| Seat No.: | Enrolment No. |
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GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-VI (NEW) - EXAMINATION - SUMMER 2017

Subject Code: 2162109 Date: 08/05/2017

Subject Name: Metal Joining Processes

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.

MARKS

| | | | MAKK |
|-----|------------|------------------------------------------------------------------------------------------------------------------|------|
| Q.1 | 1 | Short Questions The metal joined is never brought to a molten stage in | 14 |
| | 2 | In resistance electric welding, the current passed through two joining metal pieces is | |
| | 3 | The process of joining two pieces of metal with a different fusible metal applied in a molten state is called as | |
| | 4 | Which type of arc welding is suitable for joining non-ferrous metals? | |
| | 5 | Which current is used in Tungsten Inert-Gas (TIG) welding? | |
| | 6 | Which gases can be used to form a protective envelope in arc welding? | |
| | 7 | The filler metal used in brazing has melting point of above | |
| | 8 | The commonly used flux in brazing is | |
| | 9 | | |
| | 10 | The composition of soft solder is | |
| | 11 | What is the type of shielding gas for GTAW (Gas Tungsten Arc Welding) used for carbon steels only called? | |
| | 12 | In Oxyacetylene gas welding, temperature at the inner core of the flame is around | |
| | 13 | Which joint have high corrosion resistance? | |
| | 14 | Which ray is not produced during welding? | |
| Q.2 | (a) | What is submerged arc welding? | 03 |
| | (b) | Explain submerged arc process and give its advantages. | 04 |
| | (c) | Explain how gas-metal and slag-metal reactions takes place in welding OR | 07 |
| | (c) | List & Explain parameters affecting metal transfer. | 07 |
| Q.3 | (a) | What is hydrogen embrittlement? | 03 |
| | (b) | How does hydrogen embrittlement occur? | 04 |
| | (c) | Explain LASER beam welding process | 07 |
| 0.5 | | OR | 0.5 |
| Q.3 | (a) | Enlist different brazing Techniques | 03 |
| | (b) | What is brazing process? Give different brazing materials | 04 |
| | (c) | What do you mean by Plasma? Explain plasma welding with a neat sketch | 07 |

| Q.4 | (a) | What is Electroslag welding? | 03 |
|-----|------------|-------------------------------------------------------------|----|
| | (b) | Explain Electroslag welding operation in detail. | 04 |
| | (c) | Write a note on ultrasonic welding. | 07 |
| | | OR | |
| Q.4 | (a) | What is weldability? | 03 |
| | (b) | Explain in brief about weldability of Al-alloy & Ti-alloys. | 04 |
| | (c) | Explain solid phase welding process in detail | 07 |
| Q.5 | (a) | Discuss welding arc characteristics. | 03 |
| | (b) | With necessary diagram show welding arc | 04 |
| | (c) | Discuss explosive welding process in detail | 07 |
| | () | OR | |
| Q.5 | (a) | Define soldering. | 03 |
| | (b) | Write in brief about Soldering alloys and it's applications | 04 |
| | (c) | Discuss Tungsten Inert Gas (TIG) welding process in detail. | 07 |
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