Q.27 Enlist any five defects during heat treatment processes.

Q.28 Explain the procedure for induction hardening.

Q.29 Explain various quenching media used in heat treatment.

Q.30 Explain the continuous furnace with a neat sketch.

Q.31 Enlist the different tempering temperatures with tempering colors.

Q.32 Explain nitriding.

Q.33 Describe allotropic forms of Iron.

Q.34 Explain hardening.

Q.35 Classify different types of heat treatment furnaces.

SECTION-D

Note: Long answer type questions. Attempt any two questions out of three questions. (2x10=20)

Q.36 Explain Iron-Carbon diagram.

Q.37 What is heat treatment furnace? What are its different types? Explain any one with neat diagram.

Q.38 Explain , in brief, different types of Iron.

Roll No. .....

5th Sem / Branch : T & D., Found. & Forg.
Sub.: Heat Treatment

Time : 3Hrs. M.M. : 100

SECTION-A

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

Q.1 Which micro-structure Y-Austenite has?

a) BCC b) FCC

c) HCP d) None

Q.2 Cast Steel has carbon

a) <2.0% b) > 7%

c) >2.0% d) None

Q.3 Curie temperature (A2) in iron carbon diagram is

a) 727°C b) 768°C

c) 91°C d) 1050°C

Q.4 Fastest cooling is obtainable by cooling in

a) Water b) Air

c) Brine d) None

Q.5 Hypereutectoid steel contains carbon

a) <0.770 % b) <0.22 %

c) >0.770 % d) None

Q.6 Time temperature transformation diagrams are drawn for _____.

a) Iron b) Manganese
c) Any alloy d) Only steel

Q.7 In an isothremal curve, which of the following is true when the temperature is increased?

a) The curve shift rightward
b) The curve shifts leftward
c) The curve goes down
d) The curve goes up

Q.8 Hardness of steel increases with the

a) Increase of carbon b) Decrease of carbon
c) By slow cooling d) None

Q.9 Advantages of use of preheated combustion air are

a) Saving in fuel consumption
b) Reduction in scale losses
c) Increase in flame temperature
d) All of the above

Q.10 All TTT diagrams are family of

a) V-Shaped curves b) Z-Shaped curves
c) S-Shaped curves d) None

SECTION-B

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

Q.11 Define annealing.

Q.12 Steel with carbon _____ percentage is called Hypo-eutectoid steel.

Q.13 _____ process gives maximum hardness to the surface.

Q.14 Ammonia gas is used for the nitriding process. (T/F)

Q.15 Define socking.

Q.16 List two applications of heat treatment.

Q.17 Define quenching cracks.

Q.18 List any two advantages of gas carburising.

Q.19 Discuss any two requirements of heat treatment furnaces.

Q.20 The instrument used to measure high temperature in the furnace is _____.

SECTION-C

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

Q.21 What are the different applications of heat treatment?

Q.22 Draw TTT Diagram.

Q.23 Explain normalizing.

Q.24 Describe solid carburizing.

Q.25 List any five advantages of liquid carburizing.

Q.26 Classify different types of Cast Iron.