

Subject Code: XXXXX

Roll No:

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**BTECH
(SEM-5) ADVANCE WELDING 2021-22**

TIME:3 HOUR

Total Marks: 100

Instruction: Attempt the questions as per the given instructions. Assume missing data suitably.

SECTION - A

Attempt *All Parts* in Brief

2*10 = 20

Q1	Questions	Marks
(a)	What is the function of flux in the welding?	2
(b)	What is the principle involved in resistance welding ?	2
(c)	Draw the weld symbols for double U and single V joint.	2
(d)	How radial friction welding is used to join the collars shaft and tube?	2
(e)	What are the effects of gases in welding ?	2
(f)	Define the health and safety in welding.	2
(g)	How is the carbon equivalent value calculated ?	2
(h)	Write short note on the bend test.	2
(i)	Describe the factors affecting weldability of copper alloys.	2
(j)	Describe the arc blow.	2

SECTION - B

Attempt Any Three of the following

3*10 = 30

Q2	Questions	Marks
(a)	Describe TIG welding process with neat sketch. What are the advantages and limitation of TIG welding over MIG welding ?	10
(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.	10
(c)	Define residual stresses in welding. State and explain the major factors responsible for residual stress.	10
(d)	Briefly describe the various weld defect and distortion in welding and its causes and remedies.	10
(e)	Write short note on : i. Gas metal reaction. ii. Slag metal reaction.	10

SECTION - C

Attempt Any One of the following

5*10 = 50

Q3	Questions	Marks
(a)	Briefly classify the process selection criteria of welding process.	10
(b)	Classify the different types of metal transfer used in various types of arc welding process with neat sketch.	10
Q4	Questions	Marks
(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 beam welding.	10
(b)	Define the magnetically impelled arc butt (MLAB) welding procedure, limitation and application of this process.	10
Q5	Questions	Marks
(a)	Explain the factor affecting changes in microstructure and mechanical properties of heat affected zone.	10
(b)	Discuss in detail about weld thermal cycles with neat sketch and also mention the factor affecting change in microstructure and HAZ.	10
Q6	Questions	Marks
(a)	Discuss about the different types of weld joint with neat sketch.	10
(b)	Explain the following:	10

	i. Dye penetrant testing. ii. Discontinuities in weld and their causes.	
Q7	Questions	Marks
(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.	10
(b)	Discuss the effect of alloying element on the weldability. Explain the welding of dissimilar metal briefly.	10