

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

A22-04132

Reg.No.....

Signature.....

**DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/MANAGEMENT/
COMMERCIAL PRACTICE, APRIL- 2022**

METALLURGY AND MACHINE TOOLS

(Maximum Marks:100)

(Time: 3 Hours)

PART - A

(Maximum marks : 10)

Marks

- I. Answer all the questions in one or two sentences. Each question carries 2 marks.
1. List the stages of Heat Treatment.
 2. Name different types of chips.
 3. Define the process facing.
 4. What is indexing?
 5. State the function of clapper box in a shaper. (5 x 2 = 10)

PART - B

(Maximum Marks: 30)

- II Answer **any five** questions from the following. Each question carries 6 marks.
1. Explain with sketch BCC and FCC structure of materials.
 2. List the purposes of heat treatment processes
 3. Define cutting speed, feed and depth of cut.
 4. Name different types of lathe.
 5. Draw a neat sketch of a taper shank drill bit and mark different parts.
 6. Explain direct indexing.
 7. Compare shaper and planer (5 x 6 = 30)

PART - C

(Maximum marks: 60)

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

UNIT - 1

- III (a) Explain TTT (Temperature, Time and Transformation) diagram with sketch. (9)
(b) List the advantages of powder metallurgy. (6)

OR

- IV (a) Draw the iron-carbon equilibrium diagram showing various phases and critical lines. (9)
(b) Explain : i). Annealing ii) Carburizing (6)

UNIT – 2

- V (a) Show the nomenclature of a single point cutting tool. (9)
(b) State the functions of cutting fluids. (6)

OR

- VI (a) Draw a neat sketch of a centre lathe and mark different parts. (9)
(b) List the work holding devices used in lathe. (6)

UNIT – 3

- VII (a) Draw neat sketch of a drilling machine and explain the functions of different parts. (9)
(b) Briefly explain drill sleeve and drill socket . (6)

OR

- VIII (a) Draw a neat sketch of a horizontal milling machine and mark all parts. (9)
(b) Explain plain and end milling cutter. (6)

UNIT – 4

- IX (a) With sketch explain crank and slotted link mechanism used in shaper. (9)
(b) State the specifications of a slotting machine. (6)

OR

- X (a) Draw a line sketch of planning machine and explain the functions of its parts (9)
(b) List the work holding devices in a shaper (6)

.....