S4 PL

TED (10) – 3093

(REVISION — 2010)

Reg. No. .....

Signature .....

FOURTH SEMESTER DIPLOMA EXAMINATION IN POLYMER TECHNOLOGY — MARCH, 2015

INTRODUCTION TO MECHANICAL ENGINEERING

[*Time* : 3 hours

(Maximum marks : 100)

PART—A

(Maximum marks : 10)

Marks

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

1. List any four mechanical properties of metals.
2. List requirements of good fuel.
3. Define Boiler.
4. List uses of compressed air.
5. List types of belt drives. (5×2=10)

PART—B

(Maximum marks : 30)

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

1. Explain the effect of alloying elements in steel.
2. Discuss the effect of pressure on temperature.
3. Differentiate between fire tube and water tube boilers.
4. Explain natural draft, induced draft, forced draft and balanced draft.
5. What is an air compressor ? Classify it.
6. Differentiate Brush, Ball, Roller and Needle bearings.
7. Explain briefly the functions of different types of lubricant. (5×6=30)

Marks

PART—C

(Maximum marks : 60)

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

UNIT—I

III (a) Explain the production of steel by electric furnace with sketch. 7

(b) Explain the working of Bomb calorimeter with a neat sketch. 8

OR

IV (a) Describe the operation of Cupola furnace. 7

(b) What are the classifications of fuels ? Explain. 8

UNIT—II

V (a) Explain the working of Cochran boiler with a neat sketch. 8

(b) Explain the properties of steam. 7

OR

VI (a) Distinguish between smoke tube and water tube boilers. 7

(b) Explain functions of any two boiler accessories with sketch. 8

UNIT—III

VII (a) Explain the working of reciprocating compressor with a neat sketch. 8

(b) Explain Freeze drying and Diary refrigeration. 7

OR

VIII (a) Describe the working of rotary compressor with a neat sketch. 7

(b) Explain the working of vapour compression system with a diagram. 8

UNIT—IV

IX (a) Discuss centrifugal tension and its effect on power transmission. 8

(b) Explain worm, worm wheel and its uses. 7

OR

X (a) State different types of gear wheels and its functions. 7

(b) Explain splash lubrication system. 8