

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**Diploma Engineering - SEMESTER-III • EXAMINATION – SUMMER 2013**

**Subject Code: 330202****Date: 11-06-2013****Subject Name: Manufacturing Process and Material Technology****Time: 02:30 pm - 05:00 pm****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. English version is considered to be Authentic.

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|-------------|-----------------------------------------------------------------------------------------------------|----|
| <b>Q.1</b>  | (a) List various defects in welding process. Explain any four.                                      | 07 |
|             | (b) ( i ) Explain Mass production and Batch production.                                             | 05 |
|             | ( ii ) Explain “Shrinkage Allowance”.                                                               | 02 |
| <b>Q.2</b>  | (a) Explain the various types of Mechanical properties required for Engineering Material.           | 07 |
|             | (b) Define Re-crystallization temperature. Explain various factors affecting it.                    | 07 |
|             | <b>OR</b>                                                                                           |    |
|             | (b) Differentiate between Hot working and Cold working.                                             | 07 |
| <b>Q.3</b>  | (a) Define Heat treatment and give the purpose of it.                                               | 07 |
|             | (b) ( i ) Explain Annealing process in detail.                                                      | 05 |
|             | ( ii ) Give equipments needed for Gas welding.                                                      | 02 |
|             | <b>OR</b>                                                                                           |    |
| <b>Q.3</b>  | (a) Explain Quenching media for heat treatment.                                                     | 07 |
|             | (b) ( i ) Write short note on Induction hardening process.                                          | 05 |
|             | ( ii ) Select material for Piston and connecting rod with justification.                            | 02 |
| <b>Q.4</b>  | (a) List various defects of casting and explain any three of them.                                  | 07 |
|             | (b) ( i ) List types of pattern and explain any two with diagram.                                   | 04 |
|             | ( ii ) Explain wire drawing process with diagram.                                                   | 03 |
|             | <b>OR</b>                                                                                           |    |
| <b>Q. 4</b> | (a) Define Pattern and enlist material used for pattern. Compare Wooden pattern with Metal pattern. | 07 |
|             | (b) ( i ) Explain working principle of Milling machine with a neat sketch.                          | 04 |
|             | ( ii ) Explain following terms a) Turning b) Grooving                                               | 03 |
| <b>Q.5</b>  | (a) Explain working principle of “Arc Welding”.                                                     | 07 |
|             | (b) ( i ) Explain Quick return mechanism of Shaper machine                                          | 05 |
|             | ( ii ) Differentiate between Brazing and Welding                                                    | 02 |
|             | <b>OR</b>                                                                                           |    |
| <b>Q.5</b>  | (a) Explain Forging process and state advantages and limitations of it.                             | 07 |
|             | (b) ( i ) Draw a neat diagram of lathe machine and explain its major parts.                         | 05 |
|             | ( ii ) State safety precautions to be taken during welding process.                                 | 02 |

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