

SECOND SEMESTER DIPLOMA EXAMINATION IN MECHANICAL
ENGINEERING—MARCH, 2014

MANUFACTURING PROCESS

[Time : 3 hours

(Maximum marks : 100)

Marks

PART—A

(Maximum marks : 10)

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

1. Give any two advantages of X-Ray radiography over gamma ray radiography.
2. List any two linear measuring and angular measuring instruments.
3. Give any two limitations of welding.
4. List the different types of patterns used for casting.
5. Mention any four thermal properties of materials. (5×2=10)

PART—B

(Maximum marks : 30)

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

1. Define the following mechanical properties of materials:
(i) Brittleness (ii) toughness (iii) creep.
2. Draw the sketch of a vernier caliper and mark its parts.
3. Briefly explain the three types of flames in oxy acetylene welding.
4. List the advantages and applications of welding.
5. Explain the liquid penetrant test.
6. Briefly explain shrinkage allowance and machining allowance.
7. List the essential characteristics of a good comparator. (5×6=30)

PART—C

(Maximum marks : 60)

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

UNIT—I

- III (a) Explain ultrasonic inspection and give its advantages, disadvantages and applications. 10
- (b) Explain the magnetic particle test. 5

OR

- IV (a) Explain the test used for finding the fatigue strength of materials. 8
 (b) Define the following properties :
 (i) thermal conductivity (ii) hardness (iii) stiffness. 7

UNIT—II

- V (a) Explain the working of an optical comparator. List its advantages and disadvantages. 9
 (b) Briefly explain the uses of plug gauge and feeler gauge. 6

OR

- VI (a) Draw a neat sketch of a vernier height gauge and mark its parts. Mention its important features. 7
 (b) Explain the principle of a mechanical comparator. Explain any one type of mechanical comparator. 8

UNIT—III

- VII (a) Define soldering and brazing. Compare their characteristics with welding. 7
 (b) Explain any four principal operations in smith forging. 8

OR

- VIII (a) List and explain the main hand forging tools 7
 (b) What is the principle of gas welding ? List the types of gas welding. Briefly explain the two types of gas welding techniques. 8

UNIT—IV

- IX (a) List the desired properties of moulding sand. Briefly explain any three properties. 7
 (b) What do you mean by seasoning of timber ? Why is it necessary ? Compare Natural and artificial seasoning. 8

OR

- X (a) Define fitting. List the different tools used in fitting and mention their purpose. 7
 (b) List the different types of patterns commonly used. Explain the features of any three. 8