

**CS/B.TECH/(ME-NEW)/(PE-NEW)/SEM-7/ME-704B/2013-14  
2013**

**ADVANCED WELDING TECHNOLOGY**

Time Allotted : 3 Hours

Full Marks : 70

*The figures in the margin indicate full marks.*

*Candidates are required to give their answers in their own words  
as far as practicable.*

**GROUP - A**

**( Multiple Choice Type Questions )**

1. Choose the correct alternatives for any ten of the following :

10 × 1 = 10

- i) Filler metal is used in
  - a) seam welding
  - b) projection welding
  - c) spot welding
  - d) none of these.
- ii) Thermit welding is a form of
  - a) resistance welding
  - b) gas welding
  - c) fusion welding
  - d) forge welding.
- iii) Carburizing flame has
  - a) 1 zone
  - b) 2 zone
  - c) 3 zone
  - d) 4 zone.

- iv) Oxygen to acetylene ratio in case of oxidizing flame
  - a) 1 : 1
  - b) 1.2 : 1
  - c) 1.5 : 1
  - d) 2 : 1.
- v) Acetylene is store in a gas cylinder in
  - a) gaseous form
  - b) liquid form
  - c) solid form
  - d) all of these.
- vi) Undercut in weldments are caused due to
  - a) low welding current
  - b) excessive welding current
  - c) wrong flux
  - d) improper heating.
- vii) Arc welding uses following electric supply
  - a) A.C.
  - b) D.C.
  - c) both (a) and (b)
  - d) none of these.
- viii) Consumable electrode is used in
  - a) TIG
  - b) MIG
  - c) both (a) and (b)
  - d) none of these.
- ix) Ruby rod is used in
  - a) Electron Beam welding
  - b) Laser Beam welding
  - c) Plasma Arc welding
  - d) none of these.

- x) Temperature is inner cone for oxidizing flame is
- a) 2900°C                      b) 3300°C
- c) 3100°C                      d) 2500°C.
- xi) In which testing process porosity, crack, etc. can detected in interior of the weld joint ?
- a) Ultrasonic testing
- b) Dye penetrate testing
- c) Radiographic testing
- d) Magnetic testing.
- xii) In porosity defect, gases which are often causes trouble are
- a) hydrogen                      b) nitrogen
- c) oxygen                      d) all of these.

#### GROUP - B

##### ( Short Answer Type Questions )

Answer any *three* of the following.       $3 \times 5 = 15$

2. Discuss any two types of defects ? State their cause and remedies ?
3. Distinguish between TIG and MIG Welding.
4. a) What is the function of flux used in submerged arc welding process ?
- b) Can dissimilar metals be weld by a welding process ? If so explain the process very briefly ?       $2 + 3$
5. Discuss the various type of resistance welding process.
6. With the aid of sketch explain the process of Plasma arc welding.

#### GROUP - C

##### ( Long Answer Type Questions )

Answer any *three* of the following.       $3 \times 15 = 45$

7. Briefly describe the following terms :  
Weld bead, Penetration, Fillet weld, Root, Weld metal, Toe, Filler metal, Flux, crater.
8. a) Draw arc welding setup and show different parts.
- b) Explain different types of power source in arc welding process.
- c) What do you mean by spot welding ?       $5 + 6 + 4$
9. a) Write brief note on Electron Beam welding.
- b) What do you mean by weldability of plain carbon steel ?
- c) Discuss the method for joining of Ceramic with other metal.       $6 + 4 + 5$
10. a) What do mean by non-destructive testing ? Briefly describe any two methods of non-destructive testing.
- b) Write short notes on LBW. Draw neat diagram of the set-up.  
( LBW : Laser Beam Welding )       $10 + 5$
11. Write short notes on any *three* of the following :       $3 \times 5$ 
  - a) Friction stir welding
  - b) Welding of plastics
  - c) Heat Affected Zone ( HAZ )
  - d) Safe practices in welding
  - e) Welding fixtures.