

NETTUR TECHNICAL TRAINING FOUNDATION
DIPLOMA IN TOOL ENGINEERING & DIGITAL MANUFACTURING– CP01
III SEMESTER REGULAR & SUPPLEMENTARY EXAMINATION-JAN 2023

Subject: Material Technology & Heat Treatment
Subject Code: CP01308T

Total Time: 2 Hr.
Total Marks: 50 Marks

PART B

1.0 ANSWER ANY EIGHT OF THE FOLLOWING **2*8=16**

- 1.1 What is atomic bonding? What are the main classifications of atomic bonds?
- 1.2 Name the three types of defects found in crystals.
- 1.3 What is an alloy?
- 1.4 Differentiate Hypoeutectoid steels and Hypereutectoid steels
- 1.5 What is Creep?
- 1.6 Name the four quenching media used in heat treatment of metals
- 1.7 What is the use of alkaline detergent cleaning?
- 1.8 Write any two applications of tool steel
- 1.9 What are the causes of overheating and burning and how we can avoid it?
- 1.10 List out different types of Hardness test

2.0 ANSWER ANY SIX OF THE FOLLOWING **3*6=18**

- 2.1 Compare crystalline solids and amorphous solids
- 2.2 Write a short note on Martempering and Austempering
- 2.3 Draw and explain the cooling curve for pure iron
- 2.4 What is salt bath furnace?
- 2.5 What is plain carbon steel?
- 2.6 Why guide pillar and guide bush are case hardened?
- 2.7 Compare ordered substitutional solid solutions and disordered substitutional solid solutions
- 2.8 What is Electroplating?

3.0 ANSWER ANY FOUR OF THE FOLLOWING **4*4=16**

- 3.1 Write the comparison between Ionic, Covalent and Metallic Bond.
- 3.2 Differentiate BCC & FCC structure.
- 3.3 What are the main steps involved in heat treatment process?
- 3.4 Draw TTT curve and mark salient points
- 3.5 Explain Normalizing process. State the purpose of Normalizing process.
- 3.6 Explain Annealing process and write any three purpose of annealing.

