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2005 JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY

III B.TECH I SEMESTER SUPPLEMENTARY EXAMINATIONS
TEHANIQUES OF METAL JOINING
(METALLURGY & MATERIAL TECHNOLOGY)

NOVEMBER 2005

TIME – 3 HOUR
MARK – 80

Answer any FIVE Questions
All Questions carry equal marks

1. (a) Discuss the appearance and properties of Neutral flame, reducing flame and oxidizing flame.

(b) Explain the following with respect to weldments

i. Heat affected zone

ii. Hot cracking] *[6+10]*

2. (a) What is arc blow? How it can be eleminated?

(b) Name the common defects in arc welding. Indicate the causes and remedies for each.

(c) Why reverse polarity should not be used in carbon arc welding. *[5+5+6]*

3. (a) Explain why the presence of moistrure should be avoided when gas shielded arc welding of low alloy steels.

(b) Bring out the differences between MIG and submerged arc welding processes.

(c) State why a self adjusting arc is not likely to operate effectively in CO2 shielded metal arc welding *[5+5+6]*

4. (a) With the aid of a sketch explain briefly the principles and working of Tungsten arc spot welding processes.

(b) Explain the electron beam welding process. *[8+8]*

5. (a) Explain why it is difficult to weld alumnium with most conventional welding processes.

(b) Explain the welding of stainless steels and other high alloyed steels. *[8+8]*

6. (a) What is weldability? What parameters are to be considered in improving the weldability

(b) Name the various welding defects found in practice. Mention the remedies. *[8+8]*

7. (a) Explain the mechnism of bonding associated with Brazing and soldering.

(b) What are the merits of Brazing. LIst the industrial applicatiosn of Brazing. *[8+8]*

8. Write short notes on 3 of the following:

(a) Diffusion welding

(b) Welding stresses

(c) Laser welding

(d) Hard solders. *[4+4+4+4]*