PAPER ID-410608

Subject Code: KME055

Roll No: | | | | | | | | | | | | | |

B.TECH
(SEM V) THEORY EXAMINATION 2021-22
ADVANCE WELDING

Time: 3 Hours ***Total Marks: 100***

SECTION A

1. Attempt *all* questions in brief. 2 x 10 = 20

a. What is the function of flux in the welding?

b. What is the principle involved in resistance welding.

c. Draw the weld symbols for double U and single V-joint.

d. How radial friction welding is used to join the collars shaft and tube

e. What are the effect of gases in welding

f. Define the health & safety in welding.

g. How is the carbon equivalent value calculated?

h. Write short note on the bend test.

i. Describe the factor affecting weldability of copper alloys.

j. Describe the arc blow.

SECTION B

2. Attempt any *three* of the following: 10 x 3 = 30

a. Describe TIG welding process with neat sketch. What are the advantages and limitation of TIG welding over MIG welding?

b. The dc arc current has voltage – length characteristics as V = (10+30L) volts. The characteristics of power source is V = (60 – 0.07I) volts. Determine the optimum arc length and corresponding arc power.

c. Define residual stresses in welding. State and explain the major factors responsible for residual stress?

d. Briefly describe the various weld defect and distortion in welding and its causes and remedies.

e. **Write short note on :**

i. Gas metal reaction ii. Slag metal reaction

SECTION C

3. Attempt any *one* part of the following: 10 x 1 = 10

(a) Briefly classify the process selection criteria of welding process?

(b) Classify the different types of metal transfer used in various types of arc welding process with neat sketch?

4. Attempt any *one* part of the following: 10 x 1 = 10

(a) Describe the laser beam welding. Explain the principle behind the generation of laser with neat sketch and also write the various application of laser of beam welding?

(b) Define the Magnetically impelled arc butt (MIAB) welding procedure, limitation and application of this process.

. Attempt any *one* part of the following: 10 x 1 = 10

(a) Explain the factor affecting changes in microstructure and mechanical properties of heat affected zone.

(b) Discuss in detail about weld thermal cycles with neat sketch and also mention the factor affecting change in microstructure and HAZ.

6. Attempt any *one* part of the following: 10 x 1 = 10

(a) Discuss about the different types of weld joint with neat sketch.

(b) **Explain the following**

i. Dye penetrant testing iii. Inspection of weld

ii. Discontinuities in weld and their causes

7. Attempt any *one* part of the following: 10 x 1 = 10

(a) what is metallizing process ?how the surface of work must be prepared for this process also describe the nature of bond between sprayed metal and work

(b) Discuss the effect of alloying element of the weldability. Explain the welding of dissimilar metal briefly.