

TED (15/19) -4023
(Revision- 2015/19)

A21-00581

Reg.No.....
Signature.

DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/MANAGEMENT/
COMMERCIAL PRACTICE – APRIL -2021.

METTALLURGY AND MACHINE TOOLS

(Maximum Marks : 75)

[Time : 2.15 hours]

PART-A

Marks

I. Answer **any three** questions in one or two sentences. Each question carries 2 marks.

1. List the advantages of powder metallurgy.
2. Explain back rake angle.
3. Name the different types of tool holding devices in drilling.
4. State the use of clapper box in a shaper.
5. What are the specifications of a Planer? (3x2=6)

PART - B

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

1. Briefly explain case hardening methods.
2. Explain the plastic deformations of metal-slip and twinning.
3. Define cutting speed, feed and depth of cut.
4. Differentiate Orthogonal and Oblique cutting.
5. Sketch and explain the nomenclature of taper shank twist drill.
6. Explain the parts of an indexing head.
7. Briefly describe the Whitworth method used in a shaper.

[4x6 =24]

PART - C

(Answer **any of the three units** from the following. Each full question carries 15 marks)

UNIT I

III (a) Describe the various methods of manufacturing metal powder. (8)

(b) Explain the heat treatment processes: (a)Annealing (b) Normalizing. (7)

OR

- IV** (a) Explain the various micro structures in Iron Carbon equilibrium diagram. (8)
(b) Explain the metallic crystalline structures (a) BCC (b)FCC (c)HCP (7)

UNIT- II

- V** (a) Define Tool Signature. Explain the tool signature of a single point cutting tool. (8)
(b) Explain the method of taper turning by swiveling compound rest. (7)

OR

- VI** (a) Sketch and explain the parts of a centre lathe. (8)
(b) What are the desirable properties of a cutting fluid? (7)

UNIT- III

- VII** (a) Draw the line diagram of a Drilling machine and mark the parts. (8)
(b) Explain (a) Direct Indexing (b) Simple Indexing (7)

OR

- VIII** (a) Draw the nomenclature of a plain milling cutter. (8)
(b) Explain the different drilling machine operations. (7)

UNIT – IV

- IX** (a) Name and explain the various work holding devices in a planer. (8)
(b) Compare between shaper and planer. (7)

OR

- X** (a) Draw the line sketch of a shaper and mark the parts. (8)
(b) List and explain various slotter operations. (7)
