

Paper ID & Roll No. to be filled in your Answer Book

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**B.Tech.**

**UTU (VIIth SEM.) (ODD SEM.) EXAMINATION, 2013-14**

**Advance Welding Techniques**

Time : Three Hours]

[Max. Marks : 100

1. Write short notes (Any four)

a) Classification of welding process

b) Uses and importance of Maurer/ Schacfflar

c) Gas welding and cutting

d) Welding equipments and accessories

e) TIG and MIG welding

f) Advantages and application of DC welding

2. Attempt any four of the following

a) Differentiate between resistance welding and electro slag welding

sketch

- c) Explain the principle of LASER and write uses / application of LASER.
- d) Explain the keyhole technique of welding use in EBW, and what are the limitations of EBW.
- e) Justify why LBW is used in electronic industries.
- f) Enlist the advantage and limitation of explosive welding

3 Attempt any two of the following

- a)
  - i) Explain under water welding.
  - ii) Classification, Advantage, disadvantage principle of operation of wet welding.
- b) Explain in detail metalizing and hard facing.
- c) Explain in detail with the help of neat sketch metal flame spraying

a) Two steel sheets of 1.5mm thick are resistance welded in lap joint with a current of 10,000A for 0.2 sec. effective resistance of the joint can be taken as  $100\mu\Omega$ . Joint can be considered as a cylinder of 5 mm diameter and 2mm height. Density of steel is  $0.00786\text{gm/mm}^3$ . Heat required for melting the steel is  $10\text{ J/mm}^3$ .

b) What is a HAZ? Enlist the points which are responsible for HAZ cracking.

c) Explain the following weld defects

I) incomplete penetration

II) Inclusion

III) Porosity and Blow holes

IV) Spatter

5. Attempt any two of the following

- a) Describe the stage of solidification of weld. How does it affect the porosity/ Structure of the adjoining material?
- b) What is weld decay? How can weld decay be avoided?
- c) Define weldability of material and mention the factor on which weldability depends.

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