

- Q.25 Enlist the different tempering colors with tempering temperature.
 - Q.26 Classify different types of Iron.
 - Q.27 List any five advantages of solid carburizing.
 - Q.28 Describe liquid carburizing
 - Q.29 Explain the suitability of various quenching media
 - Q.30 Explain the procedure for flame hardening.
 - Q.31 Explain nitriding.
 - Q.32 Describe any three defects during heat treatment processes.
 - Q.33 Explain tempering.
 - Q.34 Classify different types of heat treatment furnaces
 - Q.35 Explain oil and gas-fired furnaces.

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5th Sem. / Branch : T&D, Found. & Frog.

Subject:- Heat Treatment

Time : 3 Hrs.

M.M. : 100

SECTION-A

Note: Multiple choice questions. All questions are compulsory (10x1=10)

- Q.1 A Ferrite iron has the micro- structure as

 - a) FCC
 - b) BCC
 - c) HCP
 - d) None

Q.2 Cast iron has carbon

 - a) <2.0%
 - b) >7 %
 - c) >2.0%
 - d) None

Q.3 Lowest critical temperature (A₁) in iron carbon diagram is

 - a) 527° C
 - b) 727° C
 - c) 911° C
 - d) 1155° C

Q.4 Slowest cooling is obtainable

 - a) Air
 - b) Furnace
 - c) Water
 - d) None

- Q.5 Hypo-eutectoid steel contains carbon
a) <0.022% b) <0.770%
c) <6.77 % d) None
- Q.6 All TTT diagrams are family of
a) V shapes curves b) Z- shaped curves
c) S-shaped curves d) None
- Q.7 _____ Furnace is not an electric furnace.
a) Arc b) Induction
c) Pot d) Resistance
- Q.8 Which of the following is the hardest ?
a) Austenite b) Pearlite
c) Bainite d) Martensite
- Q.9 In an isothermal curve, which of the following is true when the temperature is increased ?
a) The curve shifts rightward
b) The curve which leftward
c) The curve goes down
d) The curve goes up
- Q.10 Hardness of steel increases with the
a) Increase of carbon b) Decrease of carbon
c) By slow cooling d) NOne

SECTION-B

Note: Objective type questions. All questions are compulsory. (10x1=10)

- Q.11 Define normalizing.
- Q.12 Steel with carbon percentage is called Hyper-eutectoid steel.
- Q.13 structure is obtained if steel is quenched in water.
- Q.14 The instrument used to measure high temperature in the furnace is
- Q.15 carbon dioxide gas used in heat treatment.
- Q.16 Define quenching.
- Q.17 List any two quenching media used in heat treatment
- Q.18 Define decarburizing
- Q.19 List any two advantages of liquid carburizing.
- Q.20 Enlist two uses of nitriding.

SECTION-C

Note: Short answer type questions. Attempt any twelve questions out of fifteen questions. (12x5=60)

- Q.21 What are the objectives of heat treatment ?
- Q.22 Draw Iron-Carbon diagram.
- Q.23 Explain annealing.
- Q.24 Describe allotropic forms of iron.