Seat No.: _____ **Enrolment No._____**

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VIII (NEW) - EXAMINATION – SUMMER 2017

Subject Code: 2181927 **Date: 06/05/2017**

Subject Name: Advance Welding Technology(Department Elective III)

Time: 10:30 AM to 01:00 PM **Total Marks: 70**

Instructions:

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

Q.1	**(a)**	Illustrate with neat sketches common types of (a) Welded Joint, (b) Welding Position.	**07**
	(b)	Explain the effect of Carbon and Alloying elements on Weldability of steel.	**07**
Q.2	**(a)**	Define Weld Cracking. Write its types and explain Hot Cracking & Cold Cracking in details.	**07**
	(b)	Explain phase transformation in Fe- C diagrams with neat sketch.	**07**
		OR	
	(b)	Explain factors affecting changes in microstructure and mechanical properties of HAZ of steel.	**07**
Q.3	**(a)**	Discuss with neat sketch shielded metal arc welding process, state the advantages, limitations and applications.	**07**
	(b)	Discuss with neat sketch gas tungsten arc welding (GTAW) process, state the advantages, limitations and applications.	**07**
		OR	
Q.3	**(a)**	Discuss about various types of flames commonly used in gas welding process with specific application of each types.	**07**
	(b)	Compare laser beam welding and electron beam welding process with context of working principle, special characteristics, constructional features, and applications.	**07**
Q.4	**(a)**	Explain working principle of resistance spot welding process, state the advantages, limitations and applications.	**07**
	(b)	Discuss following points related to friction/inertia welds, (i) Welding Variable (ii) Welding Parameters (iii) List of materials to be welded (iv) joint Preparation	**07**
		OR	
Q.4	**(a)**	Distinguish between welding, brazing and soldering process.	**07**
	(b)	Define Thermit welding process. Discuss the various steps involved in Thermit welding process, state advantages, disadvantages, & application of Thermit welding process.	**07**
Q.5	**(a)**	Explain stages of weld inspection and testing methods.	**07**
	(b)	Explain magnetic particle inspection method with neat sketch.	**07**
		OR	
Q.5	**(a)**	Explain working principle of eddy current testing method, list out various coils used in this methods with neat sketch.	**07**
	(b)	Why leak testing is required? Explain procedure of leak testing method with neat sketch.	**07**

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