

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VI (NEW) EXAMINATION – SUMMER 2022****Subject Code:2162506****Date:16/06/2022****Subject Name: Metal Joining Technology****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.
4. Simple and non-programmable scientific calculators are allowed.

MARKS

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|------------|--|-----------|
| Q.1 | (a) Differentiate welding process in comparison with casting process and forming process. | 03 |
| | (b) Differentiate between welding with brazing process. | 04 |
| | (c) Define metal joining process. Classify welding process based on following criteria. (a) Type of joint (b) Types of energy (c) Power density (d) Types of principle | 07 |
| Q.2 | (a) What is the function of filler material in welding process? | 03 |
| | (b) Differentiate straight and reverse polarity in the arc welding process. | 04 |
| | (c) Differentiate arc and gas welding process. Explain the various types of flame in gas welding with neat sketch. | 07 |
| | OR | |
| | (c) Explain the welding techniques used in gas welding process with neat sketch. | 07 |
| Q.3 | (a) Draw any six welding symbol. | 03 |
| | (b) Explain working principle of TIG welding process with neat sketch. | 04 |
| | (c) Explain the following welding defects with neat sketch.
(a) porosity (b) lack of penetration (c) distortion | 07 |
| | OR | |
| Q.3 | (a) Draw the fundamental types of joints. | 03 |
| | (b) Explain the working principle of MIG welding with neat sketch. | 04 |
| | (c) Enlist various NDT used to detect defects in welding. Explain any one with neat sketch. | 07 |
| Q.4 | (a) Differentiate spot and seam welding process. | 03 |
| | (b) Explain the concept of shunting effect in resistance welding process. | 04 |
| | (c) Explain electro slag welding process in detail with neat sketch. | 07 |
| | OR | |
| Q.4 | (a) Define the following term: (a) Resistance (b) Current (c) Time | 03 |
| | (b) Explain the working principle of resistance welding process. | 04 |
| | (c) Explain the working principle of SAW process with neat sketch. Also state the advantages and limitations of the process. | 07 |

- Q.5** (a) What is the primary functions of following parameters in the solid state welding process? (a) Pressure (b) Heat **03**
- (b) Discuss the use of electrode and its types in the welding process. **04**
- (c) Explain Thermit welding process with neat sketch. Also enlist the advantages and applications of the process. **07**

OR

- Q.5** (a) What is the function of Inert gas in arc welding process? **03**
- (b) Differentiate between Transferred arc and Non-transferred arc plasma welding process. **04**
- (c) Explain atomic hydrogen welding process with neat sketch. **07**
