

TED (10)–3003

Reg. No.

(REVISION—2010)

Signature

SECOND SEMESTER DIPLOMA EXAMINATION IN MECHANICAL
ENGINEERING—OCTOBER, 2011

MANUFACTURING PROCESSES

[Time : 3 hours

(Maximum marks : 100)

PART—A

Marks

I Answer the following questions in one or two sentences. Each question carries 2 marks.

1. Mention four mechanical properties of materials.
2. How will you distinguish between precision and non-precision measuring instruments ?
3. Differentiate between upsetting and drawing down.
4. What is the purpose of seasoning of wood ?
5. What is reaming ?

(5×2=10)

PART—B

II Answer *any five* of the following. Each question carries 6 marks.

1. Briefly explain the following mechanical properties of materials.
(a) Strength (c) Elasticity
(b) Fatigue (d) Plasticity
2. Draw a neat sketch of a vernier caliper and mark the parts.
3. Explain the use of fullers and flaters.
4. Distinguish between green sand mould and dry sand mould.
5. Draw the cross section of hard wood and indicate the main features.
6. Explain the term magnetic hysteresis with a neat sketch.
7. What are the different smith forging operations ?

(5×6=30)

PART—C

(Answer *one* full question from each unit. Each question carries 15 marks.)

UNIT—I

- III (a) Draw the stress-strain diagram for mild steel in tensile test and explain various terms. 8
- (b) What is meant by hardness of a material ? Explain the procedure of finding the hardness of metals by Brinell hardness test. 7

OR

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| IV | (a) Explain the procedure of finding out the hardness of metals by Vicker's hardness test. | 7 |
| | (b) Define impact strength of a material. Explain the procedure of finding out the impact strength by Harpy pendulam test. | 8 |

UNIT—II

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| V | (a) A micrometer is used for taking the accurate measurement of a steel specimen. The pitch scale reading is 6 mm, the 30th division of the thimble coincides with the fiducial line. The pitch of the micrometer screw is 0.5 mm and the thimble consists of 50 divisions. Find the actual measurement of the specimen. | 7 |
| | (b) What is a comparator? Explain the working of a mechanical comparator. | 8 |

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| VI | (a) Draw a neat sketch of an inside micrometer and mark different parts. | 7 |
| | (b) Write short notes on the following gauges : | |
| | (i) Feeler guage (iii) Thread pitch guage | |
| | (ii) Plate and wire gauge (iv) Form gauge. | 8 |

UNIT—III

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| VII | (a) Explain the brazing process with an application. | 7 |
| | (b) Classify the hearths used in smithy shops. Mention the details of an open hearth furnace. | 8 |

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| VIII | (a) Explain the working of a rotary hearth furnace. | 8 |
| | (b) Write the difference between hand forging and die forging. | 7 |

UNIT—IV

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| IX | (a) Explain the details of the following work holding tools : | |
| | (i) Carpentry vice (ii) 'C' clamp. | 8 |
| | (b) With the aid of neat sketch explain any three carpentry joints. | 7 |

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| X | (a) What is a sweep pattern? Explain its application. | 7 |
| | (b) Describe with neat sketches the construction and use of the following tools : | |
| | (i) Metal jaw plane (ii) Tenon saw. | 8 |