

- Q.26 Differentiate between normalizing and annealing process.
- Q.27 Explain case hardening.
- Q.28 What is the purpose of alloying?
- Q.29 What is the purpose of Heat treatment?
- Q.30 Write some uses of White caste iron
- Q.31 Why cupola is used as an iron melting furnace over other furnaces?
- Q.32 Classify various types of steel.
- Q.33 What is the effect of grain size on mechanical properties of metals?
- Q.34 Explain quenching process in detail.
- Q.35 Explain sensitization defect in stainless steel.

SECTION-D

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

- Q.36 Explain T-T-T Diagrams with proper interpretation .
- Q.37 What is Heat Treatment ? Explain various heat treatment processes . Explain any four in detail.
- Q.38 What is heat treatment furnace ? What are its different types ? Explain any two .

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Subject:- Heat Treatment**

Time : 3Hrs.

M.M. : 100

SECTION-A

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

- Q.1 Which of the following is hardest steel constituent ?
 a) Austenite b) Ledeburite
 c) Martensite d) Bainite
- Q.2 Iron exists at what temperature in degree Celsius.
 a) At 1539 b) 910
 c) 786 d) Above 1410
- Q.3 In Normalizing process, cooling media is
 a) Water b) Oil
 c) Air d) Furnace
- Q.4 After Hardening process, metal become harder and
 a) Ductile b) Brittle
 c) Malleable d) Tough
- Q.5 Nitriding is a process for
 a) Annealing b) Normalizing
 c) Case hardening d) None of the above

- Q.6 The objective of annealing is
a) To soften the metal.
b) To relieve internal stresses
c) To refine grain structure
d) All of the above
- Q.7 The heat treatment used for casting is
a) Carburizing b) Normalizing
c) Annealing d) None of the above
- Q.8 Steel with carbonis called hypo eutectoid steel
a) 0.8% b) Above 0.8%
c) Below 0.8% d) None of the above
- Q.9 Pearlite is a combination of
a) Ferrite and iron graphite
b) Ferrite and austenite
c) Ferrite and cementite
d) None of the above
- Q.10 Ferrite containsCarbon .
a) 0% b) 0.8%
c) 2% d) 6.67%

SECTION-B

- Note:** Objective type questions. All questions are compulsory. (10x1=10)
- Q.11 Ledeburite is iron carbide (Fe_3C) that contains 6.67% carbon by weight (True/False)

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- Q.12 Nitriding involves changing the surface composition by diffusion of nitrogen .(True/False)
- Q.13 Electric furnace method is used to produce high grade steel.(True/False)
- Q.14 Scale free hard surface can be achieved by using
- Q.15 Cementite is the carbide of
- Q.16 Furnace temperature can be measured by using
- Q.17 BaCO_3 is used for..... hardening .
- Q.18 Stainless steel is an alloy of
- Q.19 How many components are present in binary phase system ?
- Q.20 The temperature at which the change starts on heating is called.....

SECTION-C

- Note:** Short answer type questions. Attempt any twelve questions out of fifteen questions. (12x5=60)
- Q.21 What is a pig iron ? Give its composition.
- Q.22 Draw the flow diagram of manufacturing of cast iron.
- Q.23 Describe the Bessemer process of steel production . Give its advantages and disadvantages.
- Q.24 Write the difference between stainless steel and carbon steel
- Q.25 Write a short note on cyaniding .

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