



TED (15) - 4023

Reg. No.

(REVISION — 2015)

Signature

DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/
MANAGEMENT/COMMERCIAL PRACTICE — APRIL, 2019

METALLURGY AND MACHINE TOOLS

[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 methods of heat treatment.
2. Define cutting speed & feed.
3. List the important work holding devices in lathes.
4. Give specification of a drilling machine.
5. Name slotter operations.

(5×2 = 10)

PART — B

(Maximum marks : 30)

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

1. List the advantages of powder metallurgy.
2. Differentiate orthogonal and oblique cutting.
3. Explain desirable properties of a cutting fluid.
4. Show the nomenclature of a taper shank twist drill.
5. Give specification of a milling machine.
6. Illustrate quick return mechanism of a slotter.
7. Compare shaper & planer.

(5×6 = 30)

PART — C

(Maximum marks : 60)

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

UNIT — I

- III (a) Draw iron carbon equilibrium diagram and indicate different phases. 8
 (b) What is tempering ? Differentiate austempering & martempering. 7

OR

- IV (a) Explain different case hardening processes. 8
 (b) Describe various stages of manufacturing a product using metal powders. 7

UNIT — II

- V (a) Describe the characteristics of a cutting tool material. 8
 (b) Explain about various cutting fluids. 7

OR

- VI (a) Show important parts of a lathe with a line diagram. 7
 (b) List the major lathe accessories and explain any two. 8

UNIT — III

- VII (a) What are different types of Drilling machines ? Explain. 8
 (b) Name different work holding devices in drilling machine & sketch any two. 7

OR

- VIII (a) List different milling machine operations. Explain any two. 8
 (b) Show the nomenclature of a plain milling cutter & explain. 7

UNIT — IV

- IX (a) Explain any two shaper operations with sketches. 8
 (b) Sketch and explain crank and slotted link mechanism of a shaper. 7

OR

- X (a) Name the parts of a slotting machine and explain any two. 8
 (b) How the planers are classified ? Explain any one type. 7
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