

B.TECH
(SEM V) MODEL PAPER 2023-24
ADVANCED WELDING

Time: 3Hours

Total Marks: 100

Note: 1. Attempt all Sections. If require any missing data; then choose suitably.

SECTIONA

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?

SECTIONB

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