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Participant Id	
Participant Name	
Test Center Name	
Test Date	21/06/2023
Test Time	12:30 PM - 2:00 PM
Subject	Scientist Engineer SC Mechanical

Section : Scientist Engineer SC Mechanical

Q.1

The temperature at which ferromagnetic alpha iron transforms to paramagnetic alpha iron is

- a) 770°C
b) 910°C
c) 1050°C
d) Below recrystallization temperature

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Ans A. a
 B. b
 C. c
 D. d

Question ID : 2141272511
Status : Answered
Chosen Option : B

Q.2

A helical spring has spring constant k . If the wire diameter, spring diameter, and the number of coils are doubled, then the spring constant of new spring becomes _____

- a) $k/2$
b) k
c) $8k$
d) $16k$

Ans A. a
 B. b
 C. c
 D. d

Question ID : 2141272485
Status : Answered
Chosen Option : B

Q.3

Which management tool is called as a top down approach in hazard analysis?

- (a) Event Tree analysis
- (b) Fault Tree analysis
- (c) Job Safety analysis
- (d) What If analysis

- Ans
- A. a
 - B. b
 - C. c
 - D. d

Question ID : 2141272532

Status : Not Answered

Chosen Option : --

Q.4

let $\phi(x, y)$ be a scalar potential function $0 \leq x \leq 1$ and $0 \leq y \leq 1$ and let \vec{F} be the gradient of $\phi(x, y)$. The curl of \vec{F} at $x = 0, y = 0$ will be _____

- a) Maximum
- b) Minimum
- c) Zero
- d) Not defined

- Ans
- A. a
 - B. b
 - C. c
 - D. d

Question ID : 2141272467

Status : Answered

Chosen Option : C

Q.5

Two bodies of same size, shape and material are coated with materials having different emissivity. Initially both are at same temperature and suddenly exposed to vacuum and surrounding temperature is lower than the bodies temperature. Which body cools faster?

- a) Body coated with high emissivity
- b) Body coated with low emissivity
- c) Both the bodies will cool at the same rate
- d) None of the above

Ans A. a
 B. b
 C. c
 D. d

Question ID : 2141272498
Status : Answered
Chosen Option : A

Q.6

A mass 'm' is attached to a light spring oscillates with a period of 4 seconds. If the mass is increased by 3 kg, the period of oscillation increases by 2 seconds. The value of 'm' is ____

- a) 1.8 kg
- b) 1 kg
- c) 1.2 kg
- d) 2.4 kg

Ans A. a
 B. b
 C. c
 D. d

Question ID : 2141272484
Status : Answered
Chosen Option : D

Q.7

Chills are used in casting moulds to

- a) Achieve directional solidification
- b) Reduce possibility of blow holes
- c) Reduce the freezing time
- d) Increase the smoothness of cast surface

Ans A. a
 B. b
 C. c
 D. d

Question ID : 2141272525
Status : Answered
Chosen Option : A

Q.8

When 3-2-1 principle is used to support and locate a three dimensional work-piece during machining, the number of degrees of freedom that are restricted is

- a) 7
- b) 8
- c) 9
- d) 10

Ans A. a
 B. b
 C. c
 D. d

Question ID : 2141272520
Status : Answered
Chosen Option : C

Q.9

A black body at 2000 K has maximum spectral emissive power approximately at what wavelength

(Wien's displacement constant $b = 2.9 \times 10^{-3} \text{ m-K}$)

- a) 2.9 μm
- b) 5.8 μm
- c) 1.45 μm
- d) 145 μm

Ans A. a
 B. b
 C. c
 D. d

Question ID : 2141272499
Status : Answered
Chosen Option : C

Q.10

The effect of setting a boring tool above centre height leads to

- a) Increase in the effective rake angle and a decrease in the effective clearance angle
- b) Increase in both effective rake angle and effective clearance angle
- c) Decrease in the effective rake angle and an increase in the effective clearance angle
- d) Decrease in both effective rake angle and effective clearance angle

Ans A. a
 B. b
 C. c
 D. d

Question ID : 2141272522
Status : Answered
Chosen Option : C

Q.11

A black body at 127 °C emits energy at the rate of $10^6 \text{ J/m}^2 \text{ s}$. At what temperature of black body, the rate of energy emission is $16 \times 10^6 \text{ J/m}^2 \text{ s}$?

- a) 254 °C
- b) 527 °C
- c) 400 °C
- d) 800 °C

Ans A. a
 B. b
 C. c
 D. d

Question ID : 2141272501
Status : Answered
Chosen Option : B

Q.12

A Jet of water issues from a nozzle with a velocity of 20 m/s and it impinges normally on a flat plate moving away from it at a velocity of 10 m/s. If cross sectional area of the jet is 0.02 m² and density of water is taken as 1000 kg/m³, then force developed on the plate will be _____

- a) 10 N
- b) 100 N
- c) 1000 N
- d) 2000 N

Ans A. a
 B. b
 C. c
 D. d

Question ID : 2141272495
Status : Answered
Chosen Option : D

Q.13

The angle of projection at which the horizontal range is four times the maximum height of a projectile

- a) 36°
- b) 45°
- c) 56°
- d) 76°

Ans A. a
 B. b
 C. c
 D. d

Question ID : 2141272472
Status : Answered
Chosen Option : B

Q.14

A circular plate of diameter d is submerged in a water vertically, so that the topmost point is just at water surface. The centre of pressure on the plate will be below the water surface at a depth of __

- a) $5d/8$
- b) $11d/16$
- c) $2d/3$
- d) $3d/4$

Ans A. a
 B. b
 C. c
 D. d

Question ID : 2141272494
Status : Answered
Chosen Option : D

Q.15

The tangential velocity of the water element having a free vortex is

- a) Directly proportional to its distance from the centre
- b) Inversely proportional to its distance from the centre
- c) Directly proportional to square of its distance from the centre
- d) Inversely proportional to square of its distance from the centre

Ans A. a
 B. b
 C. c
 D. d

Question ID : 2141272489
Status : Answered
Chosen Option : A

Q.16

Rankine theory of failure is applicable for which of the following type of materials

- a) Ductile
- b) Brittle
- c) Plastic
- d) Tough

Ans A. a
 B. b
 C. c
 D. d

Question ID : 2141272482
Status : Answered
Chosen Option : A

Q.17

Mild Steel belongs to the following category

- a) Alloy Steel
- b) Low carbon steel
- c) Medium carbon steel
- d) High carbon steel

Ans A. a
 B. b
 C. c
 D. d

Question ID : 2141272515
Status : Answered
Chosen Option : B

Q.18

The probabilistic time is given by _____ (where t_o = Optimistic time, t_p = Pessimistic time, and t_n = Most likely time)

- a) $(t_o + t_p + t_n)/3$
- b) $(t_o + 2t_p + t_n)/4$
- c) $(t_o + 4t_p + t_n)/6$
- d) $(t_o + t_p + 4t_n)/6$

Ans A. a
 B. b
 C. c
 D. d

Question ID : 2141272531
Status : Answered
Chosen Option : D

Q.19

Bronze is an alloy of

- a) Copper and zinc
- b) Copper and tin
- c) Copper, tin and zinc
- d) None of these

Ans A. a
 B. b
 C. c
 D. d

Question ID : 2141272512
Status : Answered
Chosen Option : B

Q.20

A simply supported beam of span 4.0 m has a cross section 200 mm (width) x 300 mm (depth). If the maximum permissible bending stress in the material of beam is 20 N/m^2 , what will be the maximum uniformly distributed load it can carry?

- a) 60 kN/m
- b) 300 kN/m
- c) 150 kN/m
- d) 30 kN/m

Ans A. a
 B. b
 C. c
 D. d

Question ID : 2141272476
Status : Answered
Chosen Option : C

Q.21

For fully saturated air

- a) Dry bulb and wet bulb temperature are equal
- b) Dry bulb temperature is greater than wet bulb temperature
- c) Wet bulb temperature is greater than dry bulb temperature
- d) None

Ans A. a
 B. b
 C. c
 D. d

Question ID : 2141272506
Status : Answered
Chosen Option : A

Q.22

The lower critical temperature

- a) Decreases as the carbon content in steel increases
- b) Increases as the carbon content in steel increases
- c) Is same for all steels
- d) Depends upon the rate of heating

Ans A. a
 B. b
 C. c
 D. d

Question ID : 2141272510
Status : Answered
Chosen Option : B

Q.23

Internal gears can be made by

- a) Shaping with rack cutter
- b) Shaping with pinion cutter
- c) Milling
- d) Hobbing

Ans A. a
 B. b
 C. c
 D. d

Question ID : 2141272540
Status : Answered
Chosen Option : B

Q.24

The length, Young's modulus and coefficient of thermal expansion of bar P are twice that of bar Q. Both the bars' ends are rigidly fixed. What will be the ratio of stress developed in bar P to that in bar Q if the temperature of both bars is increased by the same amount?

- a) 2
- b) 4
- c) 8
- d) 16

Ans A. a
 B. b
 C. c
 D. d

Question ID : 2141272478
Status : Answered
Chosen Option : C

Q.25

Trepanning is an operation of _____

- a) Making a cone-shaped enlargement of the end of a hole
- b) Smoothing and squaring the surface around a hole
- c) Sizing and finishing a small diameter hole
- d) Producing a hole by removing metal along the circumference of a hollow cutting tool

- Ans
- A. a
 - B. b
 - C. c
 - D. d

Question ID : 2141272523
Status : Answered
Chosen Option : D

Q.26

According to Indian standard specifications, SG 400/15 means

- a) Spheroidal graphite cast iron with B.H.N. 400 and minimum tensile strength 15 MPa
- b) Spheroidal graphite cast iron with minimum tensile strength 400 MPa and 15 percent elongation
- c) Spheroidal graphite cast iron with minimum compressive strength 400 MPa and 15 percent reduction in area
- d) None of the above

- Ans
- A. a
 - B. b
 - C. c
 - D. d

Question ID : 2141272513
Status : Answered
Chosen Option : B

Q.27

The angular speed of a car taking a circular turn of radius 100 m at 36 km/hr will be

- a) 0.1 rad/sec
- b) 1 rad/sec
- c) 10 rad/sec
- d) 100 rad/sec

Ans A. a
 B. b
 C. c
 D. d

Question ID : 2141272473
Status : Answered
Chosen Option : C

Q.28

Closed packed hexagonal space lattice is found in

- a) Zinc, magnesium, cobalt, cadmium, antimony and bismuth
- b) Gamma-iron, aluminium, copper, lead, silver and nickel
- c) Alpha-iron, tungsten, chromium and molybdenum
- d) None of the above

Ans A. a
 B. b
 C. c
 D. d

Question ID : 2141272508
Status : Answered
Chosen Option : A

Q.29

Thermal diffusivity gives the _____

- a) Ability of a material to conduct thermal energy
- b) Ability of a material to emit thermal energy
- c) Ability of a material to conduct thermal energy relative to its ability to store thermal energy
- d) Ability of a material to conduct and radiate thermal energy

Ans A. a
 B. b
 C. c
 D. d

Question ID : 2141272497
Status : Answered
Chosen Option : C

Q.30

What is grey surface in radiation heat transfer?

- a) A surface which appears grey in colour
- b) A surface whose optical properties are independent of temperature
- c) A surface whose optical properties are independent of direction
- d) A surface whose optical properties are independent of wavelength

- Ans
- A. a
 - B. b
 - C. c
 - D. d

Question ID : 2141272500

Status : Answered

Chosen Option : D

Q.31

The purpose of a riser is to

- a) Deliver the molten metal from pouring basin to gate
- b) Feed the molten metal to the casting in order to compensate for the shrinkage
- c) Reduce the rate of solidification
- d) Increase the rate of solidification

- Ans
- A. a
 - B. b
 - C. c
 - D. d

Question ID : 2141272527

Status : Answered

Chosen Option : B

Q.32

A square steel bar of 10mm side and 5m length is subjected to an axial load whereupon it absorbs a strain energy of 100 J till elastic limit. What is its modulus of resilience?

- a) 1/5 N-mm/mm³
- b) 25 N-mm/mm³
- c) 1/25 N-mm/mm³
- d) 5 N-mm/mm³

Ans A. a
 B. b
 C. c
 D. d

Question ID : 2141272479
Status : Answered
Chosen Option : A

Q.33

In sand moulding the bottom most part of the flask is called.....

- a) Cope
- b) Check
- c) Drag
- d) Flask bottom

Ans A. a
 B. b
 C. c
 D. d

Question ID : 2141272521
Status : Answered
Chosen Option : C

Q.34

Given 2 X 2 matrix, $A = \begin{bmatrix} 1 & 2 \\ 5 & 3 \end{bmatrix}$ find its inverse A^{-1}

- a) $\begin{bmatrix} 1 & 5 \\ 2 & 3 \end{bmatrix}$
- b) $\frac{1}{7} \begin{bmatrix} -3 & -2 \\ 5 & -1 \end{bmatrix}$
- c) $-\frac{1}{13} \begin{bmatrix} 3 & -2 \\ -5 & 1 \end{bmatrix}$
- d) $\frac{1}{7} \begin{bmatrix} -3 & 2 \\ 5 & -1 \end{bmatrix}$

Ans A. a
 B. b
 C. c
 D. d

Question ID : 2141272463
Status : Answered
Chosen Option : D

Q.35

For a reversible adiabatic process, entropy _____

- a) Does not change
- b) Increases
- c) Decreases
- d) Can't say

Ans A. a
 B. b
 C. c
 D. d

Question ID : 2141272504
Status : Answered
Chosen Option : A

Q.36

Law of conservation of energy is given by

- a) Zeroth law of thermodynamics
- b) Stefan Boltzmann law
- c) First law of thermodynamics
- d) Second law of thermodynamics

Ans A. a
 B. b
 C. c
 D. d

Question ID : 2141272503
Status : Answered
Chosen Option : C

Q.37

Which one of the following processes is performed in powder metallurgy to produce self-lubricating properties in sintered parts?

- a) Infiltration
- b) Impregnation
- c) Plating
- d) Graphitization

Ans A. a
 B. b
 C. c
 D. d

Question ID : 2141272526
Status : Answered
Chosen Option : A

Q.38

What is Chemical name of FM 200 Fire Suppression agent?

- a) Penta Fluoro Ethane
- b) Hepta Fluoro Propane
- c) Chloro Difluoro Methane
- d) Chloro Tetra Fluoro Ethane

Ans A. a
 B. b
 C. c
 D. d

Question ID : 2141272533
Status : Not Answered
Chosen Option : --

Q.39

A 50 kg boy climbs up a 8 m rope in gymnasium in 10 sec. The average power developed by the boy is approximately _____. Take gravitational acceleration $g = 10 \text{ m/s}^2$

- a) 400 W
- b) 40 W
- c) 4000 W
- d) None of these

Ans A. a
 B. b
 C. c
 D. d

Question ID : 2141272474
Status : Answered
Chosen Option : A

Q.40

The relation between bulk modulus and modulus of elasticity is given by

- a) $E = 3K / (1+2\mu)$
- b) $E = 3K (1+2\mu)$
- c) $E = 3K / (1-2\mu)$
- d) $E = 3K (1-2\mu)$

Ans A. a
 B. b
 C. c
 D. d

Question ID : 2141272535
Status : Answered
Chosen Option : D

Q.41

The equation of free vibration of a system is given by $\ddot{x} + 64\pi^2x = 0$. It's natural frequency will be _____

- a) 1 Hz
- b) 2 Hz
- c) 4 Hz
- d) 8Hz

Ans A. a
 B. b
 C. c
 D. d

Question ID : 2141272487
Status : Answered
Chosen Option : C

Q.42

What is the type of following partial differential equation

$$7u_{xx} + 2u_{xy} + \frac{1}{2}u_{yy} = F(x, y, u, u_x, u_y)$$

- a) Elliptic
- b) Parabolic
- c) Hyperbolic
- d) Trigonometric

Ans A. a
 B. b
 C. c
 D. d

Question ID : 2141272468
Status : Not Answered
Chosen Option : --

Q.43

Two forces act an angle of 120° . If the greater force is 50 kg and their resultant is perpendicular to the smaller force, the smaller force is

- a) 20 kg
- b) 25 kg
- c) 30 kg
- d) 35 kg

Ans A. a
 B. b
 C. c
 D. d

Question ID : 2141272470
Status : Answered
Chosen Option : B

Q.44

Slow plastic deformation of metals under a constant stress is known as

- a) Creep
- b) Fatigue
- c) Endurance
- d) Plastic deformation

Ans A. a
 B. b
 C. c
 D. d

Question ID : 2141272509
Status : Answered
Chosen Option : A

Q.45

A Centrifugal pump used to lift water against static head of 40 m. The loss of head in suction pipe, delivery pipe and inside the pump is 10m. The speed of pump is 1400 rpm. The discharge rate of water is 30 litre/sec. If the efficiency of pump is 75%, power required at pump shaft is _____

Note: Take value of g as 10 m/sec²

- a) 20 kW
- b) 200 kW
- c) 2000 kW
- d) 40 kW

Ans A. a
 B. b
 C. c
 D. d

Question ID : 2141272493

Status : Answered

Chosen Option : A

Q.46

Given the Laplace transform $\mathcal{L}(f) = \frac{1}{s(s^2 + \omega^2)}$, find the function of $f(t)$.

- a) $\omega^2(1 - \cos \omega t)$
- b) $\omega^2(1 + \cos \omega t)$
- c) $\frac{1}{\omega^2}(1 - \sin \omega t)$
- d) $\frac{1}{\omega^2}(1 - \cos \omega t)$

Ans A. a
 B. b
 C. c
 D. d

Question ID : 2141272465

Status : Not Answered

Chosen Option : --

Q.47

If the angular distance, $\theta = 2t^3 - 3t^2$, the angular acceleration at $t = 1$ sec.

is _____

- a) 1 rad/sec²
- b) 4 rad/sec²
- c) 6 rad/sec²
- d) 12 rad/sec²

Ans A. a
 B. b
 C. c
 D. d

Question ID : 2141272471
Status : Answered
Chosen Option : C

Q.48

Air standard Otto cycle consists of

- a) Two constant pressure processes, two constant volume processes
- b) Two constant pressure processes, two constant temperature processes
- c) Two constant temperature processes, two isentropic processes
- d) Two constant volume processes, two isentropic processes

Ans A. a
 B. b
 C. c
 D. d

Question ID : 2141272505
Status : Answered
Chosen Option : D

Q.49

The unit of dynamic viscosity of fluid is _____

- a) m²/sec
- b) N.sec/m²
- c) Pa.sec/m²
- d) kg.sec²/m²

Ans A. a
 B. b
 C. c
 D. d

Question ID : 2141272492
Status : Answered
Chosen Option : B

Q.50

A large Reynold number is indication of _____

- a) Smooth and streamline flow
- b) Laminar flow
- c) Steady flow
- d) Highly turbulent flow

- Ans A. a
 B. b
 C. c
 D. d

Question ID : 2141272491
Status : Answered
Chosen Option : D

Q.51

A simple pendulum of length 8 m, with a bob of mass 3 kg is undergoing a simple harmonic motion. Bob has a speed of 10 m/s at mean position.

The net force on the bob at mean position is _____

- a) 3 N
- b) Zero
- c) 30 N
- d) 1N

- Ans A. a
 B. b
 C. c
 D. d

Question ID : 2141272486
Status : Answered
Chosen Option : B

Q.52

Head loss in sudden expansion from 8 cm diameter to 16 cm diameter pipe

in terms of velocity V_1 in smaller pipe is _____

- a) $\frac{1}{4}(V_1^2/2g)$
- b) $\frac{3}{16}(V_1^2/2g)$
- c) $\frac{1}{64}(V_1^2/2g)$
- d) $\frac{9}{16}(V_1^2/2g)$

- Ans A. a
 B. b
 C. c
 D. d

Question ID : 2141272496
Status : Answered
Chosen Option : D

Q.53

Which point on the stress strain curve of mild steel occurs immediately after the proportionality limit?

- a) Upper yield point
- b) Lower yield point
- c) Elastic limit
- d) Ultimate point

Ans A. a
 B. b
 C. c
 D. d

Question ID : 2141272477
Status : Answered
Chosen Option : C

Q.54

Solve the following initial value problem

$$3x^2ydx + 2x^3dy = 0, \quad y(1) = 3$$

- a) $y = \frac{3}{\sqrt[3]{x^2}}$
- b) $y = \frac{1}{\sqrt[2]{x^3}} + 3$
- c) $x^3y^2 = 9$
- d) $x^3y^2 = 3$

Ans A. a
 B. b
 C. c
 D. d

Question ID : 2141272461
Status : Answered
Chosen Option : C

Q.55

A punching press is driven by a constant torque electric motor. The pressure provided with a flywheel that rotates at a maximum speed of 250 rpm. It punches 900 holes per hour. Each operation takes 3 seconds and requires 20 KN-m of energy, then the power of the motor is _____

(Take efficiency = 100 %)

- a) 20 kW
- b) 5 kW
- c) 2.7 kW
- d) 3.1 kW

Ans A. a
 B. b
 C. c
 D. d

Question ID : 2141272466
Status : Answered
Chosen Option : B

Q.56

The determinant of element stiffness matrix is always _____

- a) One
- b) Zero
- c) Depends on size of stiffness matrix K
- d) Two

Ans A. a
 B. b
 C. c
 D. d

Question ID : 2141272537
Status : Not Answered
Chosen Option : --

Q.57

Which of the following materials has highest thermal conductivity

- a) Copper
- b) Silver
- c) Gold
- d) Diamond

Ans A. a
 B. b
 C. c
 D. d

Question ID : 2141272517

Status : Answered

Chosen Option : D

Q.58

If an unbiased coin is tossed five times, the probability of getting exactly four heads is

- a) $5/32$
- b) $1/8$
- c) $1/32$
- d) $3/26$

Ans A. a
 B. b
 C. c
 D. d

Question ID : 2141272469

Status : Answered

Chosen Option : A

Q.59

Find b such that $f(x)$ given below is Continuous.

$$f(x) = \begin{cases} 2x^2 + b & x \geq -1 \\ -x^3 & x < -1 \end{cases}$$

- a) -1
- b) 0
- c) 1
- d) $\frac{1}{2}$

Ans A. a
 B. b
 C. c
 D. d

Question ID : 2141272464
Status : Answered
Chosen Option : A

Q.60

Which of the following is a source of Ionizing Radiation ?

- a) Micro waves
- b) Radio waves
- c) Infrared Rays
- d) Gamma Rays

Ans A. a
 B. b
 C. c
 D. d

Question ID : 2141272534
Status : Answered
Chosen Option : D

Q.61

Water is used to extinguish which class of fire

- a) Class A
- b) Class B
- c) Class C
- d) All of above

Ans A. a
 B. b
 C. c
 D. d

Question ID : 2141272529
Status : Answered
Chosen Option : A

Q.62

The ability of a material to resist softening at high temperature is known as

- a) Creep
- b) Hot tempering
- c) Hot Hardness
- d) Super hardening

Ans A. a
 B. b
 C. c
 D. d

Question ID : 2141272514
Status : Answered
Chosen Option : C

Q.63

During the torsional vibration of a shaft, the node is characterized by the

- a) Maximum angular velocity
- b) Maximum angular displacement
- c) Maximum angular acceleration
- d) Zero angular displacement

Ans A. a
 B. b
 C. c
 D. d

Question ID : 2141272481
Status : Answered
Chosen Option : D

Q.64

A thermodynamic system undergoes

- a) Changes in pressure
- b) Changes in volume
- c) Changes in internal energy
- d) All of the above

- Ans
- A. a
 - B. b
 - C. c
 - D. d

Question ID : 2141272502
Status : Answered
Chosen Option : D

Q.65

It is required to cut screw threads of 2 mm pitch on a lathe. The lead screw has a pitch of 6 mm. If the spindle speed is 60 RPM, then the speed of lead screw will be _____ (RPM= Revolution Per Minute)

- a) 10 RPM
- b) 20 RPM
- c) 120 RPM
- d) 180 RPM

- Ans
- A. a
 - B. b
 - C. c
 - D. d

Question ID : 2141272518
Status : Answered
Chosen Option : B

Q.66

Materials with following crystal lattice are most ductile

- a) Body Centered Cubic
- b) Face Centered cubic
- c) Hexagonal Close Pack
- d) None of the above

- Ans
- A. a
 - B. b
 - C. c
 - D. d

Question ID : 2141272516
Status : Answered
Chosen Option : B

Q.67

In annealing, hypo eutectoid steel is

- a) Heated from 30°C to 50°C above the upper critical temperature and then cooled in still air
- b) Heated from 30°C to 50°C above the upper critical temperature and then cooled suddenly in a suitable cooling medium
- c) Heated from 30°C to 50°C above the upper critical temperature and then cooled slowly in the furnace
- d) Heated below the lower critical temperature and then cooled slowly

- Ans
- A. a
 - B. b
 - C. c
 - D. d

Question ID : 2141272507
Status : Answered
Chosen Option : C

Q.68

In FEM, Sum of all the shape functions at any point within an element is equal to _____

- a) Zero
- b) -1
- c) +1
- d) 2

- Ans
- A. a
 - B. b
 - C. c
 - D. d

Question ID : 2141272536
Status : Not Answered
Chosen Option : --

Q.69

If L is number of links in a mechanism, then the number of possible inversions would be _____

- a) L
- b) L/2
- c) L + 2
- d) L + 1

Ans A. a
 B. b
 C. c
 D. d

Question ID : 2141272480
Status : Answered
Chosen Option : A

Q.70

The magnitude of water hammer depends upon the

- a) Elastic properties of the pipe material
- b) Elastic properties of the liquid flowing through the pipe
- c) Speed at which the valve is closed
- d) All of the above

Ans A. a
 B. b
 C. c
 D. d

Question ID : 2141272490
Status : Answered
Chosen Option : D

Q.71

In a CNC program block "N10 G02 G91 X52 Y100", G02 represents

- a) Linear Interpolation
- b) Clockwise Circular Interpolation
- c) Anticlockwise Circular Interpolation
- d) None of the above

Ans A. a
 B. b
 C. c
 D. d

Question ID : 2141272539
Status : Answered
Chosen Option : C

Q.72

Fire of Combustible metals such as magnesium, titanium, sodium, lithium, etc. belongs to which class of fire

- a) Class A
- b) Class B
- c) Class C
- d) Class D

Ans A. a
 B. b
 C. c
 D. d

Question ID : 2141272528
Status : Answered
Chosen Option : C

Q.73

In order to have interference fit, it is essential that the lower limit of the shaft should be

- a) Greater than the upper limit of the hole
- b) Lesser than the upper limit of the hole
- c) Greater than the lower limit of the hole
- d) Lesser than the lower limit of the hole

Ans A. a
 B. b
 C. c
 D. d

Question ID : 2141272519
Status : Answered
Chosen Option : A

Q.74

For a circular shaft of diameter d subjected to torque T , the maximum value of shear stress is _____

- a) $32T/\pi d^3$
- b) $32T/\pi d^4$
- c) $16T/\pi d^3$
- d) $16T/\pi d^4$

Ans A. a
 B. b
 C. c
 D. d

Question ID : 2141272488
Status : Answered
Chosen Option : C

Q.75

How many nodes are there in Linear Tetrahedron element?

- a) 3
- b) 4
- c) 5
- d) 6

Ans A. a
 B. b
 C. c
 D. d

Question ID : 2141272538

Status : Not Answered

Chosen Option : --

Q.76

Given a second order differential equation $y'' + ay' + by = 0$ and given a, b such that they satisfy the relation $a = 2\sqrt{b}$ what are the basis of the solution?

- a) $e^{-ax/2}, xe^{-ax/2}$
- b) e^{ax}, e^{-ax}
- c) $c_1 e^{-ax/2}, c_2 e^{ax/2}$
- d) $e^{-ax/2}, e^{ax/2}$

Ans A. a
 B. b
 C. c
 D. d

Question ID : 2141272462

Status : Not Answered

Chosen Option : --

Q.77

In A-B-C analysis, which class of items are generally large in number?

- a) A
- b) B
- c) C
- d) None of these

Ans A. a
 B. b
 C. c
 D. d

Question ID : 2141272530
Status : Answered
Chosen Option : C

Q.78

A flywheel gives up 20 KJ of energy in changing its speed from 122 to 120 rpm, then the Moment of Inertia of flywheel is _____

- a) 5517 kg-m²
- b) 6119 kg- m²
- c) 7536 kg- m²
- d) 9132 kg- m²

Ans A. a
 B. b
 C. c
 D. d

Question ID : 2141272483
Status : Answered
Chosen Option : A

Q.79

Which one among the following welding processes uses non-consumable electrode?

- a) Gas metal arc welding
- b) Submerged arc welding
- c) Gas tungsten arc welding
- d) Flux coated arc welding

Ans A. a
 B. b
 C. c
 D. d

Question ID : 2141272524
Status : Answered
Chosen Option : C

Q.80

A bar of uniform rectangular cross section does not undergo any change in volume due to axial force applied to it. The value of Poisson's ratio for the material is _____

- a) 0.2
- b) 0.3
- c) 0.5
- d) 1.0

Ans A. a
 B. b
 C. c
 D. d

Question ID : 2141272475
Status : Answered
Chosen Option : C

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