

DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/
MANAGEMENT/COMMERCIAL PRACTICE — OCTOBER, 2017

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 the advantages of powder metallurgy.
2. Define machinability.
3. Name various types of chips.
4. Name different tool holding devices in drilling.
5. State the use of a shaper.

(5 × 2 = 10)

PART — B

(Maximum marks : 30)

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

1. Briefly explain case hardening methods.
2. List crystal imperfections and explain any one.
3. Differentiate orthogonal & oblique cutting.
4. Describe about the carriage in a lathe.
5. Show the nomenclature of a twist drill.
6. What is an “arbor” in milling machine.
7. Describe the method of table drive of a planning machine.

(5 × 6 = 30)

PART — C

(Maximum marks : 60)

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

UNIT — I

- III (a) Sketch & explain iron carbon equilibrium diagram. 8
 (b) Differentiate austempering & martempering. 7

OR

- IV (a) Explain electrolytic process of making metal powders. 8
 (b) Justify heat treatment processes. 7

UNIT — II

- V (a) Show the nomenclature of a single point cutting tool. 8
 (b) What are the desirable properties of a cutting fluid ? 7

OR

- VI (a) List different types of lathes and explain any one. 8
 (b) Describe the sequence of steps to be followed in thread cutting. 7

UNIT — III

- VII (a) Draw the line diagram of a Drilling machine and mark the parts. 8
 (b) Discuss different work holding devices in drilling machines. 7

OR

- VIII (a) Differentiate up milling and down milling. 8
 (b) What is indexing ? Explain direct indexing in milling machine. 7

UNIT — IV

- IX (a) Explain hydraulic shaper mechanism with a neat sketch. 8
 (b) Describe clapper box tool holder in shaper. 7

OR

- X (a) List and explain any four slotter operations. 8
 (b) Sketch different work holding devices in a planner. 7
