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Roll No.

221853 B

5th Sem. Branch: Mechanical (Tool & Die Design)
Sub : Heat Treatment

Time : 3 Hrs.

M.M. : 60

SECTION-A

Note: Multiple choice Questions. All Questions are compulsory. (6x1=6)

Q.1 Cast iron has property of

- a) Ductility
- b) Plasticity
- c) Brittleness
- d) Malleability

Q.2 Pearlite is

- a) Eutectoid steel
- b) Eutectic steel
- c) Austenitic steel
- d) None of these

Q.3 Sorbite is obtained when

- a) Steel is quenched
- b) Steel is tempered
- c) Steel is hardened
- d) None of these

Q.4 In Pack carburizing, carbon is supplied

- a) Through gas
- b) In form of charcoal
- c) In form of hydrocarbons
- d) None of these

- Q.5 What is microstructure of steel after annealing?
 a) Martensite b) Bainite
 c) Pearlite d) Spheroidite
- Q.6 Which quenching media provides the fastest cooling rate
 a) Water b) Air
 c) Oil d) Polymer Solution

Section-B

Note: Objective/Completion type questions. All questions are compulsory. **(6x1=6)**

- Q.7 What are the basic stages of heat treatment?
- Q.8 Name allotropic forms of iron.
- Q.9 Define curie point.
- Q.10 Define Nitriding.
- Q.11 Define Martensite.
- Q.12 What is distortion?

Section-C

Note: Short answer type Questions. Attempt any eight questions out of ten Questions. **(8x4=32)**

- Q.13 What are the Objectives of Heat Treatment?

- Q.14 Write any four types of cast iron. Explain each.
- Q.15 Explains Gas Carburizing.
- Q.16 Write any four differences between iron carbon Diagram and TTT diagram.
- Q.17 What is Tempering. Write any four advantages of Tempering?
- Q.18 Explain Eutectoid reaction that occurs in iron carbon diagram?
- Q.19 Explain plane carbon steel and its types.
- Q.20 Explain the process Induction hardening.
- Q.21 Write different quenching media and their applications.
- Q.22 Write any four defects occur during Heat Treatment Process.

Section-D

Note: Long answer questions. Attempt any two questions out of three Questions. **(2x8=16)**

- Q.23 Explain the Working Principle of Salt bath Furnace with neat sketch and what are its application.
- Q.24 Explain iron carbon diagram with neat sketch.
- Q.25 Explain the process Annealing what are its different types and applications.