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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**

a. What types of welded joints used in welding?
b. What do you mean by cladding & surfacing?
c. Define welding? Make comparison with other joining process?
d. Describe various welding symbols.
e. Write short note on arc blow in welding process?
f. What is weld distortion and its prevention?
g. Explain weld affected zone?
h. List different type of brazing techniques available? Explain any one in detail.
i. What is physics of arc welding?
j. Define reclamation welding?

SECTION B

2. **Attempt any *three* of the following:** **10x3=30**

a. Make comparison between Laser beam welding and electron beam welding?
b. Explain type of underwater welding and their working mechanisms?
c. List type of weld defects explains any two with neat diagram?
d. Explain the effects of various alloying elements on weldability.
e. Write short note on use of Transformer,Rectifier and Generators in welding.

SECTION C

3. **Attempt any *one* part of the following:** **10x1=10**

a. What do you mean by heating and cooling rate? How it affects the properties of weld.
b. 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**

a. What do you mean by metalizing and hard facing? Explain process giving its advantage and applications.
b. Write short note on
   i. Welding of cast iron.
   ii. Welding of low carbon steel.
   iii. Welding of aluminum.

5. **Attempt any *one* part of the following:** **10x1=10**

a. Discuss the principle and working of ultrasonic inspections .Also describes its advantage, limitations and applications.
b. 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**

a. What do you understand by explosive welding; Write its advantage, disadvantage and applications in detail?
b. 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**

a. 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.
b. Explain in detail the mechanism and types of metal transfer in various arc welding processes.