

Code: 20ME6501

III B.Tech - I Semester – Regular Examinations - DECEMBER 2022

**ADVANCES IN WELDING TECHNOLOGY
(HONORS in MECHANICAL ENGINEERING)**

Duration: 3 hours

Max. Marks: 70

Note: 1. This paper contains questions from 5 units of Syllabus. Each unit carries 14 marks and have an internal choice of Questions.

2. All parts of Question must be answered in one place.

BL – Blooms Level

CO – Course Outcome

			BL	CO	Max. Marks
UNIT-I					
1	a)	Describe the process of explosion welding and explain its principle of operation.	L2	CO2	7 M
	b)	Illustrate advantages, disadvantages and applications of adhesive bonding.	L2	CO1	7 M
OR					
2	a)	Discuss the effect of various parameters of Ultrasonic welding on welded joints.	L2	CO1	7 M
	b)	Explain the process characteristics, advantages and applications of diffusion welding.	L2	CO1	7 M
UNIT-II					
3	a)	Explain joint designs in friction welding with neat sketch.	L2	CO1	7 M
	b)	Discuss the friction welding process variables.	L2	CO1	7 M

OR					
4	a)	Discuss the preventive measures of defects in friction stir welding process.	L2	CO1	7 M
	b)	Describe the advancement techniques in Friction stir welding.	L2	CO1	7 M
UNIT-III					
5	a)	Illustrate the LASER beam welding process with neat sketch.	L3	CO3	7 M
	b)	Explain the mechanism of Key hole formations and forces acting in key hole in the Laser beam welding process.	L2	CO3	7 M
OR					
6	a)	Illustrate the Electron beam welding process with neat sketch.	L3	CO3	7 M
	b)	Explain the method to identify the defects in Laser Beam welded components of dissimilar alloys.	L2	CO3	7 M
UNIT-IV					
7	a)	Distinguish between low current and high current plasma arc welding.	L2	CO3	7 M
	b)	Explain the working principle of ultrasonic spot welding with neat sketch and discuss the applications of it.	L2	CO1	7 M
OR					
8	a)	Explain the working principle of Induction welding of plastics. List the advantages and limitations of it.	L2	CO1	7 M

	b)	List the application, advantages and limitations of Ultrasonic welding.	L1	CO1	7 M
UNIT-V					
9	a)	Explain the causes of residual stresses in welded components.	L2	CO4	7 M
	b)	Explain the methods of measuring the distortion in welded components.	L2	CO4	7 M
OR					
10	a)	Explain the effects of residual stresses in welded components.	L2	CO4	7 M
	b)	Distinguish between Jigs and fixtures.	L2	CO4	7 M