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National Testing Agency

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Material Science

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Material Science-1

Section Id :	864351531
Section Number :	1
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Number of Questions to be attempted :	100
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Sub-Section Id :	864351575
Question Shuffling Allowed :	Yes

Question Number : 1 Question Id : 86435110445 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Axial tension acts in which direction?

1. Along axis of specimen
2. Perpendicular to the axis of specimen
3. Transverse direction other than bending direction
4. None of the above

Options :

- 86435134007. 1
- 86435134008. 2
- 86435134009. 3
- 86435134010. 4

Question Number : 2 Question Id : 86435110446 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

What will happen if the alignment of the test specimen in simple tension test is not proper?

1. Machine will exert an axial load on the specimen
2. Machine will exert a torsional load on the specimen
3. Machine will exert a bending load on the specimen
4. Machine will exert no load on the specimen

Options :

- 86435134011. 1
- 86435134012. 2
- 86435134013. 3
- 86435134014. 4

Question Number : 3 Question Id : 86435110447 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

In which grip of simple test specimen, the alignment is dependent on the skill of technician ?

- 1. Pinned
- 2. Serrated
- 3. Threaded
- 4. None of the above

Options :

- 86435134015. 1
- 86435134016. 2
- 86435134017. 3
- 86435134018. 4

Question Number : 4 Question Id : 86435110448 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Ductile material

- 1. has no yielding point
- 2. breaks into pieces
- 3. has strain less than 5% of fracture strain
- 4. can be drawn into wires

Options :

- 86435134019. 1
- 86435134020. 2

86435134021. 3

86435134022. 4

Question Number : 5 Question Id : 86435110449 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

In the stress-strain diagram the stress at point of fracture is ----- the ultimate stress

1. more than
2. Equal to
3. Less than
4. 0.5 times

Options :

86435134023. 1

86435134024. 2

86435134025. 3

86435134026. 4

Question Number : 6 Question Id : 86435110450 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Modulus of toughness depends upon

- A. Yield point
- B. Strain at fracture
- C. Ultimate tensile strength
- D. Any intermediate stress

Choose the **correct** answer from the options given below:

- 1. Only A
- 2. B and C only
- 3. Only B
- 4. Only D

Options :

- 86435134027. 1
- 86435134028. 2
- 86435134029. 3
- 86435134030. 4

Question Number : 7 Question Id : 86435110451 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

The cup and cone type of fracture is observed in

- 1. Ductile materials under tension
- 2. Ductile materials under compression
- 3. Brittle materials under compression
- 4. Brittle materials under tension

Options :

86435134031. 1
86435134032. 2
86435134033. 3
86435134034. 4

Question Number : 8 Question Id : 86435110452 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

True stress at any point in the tension test specimen is

1. ratio of load to original area of cross-section of specimen
2. ratio of load to instantaneous area of cross-section of specimen
3. ratio of original area of cross-section of specimen to load
4. ratio of square of load to original area of cross-section of specimen

Options :

86435134035. 1
86435134036. 2
86435134037. 3
86435134038. 4

Question Number : 9 Question Id : 86435110453 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Modulus of toughness in a ductile material cannot be evaluated because

1. There is no yield point
2. There is no ultimate compressive strength
3. There is no fracture stress
4. Both 1 and 3

Options :

86435134039. 1
86435134040. 2

86435134041. 3

86435134042. 4

Question Number : 10 Question Id : 86435110454 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

The length to diameter ratio of compression specimen has to be chosen carefully. Why?

1. For minimizing the influence of friction
2. For minimizing the influence of buckling
3. For minimizing wear and tear
4. Both 1 and 2

Options :

86435134043. 1

86435134044. 2

86435134045. 3

86435134046. 4

Question Number : 11 Question Id : 86435110455 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Strain rate in static tensile tests are in the range of

1. 0.0001/s
2. 0.000001/s
3. 0.001/s
4. 0.1/s

Options :

86435134047. 1

86435134048. 2

86435134049. 3

86435134050. 4

Question Number : 12 Question Id : 86435110456 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Ultimate tensile strength with strain rate

1. Decreases
2. Increases
3. First increases then decreases
4. Remains constant

Options :

- 86435134051. 1
- 86435134052. 2
- 86435134053. 3
- 86435134054. 4

Question Number : 13 Question Id : 86435110457 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Effect of strain rate on mechanical properties is

1. Less pronounced at elevated temperatures
2. More pronounced at elevated temperatures
3. Negligible at elevated temperatures
4. There is no temperature dependency

Options :

- 86435134055. 1
- 86435134056. 2
- 86435134057. 3
- 86435134058. 4

Question Number : 14 Question Id : 86435110458 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

What happens during brittle fracture of a material?

1. Crack propagates suddenly without any plastic deformation and produces loud retort due to sudden release of energy
2. Crack propagates slowly with plastic deformation and produces loud retort due to sudden release of energy
3. Crack propagates suddenly without any plastic deformation and produces no noise due to gradual release of energy
4. Crack propagates slowly with plastic deformation and produces no noise due to gradual release of energy

Options :

- 86435134059. 1
- 86435134060. 2
- 86435134061. 3
- 86435134062. 4

Question Number : 15 Question Id : 86435110459 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

In impact testing, the measurement criteria is based on

1. Strain
2. Stress
3. Energy absorbed
4. Force applied

Options :

- 86435134063. 1
- 86435134064. 2
- 86435134065. 3

86435134066. 4

Question Number : 16 Question Id : 86435110460 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

In Charpy test the swinging pendulum strikes at

1. Central cross-section but on the opposite side of the notch
2. Eccentric but on the opposite side of the notch
3. Central cross-section but on the same side of the notch
4. Eccentric but on the same side of the notch

Options :

- 86435134067. 1
- 86435134068. 2
- 86435134069. 3
- 86435134070. 4

Question Number : 17 Question Id : 86435110461 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

The mass of the striker or the hammer in Charpy test is concentrated in

1. Horizontal plane
2. Oblique plane at 45 degree to the horizontal
3. Oblique plane at 60 degree to the horizontal
4. Vertical plane

Options :

- 86435134071. 1
- 86435134072. 2
- 86435134073. 3
- 86435134074. 4

Question Number : 18 Question Id : 86435110462 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

The mass of the hammer in Izod test is distributed in

1. Vertical plane
2. Oblique plane at 45° to the horizontal
3. Horizontal plane
4. Oblique plane at 30 degree to the horizontal

Options :

- 86435134075. 1
- 86435134076. 2
- 86435134077. 3
- 86435134078. 4

Question Number : 19 Question Id : 86435110463 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Ductile to brittle transition temperature should be

1. low
2. high
3. Outside the service range of material
4. Both 1 and 3

Options :

- 86435134079. 1
- 86435134080. 2
- 86435134081. 3
- 86435134082. 4

Question Number : 20 Question Id : 86435110464 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Impact toughness is affected by

1. Specimen geometry
2. Grain Size of material
3. Bearing friction
4. All of the above

Options :

- 86435134083. 1
- 86435134084. 2
- 86435134085. 3
- 86435134086. 4

Question Number : 21 Question Id : 86435110465 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

The softest and the hardest material in mho's scale are

1. Gypsum and Calcite
2. Talc and diamond
3. Feldspar and Quartz
4. Fluorite and Cementite

Options :

- 86435134087. 1
- 86435134088. 2
- 86435134089. 3
- 86435134090. 4

Question Number : 22 Question Id : 86435110466 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

Brinell Hardness Number (BHN) unit is

1. N/mm²
2. kg/mm²
3. kgf/mm²
4. kgf/m²

Options :

86435134091. 1
86435134092. 2
86435134093. 3
86435134094. 4

Question Number : 23 Question Id : 86435110467 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Which of the following is not an advantage of Rockwell hardness over Brinell hardness?

1. Can be performed on very small parts in finished or unfinished condition
2. The hardness read from indenting the surface is corrected for curvature
3. The finished surface is not spoilt and unfinished surface does not affect the indentation
4. No measurement of indentation and further calculation are needed

Options :

86435134095. 1
86435134096. 2
86435134097. 3
86435134098. 4

Question Number : 24 Question Id : 86435110468 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

The angle between opposite faces of a Vicker's indenter is

1. 136 degree
2. 68 degree
3. 34 degree
4. 108 degree

Options :

- 86435134099. 1
- 86435134100. 2
- 86435134101. 3
- 86435134102. 4

Question Number : 25 Question Id : 86435110469 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

The pin-cushion shaped indenter impression in Vickers Hardness Number shows

1. Increase in hardness
2. Hardness remains constant
3. Decrease in hardness
4. Initial decrease and then increase in hardness

Options :

- 86435134103. 1
- 86435134104. 2
- 86435134105. 3
- 86435134106. 4

Question Number : 26 Question Id : 86435110470 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

In Knoop hardness test, the shape of indenter is

1. Square
2. Pyramid
3. Circle
4. Rectangle

Options :

86435134107. 1
86435134108. 2
86435134109. 3
86435134110. 4

Question Number : 27 Question Id : 86435110471 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Instrument for measuring dynamic hardness of a material is known as

1. Oscilloscope
2. Shore Scleroscope
3. Stethoscope
4. Seismometer

Options :

86435134111. 1
86435134112. 2
86435134113. 3
86435134114. 4

Question Number : 28 Question Id : 86435110472 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

The simplest type of machine that is used for fatigue test

1. Rotating type
2. Bending type
3. Rotating-bending type
4. Reciprocating type

Options :

- 86435134115. 1
- 86435134116. 2
- 86435134117. 3
- 86435134118. 4

Question Number : 29 Question Id : 86435110473 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

The highest stress level is so chosen that the number of cycles of failure is around

1. 10^5
2. 10^4
3. 10^7
4. 10^6

Options :

- 86435134119. 1
- 86435134120. 2
- 86435134121. 3
- 86435134122. 4

Question Number : 30 Question Id : 86435110474 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

The fatigue tests are rarely continued beyond maximum number of cycles because

1. such long endurance are not common in service and
2. time required for them will be very long
3. Both 1 and 2
4. None of the above

Options :

- 86435134123. 1
- 86435134124. 2
- 86435134125. 3
- 86435134126. 4

Question Number : 31 Question Id : 86435110475 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Fatigue or endurance limit is

1. the stress level below which an infinite number of loading cycles can be applied to a material without causing fatigue failure
2. the stress level below which a finite number of loading cycles can be applied to a material without causing fatigue failure
3. the stress level below which an infinite number of loading cycles can be applied to a material while causing fatigue failure
4. the stress level above which an infinite number of loading cycles can be applied to a material without causing fatigue failure

Options :

- 86435134127. 1
- 86435134128. 2
- 86435134129. 3
- 86435134130. 4

Question Number : 32 Question Id : 86435110476 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

If the stress cycle is pulsating, then

1. fatigue strength is 20% higher than fatigue strength in a rotating-bending machine
2. fatigue strength is 40% higher than fatigue strength in a rotating-bending machine
3. fatigue strength is 40% lower than fatigue strength in a rotating-bending machine
4. fatigue strength is 20% lower than fatigue strength in a rotating-bending machine

Options :

- 86435134131. 1
- 86435134132. 2
- 86435134133. 3
- 86435134134. 4

Question Number : 33 Question Id : 86435110477 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Fatigue crack generally initiates from

1. inside of the material
2. corner edges of the material
3. bottom centre of the material
4. surface of the material

Options :

- 86435134135. 1
- 86435134136. 2
- 86435134137. 3
- 86435134138. 4

Question Number : 34 Question Id : 86435110478 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

The only alloying element that improves fatigue strength of steel

1. Vanadium
2. Titanium
3. Molybednum
4. Nickel

Options :

- 86435134139. 1
- 86435134140. 2
- 86435134141. 3
- 86435134142. 4

Question Number : 35 Question Id : 86435110479 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

The progressive deformation of a material at high temperature under constant stress is termed as

1. Elongation
2. Creep
3. Strain
4. Offset

Options :

- 86435134143. 1
- 86435134144. 2
- 86435134145. 3
- 86435134146. 4

Question Number : 36 Question Id : 86435110480 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

The temperature at which creep becomes appreciable is known as

1. heterogeneous temperature
2. heterologous temperature
3. homologous temperature
4. ambient temperature

Options :

86435134147. 1
86435134148. 2
86435134149. 3
86435134150. 4

Question Number : 37 Question Id : 86435110481 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

The steady state creep is the result of balance between two effects of strain hardening and

1. Yield
2. Permeability
3. Ridging
4. softening due to temperature

Options :

86435134151. 1
86435134152. 2
86435134153. 3
86435134154. 4

Question Number : 38 Question Id : 86435110482 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

In the tertiary zone of creep

1. necking takes place
2. necking does not take place
3. effective stress decreases
4. effective stress remains same

Options :

- 86435134155. 1
- 86435134156. 2
- 86435134157. 3
- 86435134158. 4

Question Number : 39 Question Id : 86435110483 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

For a given temperature and same lapse of time

1. Creep strain will be higher at higher stress level
2. Creep strain will be lower at higher stress level
3. Creep strain will be higher at lower stress level
4. Creep strain does not change

Options :

- 86435134159. 1
- 86435134160. 2
- 86435134161. 3
- 86435134162. 4

Question Number : 40 Question Id : 86435110484 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Ferrous materials are

1. Alloys in which general base element is zinc
2. Alloys in which general base element is iron
3. Alloys in which general base element is copper
4. Alloys in which general base element is tin

Options :

- 86435134163. 1
- 86435134164. 2
- 86435134165. 3
- 86435134166. 4

Question Number : 41 Question Id : 86435110485 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Which of the following is not a principal iron ore?

1. Taconite
2. Alumina
3. Haematite
4. Limonite

Options :

- 86435134167. 1
- 86435134168. 2
- 86435134169. 3
- 86435134170. 4

Question Number : 42 Question Id : 86435110486 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Which gas is produced by coke to reduce iron oxide to iron?

1. Carbon dioxide
2. Nitrogen
3. Sulphur dioxide
4. Carbon monoxide

Options :

86435134171. 1
86435134172. 2
86435134173. 3
86435134174. 4

Question Number : 43 Question Id : 86435110487 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

The furnace employed for iron production is

1. Blast furnace
2. Open Hearth Furnace
3. Electric furnace
4. Basic oxygen furnace

Options :

86435134175. 1
86435134176. 2
86435134177. 3
86435134178. 4

Question Number : 44 Question Id : 86435110488 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Steel making process involves the refining of

1. Cast iron
2. Pig iron
3. Wrought iron
4. Pure iron

Options :

- 86435134179. 1
- 86435134180. 2
- 86435134181. 3
- 86435134182. 4

Question Number : 45 Question Id : 86435110489 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

The quality of steel produced is best in which furnace

1. Electric
2. Open hearth
3. Blast
4. Basic oxygen

Options :

- 86435134183. 1
- 86435134184. 2
- 86435134185. 3
- 86435134186. 4

Question Number : 46 Question Id : 86435110490 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

With decrease in temperature

1. the solubility limit of gases in metal decreases
2. the solubility limit of gases in metal increases
3. the solubility limit of gases in metal remains same
4. the solubility limit of gases in metal is uncertain

Options :

86435134187. 1

86435134188. 2

86435134189. 3

86435134190. 4

Question Number : 47 Question Id : 86435110491 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Semi killed steel has some porosity in the

1. Lower section of the ingot
2. Middle section of the ingot
3. Ingot edges
4. Upper section of the ingot

Options :

86435134191. 1

86435134192. 2

86435134193. 3

86435134194. 4

Question Number : 48 Question Id : 86435110492 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Rimmed steels need to be inspected because

1. Impurities and inclusions tend to segregate towards the surface
2. Impurities and inclusions tend to segregate towards the edges
3. Impurities and inclusions tend to segregate towards the centre
4. None of the above

Options :

86435134195. 1

86435134196. 2

86435134197. 3

86435134198. 4

Question Number : 49 Question Id : 86435110493 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Disadvantages of ingot casting are

- A. It is a continuous process
- B. Time taking process
- C. Piping and microstructural changes present throughout the ingot

1. Only B and C
2. Only A and B
3. Only A
4. Only B

Options :

86435134199. 1

86435134200. 2

86435134201. 3

86435134202. 4

Question Number : 50 Question Id : 86435110494 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

The tensile strength of pure iron is

1. 250 N/mm²
2. 500 N/mm²
3. 750 N/mm²
4. 450 N/mm²

Options :

- 86435134203. 1
- 86435134204. 2
- 86435134205. 3
- 86435134206. 4

Question Number : 51 Question Id : 86435110495 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Plain carbon steel consists of as principle alloying element

1. Sulphur
2. Manganese
3. Carbon
4. Phosphorous

Options :

- 86435134207. 1
- 86435134208. 2
- 86435134209. 3
- 86435134210. 4

Question Number : 52 Question Id : 86435110496 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

Hypoeutectoid steel ideally contains

1. 0.08% to just below 0.83% carbon
2. 0.08% to just above 0.83% carbon
3. 0.12% to just below 0.83% carbon
4. 0.08% to just below 0.6% carbon

Options :

- 86435134211. 1
- 86435134212. 2
- 86435134213. 3
- 86435134214. 4

Question Number : 53 Question Id : 86435110497 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

Solid drawn tubes are made out of

1. Dead mild steel
2. Medium carbon steel
3. Mild steel
4. High carbon steel

Options :

- 86435134215. 1
- 86435134216. 2
- 86435134217. 3
- 86435134218. 4

Question Number : 54 Question Id : 86435110498 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

Medium carbon steel carbon percentage varies from

1. 0.12%-0.2%
2. 0.25%-0.55%
3. 0.55%-0.9%
4. 0.35%-0.45%

Options :

86435134219. 1
86435134220. 2
86435134221. 3
86435134222. 4

Question Number : 55 Question Id : 86435110499 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Usual percentage of carbon in cast iron is

1. 2.3%-4.2%
2. 0.1%-2.1%
3. 0.5%-3%
4. 1%-4%

Options :

86435134223. 1
86435134224. 2
86435134225. 3
86435134226. 4

Question Number : 56 Question Id : 86435110500 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Match **List I** with **List II**

List I	List II
A. α iron	I. b.c.c.
B. γ iron	II. f.c.c.
C. δ iron	III. tetragonal

Choose the **correct** answer from the options given below:

1. A -I , B -III , C -II
2. A -I , B -II , C -III
3. A -III , B -II , C -I
4. A -I , B -II , C -II

Options :

86435134227. 1
86435134228. 2
86435134229. 3
86435134230. 4

Question Number : 57 Question Id : 86435110501 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

The solubility of carbon in austenite and ferrite as per iron-iron carbide diagram are respectively

1. 2.5% and 0.025%
2. 2.5% and 0.08%
3. 2% and 0.1%
4. 2% and 0.025%

Options :

86435134231. 1
86435134232. 2

86435134233. 3

86435134234. 4

Question Number : 58 Question Id : 86435110502 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

At eutectic point carbon percentage is

1. 4.3%
2. 4%
3. 2%
4. 0.83%

Options :

86435134235. 1

86435134236. 2

86435134237. 3

86435134238. 4

Question Number : 59 Question Id : 86435110503 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Drawbacks of iron carbon diagram are

1. It shows equilibrium cooling which is not obtained in practice
2. The influence of alloying elements in steel and cast iron is not represented
3. Both 1 and 2
4. None of the above

Options :

86435134239. 1

86435134240. 2

86435134241. 3

86435134242. 4

Question Number : 60 Question Id : 86435110504 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Which of the following is true?

1. Bainite is softer, weaker and tougher than pearlite
2. Bainite is softer, stronger and tougher than pearlite
3. Bainite is harder, weaker and tougher than pearlite
4. Bainite is harder, stronger and tougher than pearlite

Options :

- 86435134243. 1
- 86435134244. 2
- 86435134245. 3
- 86435134246. 4

Question Number : 61 Question Id : 86435110505 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

The eutectoid reaction takes place at a temperature of

1. 600⁰ C
2. 650⁰ C
3. 800⁰ C
4. 723⁰ C

Options :

- 86435134247. 1
- 86435134248. 2
- 86435134249. 3
- 86435134250. 4

Question Number : 62 Question Id : 86435110506 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

The process of sudden cooling from the upper critical temperature of 910°C by plunging in water or any other medium in the iron carbon diagram is known as

1. Honing
2. Quenching
3. Tempering
4. Annealing

Options :

- 86435134251. 1
- 86435134252. 2
- 86435134253. 3
- 86435134254. 4

Question Number : 63 Question Id : 86435110507 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Which of the following is not a basic type of heat treatment?

1. Normalizing
2. Annealing
3. Polishing
4. Hardening

Options :

- 86435134255. 1
- 86435134256. 2
- 86435134257. 3
- 86435134258. 4

Question Number : 64 Question Id : 86435110508 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

In the annealing process

1. Hypoeutectoid steels are heated above the lower critical temperature while hypereutectoid steels are heated only above the upper critical temperature
2. Hypoeutectoid steels are heated above the upper critical temperature while hypereutectoid steels are heated only above the lower critical temperature
3. Hypoeutectoid steels are not heated at all while hypereutectoid steels are heated only above the lower critical temperature
4. Hypoeutectoid steels are heated above the melting point while hypereutectoid steels are heated only above the lower critical temperature

Options :

- 86435134259. 1
- 86435134260. 2
- 86435134261. 3
- 86435134262. 4

Question Number : 65 Question Id : 86435110509 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Which among the following is not achieved by annealing?

1. Relief of all internal stresses within the metal
2. Production of uniform grain structure within the metal
3. Surface finish
4. Softening of the metal

Options :

- 86435134263. 1
- 86435134264. 2
- 86435134265. 3
- 86435134266. 4

Question Number : 66 Question Id : 86435110510 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

Normalising is mainly used for

1. Mild steel
2. Cast iron
3. High carbon steel
4. Dead mild steel

Options :

86435134267. 1
86435134268. 2
86435134269. 3
86435134270. 4

Question Number : 67 Question Id : 86435110511 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

Finer grains are produced in normalizing because

1. There is more time for grains to grow
2. The grains are of uniform size
3. There is less time for grains to grow
4. The material structure becomes heterogeneous

Options :

86435134271. 1
86435134272. 2
86435134273. 3
86435134274. 4

Question Number : 68 Question Id : 86435110512 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

High carbon steels are quenched in oil

1. To avoid brittleness
2. Since water quenching shall develop cracks in such steels
3. To avoid moisture entering the pores
4. Both 2 and 3

Options :

86435134275. 1

86435134276. 2

86435134277. 3

86435134278. 4

Question Number : 69 Question Id : 86435110513 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Why do the steels with high carbon content harden to a greater depth than steels with lower carbon?

1. Former have higher critical cooling rate
2. Former have lower critical cooling rate
3. Former has lesser residual stresses
4. Former has more residual stresses

Options :

86435134279. 1

86435134280. 2

86435134281. 3

86435134282. 4

Question Number : 70 Question Id : 86435110514 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

In the temperature range of 240°C - 400°C , martensite decomposes into emulsified form of pearlite known as

1. Secondary troosite
2. Primary troosite
3. Cementite
4. Bainite

Options :

- 86435134283. 1
- 86435134284. 2
- 86435134285. 3
- 86435134286. 4

Question Number : 71 Question Id : 86435110515 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

In the temperature range of 600°C - 700°C , a -----type of steel is formed which is more machinable

1. Martensite
2. Austenite
3. Spheroidized
4. Bainite

Options :

- 86435134287. 1
- 86435134288. 2
- 86435134289. 3
- 86435134290. 4

Question Number : 72 Question Id : 86435110516 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

The cracks on the surface in water quenching are produced because

1. Skin of the material cools faster and changes into martensite and the inner core cools slowly and transforms later accompanied by dilation
2. Skin of the material cools slowly and changes into martensite and the inner core cools faster and transforms immediately into martensite
3. Skin of the material and the inner core cool at the same rate
4. Skin of the material tears apart

Options :

- 86435134291. 1
- 86435134292. 2
- 86435134293. 3
- 86435134294. 4

Question Number : 73 Question Id : 86435110517 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

As the transformation temperature in TTT diagram is lowered below the lower critical temperature

1. Nucleation and completion time increases and particulates are coarse
2. Nucleation and completion time increases and particulates are finer
3. Nucleation and completion time decreases and particulates are finer
4. Nucleation and completion time does not vary and particulates remain coarse

Options :

- 86435134295. 1
- 86435134296. 2
- 86435134297. 3
- 86435134298. 4

Question Number : 74 Question Id : 86435110518 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Case hardness is due to

1. Residual compressive stress introduced on the surface by penetration of C and N₂
2. Residual tensile stress introduced on the surface by penetration of C and N₂
3. Residual compressive stress introduced on the surface by penetration of CO and N₂
4. Residual compressive stress introduced on the surface by penetration of Ar and N₂

Options :

86435134299. 1

86435134300. 2

86435134301. 3

86435134302. 4

Question Number : 75 Question Id : 86435110519 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

Identify the continuous furnaces for heat treatment amongst the following

1. Induction heating
2. Box
3. Elevator
4. Pit

Options :

86435134303. 1

86435134304. 2

86435134305. 3

86435134306. 4

Question Number : 76 Question Id : 86435110520 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

Given below are two statements, one is labelled as **Assertion A** and the other is labelled as **Reason R**

Assertion A: If the furnace for heat treatment has atmospheric air , there are a number of disadvantages

Reason R: Nitrogen causes rusting, tarnishing and decarburization

In light of the above statements, choose the **correct** answer from the options given below

1. Both **A** and **R** are true and **R** is the correct explanation of **A**
2. Both **A** and **R** are true but **R** is NOT the correct explanation of **A**
3. **A** is true but **R** is false
4. **A** is false but **R** is true

Options :

- 86435134307. 1
- 86435134308. 2
- 86435134309. 3
- 86435134310. 4

Question Number : 77 Question Id : 86435110521 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Most alloying elements shift eutectoid composition to

1. Higher percentage carbon
2. Dont shift eutectoid composition
3. Lower percentage carbon
4. Higher percentage iron

Options :

- 86435134311. 1
- 86435134312. 2

86435134313. 3

86435134314. 4

Question Number : 78 Question Id : 86435110522 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Cold shortness is

1. the occurrence of ductility in steel at low temperatures
2. the occurrence of blisters in steel at low temperatures
3. shortening of the grain size at low temperatures
4. embrittlement of steel at low temperatures

Options :

86435134315. 1

86435134316. 2

86435134317. 3

86435134318. 4

Question Number : 79 Question Id : 86435110523 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Phosphorous in steel causes

1. Cold shortness
2. Peening
3. Low impact strength
4. Both 1 and 3

Options :

86435134319. 1

86435134320. 2

86435134321. 3

86435134322. 4

Question Number : 80 Question Id : 86435110524 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Stainless steel is corrosion resistant because

1. Protective aluminium oxide layer is formed on the surface that prevents further reaction with steel
2. Protective titanium oxide layer is formed on the surface that prevents further reaction with steel
3. Protective silicon oxide layer is formed on the surface that prevents further reaction with steel
4. Protective chromium oxide layer is formed on the surface that prevents further reaction with steel

Options :

- 86435134323. 1
- 86435134324. 2
- 86435134325. 3
- 86435134326. 4

Question Number : 81 Question Id : 86435110525 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Arrange the following in ascending order of ductility

A. Ferritic SS

B. Austenitic SS

C. Martensitic SS

1. A,B,C

2. A,C,B

3. C,B,A

4. B,A,C

Options :

86435134327. 1

86435134328. 2

86435134329. 3

86435134330. 4

Question Number : 82 Question Id : 86435110526 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Welding is difficult in SS because

1. Chromium has a tendency to separate from solid solution and precipitate in form of carbides at grain boundaries

2. Vanadium has a tendency to separate from solid solution and precipitate in form of carbides at grain boundaries

3. Nickel has a tendency to separate from solid solution and precipitate in form of carbides at grain boundaries

4. None of the above

Options :

86435134331. 1

86435134332. 2

86435134333. 3

86435134334. 4

Question Number : 83 Question Id : 86435110527 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Which among the following has good damping strength?

1. Cast iron
2. Aluminium
3. Wrought iron
4. Glass

Options :

86435134335. 1

86435134336. 2

86435134337. 3

86435134338. 4

Question Number : 84 Question Id : 86435110528 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

The principle ore of aluminium is

1. Alumina
2. Lignite
3. Bauxite
4. Anthracite

Options :

86435134339. 1

86435134340. 2

86435134341. 3

86435134342. 4

Question Number : 85 Question Id : 86435110529 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Which among the following is the simplest method of casting?

1. Sand casting
2. Die casting
3. Permanent mould casting
4. None of the above

Options :

- 86435134343. 1
- 86435134344. 2
- 86435134345. 3
- 86435134346. 4

Question Number : 86 Question Id : 86435110530 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Which of the following elements in aluminium alloys improves fluidity and feeding ability?

1. Magnesium
2. Tin
3. Silicon
4. Zinc

Options :

- 86435134347. 1
- 86435134348. 2
- 86435134349. 3
- 86435134350. 4

Question Number : 87 Question Id : 86435110531 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Which among the following is not a property of aluminium alloy?

1. High density
2. Good machinability, formability and castability
3. Good light reflectivity
4. Non-toxic

Options :

86435134351. 1

86435134352. 2

86435134353. 3

86435134354. 4

Question Number : 88 Question Id : 86435110532 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Age hardening is

- A. Same as precipitation hardening
- B. A type of heat treatment to impart strength to metals and alloys
- C. Makes use of solid impurities or precipitates for the strengthening process

Choose the **correct** answer from the options given below:

1. Both A and B
2. All A, B and C
3. Only A
4. Only C

Options :

86435134355. 1

86435134356. 2

86435134357. 3

86435134358. 4

Question Number : 89 Question Id : 86435110533 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

In ETP copper, ETP stands for

1. Electrolytic tough pitch
2. Electro-thermal pitch
3. Electro-thermal patch
4. Encapsulated titanium patch

Options :

86435134359. 1

86435134360. 2

86435134361. 3

86435134362. 4

Question Number : 90 Question Id : 86435110534 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Brass has a composition of

1. 70% copper and 30% zinc
2. 70% copper and 30% manganese
3. 50% copper and 50% zinc
4. 80% copper and 20% zinc

Options :

86435134363. 1

86435134364. 2

86435134365. 3

86435134366. 4

Question Number : 91 Question Id : 86435110535 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Bearing liners are extensively made of

1. Bronzes
2. Copper lead alloys
3. Babbits
4. Copper-tin alloys

Options :

- 86435134367. 1
- 86435134368. 2
- 86435134369. 3
- 86435134370. 4

Question Number : 92 Question Id : 86435110536 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Which property of babbit is better than bearing bronze?

1. Antifriction
2. Anticorrosive
3. Resilience
4. Strength

Options :

- 86435134371. 1
- 86435134372. 2
- 86435134373. 3
- 86435134374. 4

Question Number : 93 Question Id : 86435110537 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

The thermal conductivity in solid material is not due to

- A. Elastic vibrations of atoms or molecules
- B. Movement of protons
- C. Movement of electrons
- D. Electron jump from one atomic orbit to another

Choose the **correct** answer from the options given below:

- 1. B Only
- 2. B and D only
- 3. A only
- 4. A and C only

Options :

- 86435134375. 1
- 86435134376. 2
- 86435134377. 3
- 86435134378. 4

Question Number : 94 Question Id : 86435110538 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Seizure between surfaces can be prevented by

- 1. use of materials of high elastic limit
- 2. Using no lubrication
- 3. Avoiding use of hard surfacing material
- 4. Use of a non-metal between surfaces

Options :

- 86435134379. 1

86435134380. 2

86435134381. 3

86435134382. 4

Question Number : 95 Question Id : 86435110539 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Options :

86435134383. 1

86435134384. 2

86435134385. 3

86435134386. 4

Question Number : 96 Question Id : 86435110540 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Options :

86435134387. 1

86435134388. 2

86435134389. 3

86435134390. 4

Question Number : 97 Question Id : 86435110541 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Options :

86435134391. 1

86435134392. 2

86435134393. 3

86435134394. 4

Question Number : 98 Question Id : 86435110542 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Options :

86435134395. 1

86435134396. 2

86435134397. 3

86435134398. 4

Question Number : 99 Question Id : 86435110543 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

Options :

86435134399. 1

86435134400. 2

86435134401. 3

86435134402. 4

Question Number : 100 Question Id : 86435110544 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

Options :

86435134403. 1

86435134404. 2

86435134405. 3

86435134406. 4