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**B.TECH**  
**(SEM VIII) THEORY EXAMINATION 2017-18**  
**ADVANCED WELDING TECHNOLOGY**

**Time: 3 Hours****Total Marks: 100****Note: 1.** Attempt all Sections. If require any missing data; then choose suitably.**SECTION A**

- 1. Attempt all questions in brief. 2 x 10 = 20**
- a. Differentiate between gas welding and gas cutting.
  - b. State the use(s) of welding flux.
  - c. Name the types of resistance welding.
  - d. Which welding process requires creation of vacuum?
  - e. Define heat affected zone (HAZ).
  - f. Name any two non-destructive techniques for residual stress determination in welds.
  - g. What are the applications of cladding process?
  - h. What do you mean by hard facing?
  - i. State any two general source(s) of welding defects.
  - j. What are the causes for undercut in welding?

**SECTION B**

- 2. Attempt any three of the following: 10 x 3 = 30**
- a. Explain in detail the advantages, limitations, applications of welding process.
  - b. State the principle of ARC welding and explain the working of MIG welding, with suitable diagrams.
  - c. Define residual stresses in welding. State and explain the major factors responsible for residual stress.
  - d. Explain in detail the advantages of hard facing with Oxy-acetylene torch?
  - e. Explain in detail – inspection before welding, inspection in between welding, inspection after welding.

**SECTION C**

- 3. Attempt any one part of the following: 10 x 1 = 10**
- (a) Using block diagram, classify the welding processes and explain the same.
  - (b) What are the similarities and differences between casting and welding process?
- 4. Attempt any one part of the following: 10 x 1 = 10**
- (a) Using neat sketch, explain TIG welding process. State its applications. What are the variants of TIG welding?
  - (b) Explain the procedure of electron beam welding process. What are the difficulties encountered during EBW? Support with neat sketch.

5. **Attempt any *one* part of the following:** **10 x 1 = 10**
- (a) Explain any two destructive techniques for residual stress determination.
  - (b) What are the main types of weld distortion? What are the causes for distortion?
6. **Attempt any *one* part of the following:** **10 x 1 = 10**
- (a) Briefly discuss the welding of cast iron. What kinds of defects are expected in such welding and what are their remedies?
  - (b) Explain in detail aluminium welding by double-operator method?
7. **Attempt any *one* part of the following:** **10 x 1 = 10**
- (a) Explain any five welding defects along with the causes and remedies.
  - (b) Using neat sketches, broadly categorize the welding joints. Also draw sketches for the different welding positions.