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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.