

CMT Lab (Easy)

- Q n. 01 Blast furnace Charge consists of :
- a Coke, Lime stone & Ferro-Silicon
  - b Iron ore, Ferro-manganese & Coke
  - c Lime stone, Iron Ore & Scrap
  - d Lime stone, Coke & Iron ore

Answer The correct answer is: Lime stone, Coke & Iron ore

- Q n. 02 Binder is the volatile component of paint Select one:
- a True
  - b FALSE

Answer 'False'

- Q n. 03 Which one of the following metal forms porous oxide layer on its surface
- a Fe
  - b Cr
  - c Ag
  - d Cu

Answer Fe

- Q n. 04 Sagging of paint film can be due to :
- a Spray guns kept very near to the application surface
  - b Excess Thinner
  - c Application of paint in humid and low temperature
  - d All the options are correct

Answer All the options are correct

- Q n. 05 Acceptable method of penetrant application
- a Dipping
  - b Spraying
  - c Brushing
  - d All of the above

Answer All of the above

- Q n. 06 The colour of the fluorescent penetrant under the presence of a UV light is
- a Red
  - b Yellow-green
  - c Blue
  - d Green

Answer Yellow-green

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Q n. 07 Materials that are commonly inspected using Liquid Penetrant Testing?

- a Plastics
- b Metals
- c None
- d Both a and b.

Answer Both a and b.

Q n. 8 Which of the following can be magnetized?

- a Iron
- b Nickel
- c None
- d both

Answer both

Q n. 9 Liquid Penetrant testing is based on the principle of

- a Charles's Law
- b Gravitational Law
- c Surface tension
- d Capillary action

Answer Capillary action

Q n. 10 The time period during which Penetrant remains on the surface of the test piece is

- a Dwell Time
- b Soaking time
- c Fixing time
- d Development time

Answer Dwell Time

Q n. 11 Spot welding done in shall shop of MCF is a type of----

- a Fusion welding
- b Resistance welding
- c Forge welding
- d Thermit welding

Answer Resistance welding

Q n. 12 XRF stands for -----

Answer X-ray fluorescence spectroscopy

Q n. 13 Which rays are used for industrial radiography

- a X-Ray & Gamma Ray
- b X-Rays only
- c Gamma Rays only
- d None of above

Answer X-Ray & Gamma Ray

Q n. 14 The function of ampere in a welding process is to provide: Select one

- a Resistance to flow of current in the circuit
- b Pressure for voltage flow
- c Pressure for resistance flow
- d Heat for the welding

Answer Heat for the welding

Q n. 15 The heat (H) generated in resistance spot welding is expressed by:

- a.  $IR^2t$
- b.  $IRt^2$
- c.  $2IRT$
- d.  $I^2Rt$

Answer  $I^2Rt$



Q n. 01 How does the Vickers hardness test differ from Brinell

- a Type of indenter
- b Material to be used
- c Load applied
- d Duration of indentation

Answer Type of indenter

Q n. 2 Which of the following welding process uses non-consumable electrode? Select one:

- a TIG
- b MIG
- c SMAW
- d MAG

Answer TIG

Q n. 3 The shielding gas in the MIG/MAG welding provides: Select one:

- a Protection of filler wire
- b Protection of welder
- c Protection of weld pool
- d Oxidation of weld pool

Answer Protection of weld pool

Q n. 4 Which of the following NDT methods can be used for detection of defects on the painted surface of certain paint thickness

- a None of these
- b MPT
- c Impact Test
- d DPT

Answer MPT

Q n. 5 Which of the following is true about Magnetic Particle Testing

- a This method can detect sub surface discontinuities
- b The defect should not be in line with the magnetic lines of force
- c The cluster of iron ink at the location of defect is due to creation of localized magnetic field having opposing polarity to applied magnetic field
- d All the options are correct

Answer All the options are correct

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- Q n. 6 Which of the following types of currents used for MPT can be used for testing large components
- a None of the options are correct
  - b Alternating Current
  - c Three Phase full wave rectified DC
  - d Single Phase Half wave rectified AC

Answer Three Phase full wave rectified DC

- Q n. 7 The Higher the Gloss value of Paint:
- a Less will be the pigment content & % volume of solids
  - b All the options are correct
  - c Higher will the dried film thickness
  - d More is the % volume of Solids

Answer Less will be the pigment content & % volume of solids

- Q n. 8 An water based emulsifier is called
- a Hydrophobic
  - b Fluoroscopic
  - c Lipophilic
  - d Hydrophilic

Answer Hydrophilic

- Q n. 9 Ambient temperature for the storage of rubber should be:
- a 80 degree C
  - b 30 degree C
  - c 10 degree C
  - d minus 30 degree C ( -30 °C)

Answer 30 degree C

- Q n. 10 Rites inspected material failed in M&C testing, then which of the following parties will be present in joint inspection:
- a M&C, Rites, Store, consignee
  - b Consignee, Store, Firm, M&C
  - c RITES, M&C, Firm & Store
  - d Rites, Stores, firm, consignee



Answer RITES, M&C, Firm & Store

- Q n. 11 Which of the following are properties is impact strength indicative?
- a Tensile strength
  - b Hardness
  - c Toughness
  - d Stiffness

Answer Toughness

- Q n. 12 Viscosity measured by Ford cup viscometer of paint A and B is 60 seconds and 100 seconds
- a Paint A is having higher viscosity
  - b Paint B is having higher viscosity
  - c Comparative Viscosity can only be calculated in taking account of volume used of paint during testing with time
  - d Comparative viscosity is only dependent on volume used of paint during testing

Answer Paint B is having higher viscosity

- Q n. 13 Up to which point will a steel body regain its original shape?
- a yield point
  - b elastic limit
  - c Fracture limit
  - d ultimate tensile strength point

Answer elastic limit

- Q n. 14 Rockwell test utilizes----- a measure of hardness.
- a Load
  - b Depth of indentation
  - c Diameter of indentation
  - d Time of loading

Answer Depth of indentation

- Q n. 15 The Indian railway cast steel wheels are manufactured using:
- a Pressure casting process

- b Die casting process
- c Continuous casting process
- d sand casting process

Answer Pressure casting **process**

## CMT Lab (tough)

- Q n. 1 Cementite Content in plain carbon steels Select one:
- a Is Independent of Carbon Content
  - b Will depend upon the amount of ferrite in steel
  - c Will decrease with increase in carbon content
  - d Will increase with increase in carbon content

Answer Will increase with increase in carbon content

- Q n. 2 Coarse Grain Structure
- a None of the options are correct
  - b Forms upon slow rate of cooling at high temperature of transformation
  - c is formed at high degree of supercooling
  - d Forms at low temperature of transformation

Answer Forms upon slow rate of cooling at high temperature of transformation

- Q n. 3 Formation of Martensite in Steels
- a Depends upon the Critical Cooling Rate
  - b starts at a temperature which depends upon the composition of steel
  - c is an athermal process
  - d All the options are correct

Answer All the options are correct

- Q n. 4 Which of the following quenching medium has got fastest quenching action:
- a Polyethylene Glycol
  - b All the options are correct
  - c Water at RT
  - d 5-10 % Brine Solution

Answer 5-10 % Brine Solution

- Q n. 5 The C&M department of IR acts as a Quality control department, mostly, at RDSO while at Zonal Railways it is a quality assurance department: Select one :
- a True
  - b FALSE

Answer 'False'.

- Q n. 6 The cause of gas cavity in weld is:

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- a Damp electrode
- b Poor weld pool shielding
- c Solidification rate is fast
- d All the above

Answer All the above

- Q n. 7 Lack of penetration is due to:
- a Low heat input
  - b Root gap too small
  - c Use of larger diameter electrode
  - d All the above

Answer All the above

- Q n. 8 Crater cracks occur due to:
- a Improper current
  - b Improper break of arc
  - c Improper use of electrode
  - d Improper use of base metal

Answer Improper break of arc

- Q9. Stainless steel used in manufacturing of Side wall of LHB coaches MCF Build is:-
- a. 409 M
  - b 304
  - c ST52.3
  - d 316

Answer a. 409M

- Q10. Which is not a stainless steel grade:-
- a. 304
  - b. 316
  - c. S355J2W+N
  - d. 409M

Answer c. **S355J2W+N**

- Q11. Weather resistance steel used in manufacturing of Bogie frame of LHB coaches MCF Build is:-
- a. S355J2W+N
  - b. S355J2G3

- c. ST52.3
- d. 316

Answer **a. S355J2W+N**

Q12. Material of control arm support used in manufacturing of Bogie frame of LHB coaches MCF Build

- a. 409M
- b. S355J2G3**
- c. 304
- d. 316

Answer **b. S355J2G3**

Q n. 13 Which is not a Heat treatment process?

- a Quenching
- b Carburizing
- c Phosphating
- d Normalising

Answer Phosphating

Q n. 14 The liquid pig iron from blast furnace is transferred to converter for producing steel. The conversion of liquid pig iron into steel takes place by

- a Oxygen lance and alloy addition
- b Argon lance and alloy addition
- c Nitrogen lance and alloy addition
- d Inert gas lance and alloy addition

Answer Oxygen lance and alloy addition

Q n. 15 During the sample testing, an inherent defect was observed in the sample. In such situation

- a Repeat testing will be carried out
- b Only the sample will be discarded and no testing required
- c Retesting will be carried out
- d The record will be kept & no other action required

Answer Repeat testing will be carried out

1. The largest consumer sector of steel is:

- a. Machinery & equipment
- b. Construction
- c. Energy
- d. Automotive

Ans. Construction

2. The highest resources of iron ore is found in:

- a. China
- b. Brazil
- c. India
- d. Australia

Ans. Australia

3. The second largest crude steel producer in the world is:

- a. Japan
- b. China
- c. USA
- d. India

Ans India

4. Which of the following wagons is the longest:

- a. BCNA
- b. BCNHL
- c. BOXN
- d. BCN

Ans BCN

5. What type of current is used for plasma arc cutting:

- a. DC
- b. High Frequency Current
- c. AC
- d. Low frequency current

Ans. DC

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