

B TECH
(SEM-VIII) THEORY EXAMINATION 2018-19
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**
- What types of welded joints used in welding?
 - What do you mean by cladding & surfacing?
 - Define welding? Make comparison with other joining process?
 - Describe various welding symbols.
 - Write short note on arc blow in welding process?
 - What is weld distortion and its prevention?
 - Explain weld affected zone?
 - List different type of brazing techniques available? Explain any one in detail.
 - What is physics of arc welding?
 - Define reclamation welding?

SECTION B

2. **Attempt any three of the following:** **10x3=30**
- Make comparison between Laser beam welding and electron beam welding?
 - Explain type of underwater welding and their working mechanisms?
 - List type of weld defects explains any two with neat diagram?
 - Explain the effects of various alloying elements on weldability.
 - Write short note on use of Transformer, Rectifier and Generators in welding.

SECTION C

3. **Attempt any one part of the following:** **10x1=10**
- What do you mean by heating and cooling rate? How it affects the properties of weld.
 - What are the methods used for measuring the stresses in weld structure? Explain any one of them.
4. **Attempt any one part of the following:** **10x1=10**
- What do you mean by metalizing and hard facing? Explain process giving its advantage and applications.
 - Write short note on
 - Welding of cast iron.
 - Welding of low carbon steel.
 - Welding of aluminum.
5. **Attempt any one part of the following:** **10x1=10**
- Discuss the principle and working of ultrasonic inspections. Also describes its advantage, limitations and applications.
 - Define cracking of weld? Explain hot cracking and cold cracking? List the rules that must be followed to avoid cracking?
6. **Attempt any one part of the following:** **10x1=10**
- What do you understand by explosive welding; Write its advantage, disadvantage and applications in detail?
 - Explain the principle and working of FCAW welding? Differentiate MIG & FCAW? What variables affect weld quality of FCAW welding?
7. **Attempt any one part of the following:** **10x1=10**
- The arc length voltage characteristic is given by expression $V=24+4L$ (L =Length of arc in mm). The volt ampere characteristics of power source can be approximated by a straight line with open circuit voltage 80V and short circuit current 600A determine optimum arc length and maximum power.
 - Explain in detail the mechanism and types of metal transfer in various arc welding processes.