

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

METALLURGY AND MECHINE TOOLS

(Maximum Marks : 100)

[Time : 3 hours]

PART–A

(Maximum marks: 10)

Marks

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

1. Define space lattice.
2. What do you mean by work hardening?
3. What is peritectic reaction?
4. Differentiate coolant and lubricant.
5. Write the use of slotting machine. (5x2=10)

PART - B

(Maximum Marks : 30)

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

1. Explain the effect of grain size on properties of metal.
2. Write the difference between brass and bronze.
3. Explain the types of solid solutions.
4. Define cutting speed, feed and depth of cut.
5. List the different work holding devices using in lathe.
6. Discuss the construction details of a slotter with a neat sketch.
7. Explain about plain milling and gang milling. (5x6 =30)

PART - C

(Maximum marks : 60)

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

UNIT I

- III** (a) Explain crystal imperfections with a neat sketch. (8)
- (b) Explain ionic bonding, covalent bonding and metallic bonding. (7)

OR

- IV** (a) Explain the manufacture of steel in an electric induction furnace. (8)
- (b) List out different types of cast irons. (7)

UNIT- II

- V** (a) Draw the iron carbon equilibrium diagram and label various phases. (8)
- (b) Explain the cooling curve of pure iron with a neat sketch. (7)

OR

- VI** (a) Explain about Annealing and Normalising. (8)
- (b) Discuss the objectives of heat treatment. (7)

UNIT- III

- VII** (a) Explain the method of taper turning. (8)
- (b) Compare orthogonal cutting and oblique cutting. (7)

OR

- VIII** (a) Discuss various types of chips produced during metal cutting. (8)
- (b) Draw a Taper Shank Twist Drill and label the parts and nomenclature. (7)

UNIT – IV

- IX** (a) Draw and explain whitworth quick return mechanism of shaper. (8)
- (b) What is indexing? List the method of indexing. (7)

OR

- X** (a) Explain the classification of shaper. (8)
- (b) Discuss the open and cross belt table drive mechanism of a planer. (7)
