
(b) Discuss the difficulties that are encountered during the welding of dissimilar alloys and how to overcome them. [9+7]
7. Develop the equations for the tensile load that can be applied on
 - (a) Single V groove butt joint
 - (b) Lap joint with transverse fillet weld. [8+8]
8. (a) Compare Brazing and Braze welding. What are their specific applications? Explain.

- (b) Explain with the help of a neat sketch the furnace brazing process. Explain its applications, advantages and limitations. [8+8]

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