

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, **07**
- (i) Welding Variable (ii) Welding Parameters
- (iii) List of materials to be welded (iv) joint Preparation
- 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**
