TED (10)–3039

(REVISION—2010)

Reg. No

Signatur

THIRD SEMESTER DIPLOMA EXAMINATION IN MECHANICAL ENGINEERING—OCTOBER, 2012

METALLURGY AND MACHINE TOOLS

[*Time* : 3 hours

(Maximum marks : 100)

Marks

PART—A

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

1. Define space lattice.

2. Write the meaning of alloy steel.

3. What is diffusion coating.

4. Define machinability.

5. What is a draw bolt in milling machine.   (5×2=10)

PART—B

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

1. Explain BCC and FCC.

2. Differentiate recovery and recrystallisation.

3. List the different heat treatment process.

4. Explain flame hardening and induction hardening.

5. Discuss the properties of cutting fluids.

6. Illustrate lathe accessories and attachments.

7. Explain gang milling and profile milling.

                                                                    (5×6=30)

PART—C

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

UNIT—I

III   (a) What are the effects of the following in alloy steel ?

   (1) Nickel   (2) Tungsten   7

   (b) Sketch and explain the working of blast furnace.   8

OR

Marks

IV (a) Write the properties and uses of grey cast iron.   7

(b) Describe the working of an electric arc furnace for making steel.   8

Unit—II

V (a) Draw and explain the cooling curve of pure iron.   7

(b) Write short notes on: (1) Cementite (2) Austenite   8

Or

VI (a) Explain annealing process.   7

(b) Sketch and explain the equilibrium diagram.   8

Unit—III

VII (a) Explain cutting speed and feed.   7

(b) With a line diagram explain the parts of a radial drilling machine.   8

Or

VIII (a) Describe the principle of thread cutting.   7

(b) Show the nomenclature of a single point cutting tool.   8

Unit—IV

IX (a) How will you specify a planer ?   7

(b) Wth a sketch explain the table feed mechanism of a shaper.   8

Or

X (a) Explain up milling and down milling.   7

(b) With a line diagram show the various parts of a milling machine.   8