Telangana State Council Higher Education

Notations :

1.Options shown in green color and with ✔ icon are correct.

2.Options shown in red color and with ✖ icon are incorrect.

Question Paper Name :	Mechanical Engineering 30th May 2023 Shift1
Subject Name :	Mechanical Engineering
Creation Date :	2023-05-30 13:11:09
Duration :	120
Total Marks :	120
Display Marks:	No
Share Answer Key With Delivery Engine :	Yes
Actual Answer Key :	Yes
Calculator :	None
Magnifying Glass Required? :	No
Ruler Required? :	No
Eraser Required? :	No
Scratch Pad Required? :	No
Rough Sketch/Notepad Required? :	No
Protractor Required? :	No
Show Watermark on Console? :	Yes
Highlighter :	No
Auto Save on Console?	Yes
Change Font Color :	No
Change Background Color :	No
Change Theme :	No

Help Button : No

Show Reports : No

Show Progress Bar : No

Mechanical Engineering

Group Number : 1

Group Id : 28393665

Group Maximum Duration : 0

Group Minimum Duration : 120

Show Attended Group? : No

Edit Attended Group? : No

Break time : 0

Group Marks : 120

Is this Group for Examiner? : No

Examiner permission : Cant View

Show Progress Bar? : No

Mathematics

Section Id : 283936180

Section Number : 1

Section type : Online

Mandatory or Optional : Mandatory

Number of Questions : 10

Number of Questions to be attempted : 10

Section Marks : 10

Enable Mark as Answered Mark for Review and Clear Response : Yes

Maximum Instruction Time : 0

Question Number : 1 Question Id : 2839369161 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

For the matrix $A = \begin{bmatrix} -2 & 2 & -3 \\ 2 & 1 & -6 \\ -1 & -2 & 0 \end{bmatrix}$, one of the eigenvalue is -3 then the other two eigenvalues are

Options :

1. ✔ -3, 5

2. ✘ -1, 3

3. ✘ -2, 4

4. ✘ - 4, 6

Question Number : 2 Question Id : 2839369162 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The characteristic equation of a matrix M is $\lambda^3 - 11\lambda^2 - 4\lambda + 1 = 0$ then

Options :

1. ✘ M^{-1} does not exist

2. ✗ $M^{-1} = -11M^2 - 4M$

3. ✔ $M^{-1} = 4I + 11M - M^2$

4. ✗ $M^{-1} = 4I - 11M + M^2$

Question Number : 3 Question Id : 2839369163 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The maximum value of the directional derivative of $f = 5x^2y - 5y^2z + \frac{5}{2}z^2x$ at the point $(1, 0, 1)$ is

Options :

1. ✗ $5\sqrt{\dfrac{3}{2}}$

2. ✗ $\sqrt{\dfrac{3}{2}}$

3. ✗ $\dfrac{5}{2}$

4. ✔ $\dfrac{15}{2}$

Question Number : 4 Question Id : 2839369164 Question Type : MCQ Option Shuffling : Yes

Correct Marks : 1 Wrong Marks : 0

The value of $\int_C (2x\,\bar{i} + 3y\,\bar{j} + z\bar{k}) \cdot \bar{n}\,ds$, where C is the surface of the sphere $x^2 + y^2 + z^2 = 4$ is

Options :

1. ✖ $\dfrac{64\pi}{3}$

2. ✔ 64π

3. ✖ $\dfrac{54\pi}{3}$

4. ✖ 54π

Question Number : 5 Question Id : 2839369165 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Let $f(z) = u(x,y) + iv(x,y)$ be an analytic function. If $u(x,y) = \dfrac{1}{2}\log(x^2 + y^2)$, then the

function $v(x,y)$ should be

Options :

1. ✔ $\tan^{-1}\left(\dfrac{y}{x}\right) + c$

2. ✖ $\tan\left(\dfrac{y}{x}\right) + c$

3. ✖ $e^x \sin x + c$

4. ✖ $e^y \cos x + c$

Question Number : 6 Question Id : 2839369166 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

A sample of size 64 is taken from a normal population whose variance is 192, then the standard error of that sampling distribution is

Options :

1. ✖ 0.214

2. ✖ 0.4

3. ✖ 1.65

4. ✔ 1.732

Question Number : 7 Question Id : 2839369167 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

If $f(x) = C(x^2 + 4)$ for , $x = 0, 1, 2, 3$ is the probability mass function of a discrete random variable X, then the value of the constant $C =$

Options :

1. ✖ $\dfrac{1}{20}$

2. ✔ $\dfrac{1}{30}$

3. ✘ $\dfrac{1}{40}$

4. ✘ $\dfrac{1}{50}$

Question Number : 8 Question Id : 2839369168 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

If the general solution of $\dfrac{dy}{dx} = xe^x$ is $y = e^x f(x) + C$ (C is arbitrary constant) then the function $f(x)=$

Options :

1. ✘ $x+1$

2. ✔ $x-1$

3. ✘ $x+2$

4. ✘ $x-2$

Question Number : 9 Question Id : 2839369169 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time

Correct Marks : 1 Wrong Marks : 0

Laplace transform of $\dfrac{e^{-at} - e^{-bt}}{t}$ is

Options :

1. ✖ $\log\left(\dfrac{s-a}{s-b}\right)$

2. ✖ $\log\left(\dfrac{s-b}{s-a}\right)$

3. ✔ $\log\left(\dfrac{s+a}{s+b}\right)^{-1}$

4. ✖ $\log\left(\dfrac{s+a}{s+b}\right)$

Question Number : 10 Question Id : 2839369170 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

If $\dfrac{dy}{dx} = y^2 - x^2$, $y(0) = 1$ and $h = 0.1$ then the value of $y(0.2)$ by using Euler's method is

Options :

1. ✔ 1.22

2. ✖ 1.1

3. ✖ 1.12

4. ✖ 1.02

Mechanical Engineering

Section Id :	283936181
Section Number :	2
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	110
Number of Questions to be attempted :	110
Section Marks :	110
Enable Mark as Answered Mark for Review and Clear Response :	Yes
Maximum Instruction Time :	0
Sub-Section Number :	1
Sub-Section Id :	283936181
Question Shuffling Allowed :	Yes
Is Section Default? :	null

Question Number : 11 Question Id : 2839369171 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Forces are called concurrent when their lines of action meet in

Options :

1. ✔ One point

2. ✖ Two points

3. ✖ Plane

4. ✖ Perpendicular planes

Question Number : 12 Question Id : 2839369172 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The ratio of limiting friction and normal reaction is known as

Options :

1. ✔ Coefficient of friction
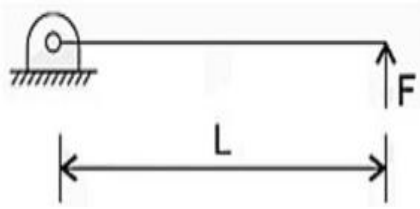
2. ✖ Angle of friction

3. ✖ Angle of repose

4. ✖ Sliding friction

Question Number : 13 Question Id : 2839369173 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

A pin jointed uniform rigid rod of length L and weight W is supported by an external force F as shown in the figure below. The force F is suddenly removed. At the instant of force removal, the magnitude of vertical reaction developed at the support is

Options :

1. ✖ Zero

2. ✔ W/4

3. ✖ W/2

4. ✖ W

Question Number : 14 Question Id : 2839369174 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

A block of mass 5 kg slides down from rest along a frictionless inclined plane that makes an angle of 30° with horizontal. What will be the speed of the block after it covers a distance of 3.6 m along the plane? ($g = 10 m/s^2$)

Options :

1. ✖ 5 m/s

2. ✔ 6 m/s

3. ✖ 7 m/s

4. ✖ 8 m/s

Question Number : 15 Question Id : 2839369175 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

A thin disc and a thin ring, both have mass M and radius R. Both rotate about axes through their centre of mass and are perpendicular to their surfaces at the same angular velocity, then which of the following is true?
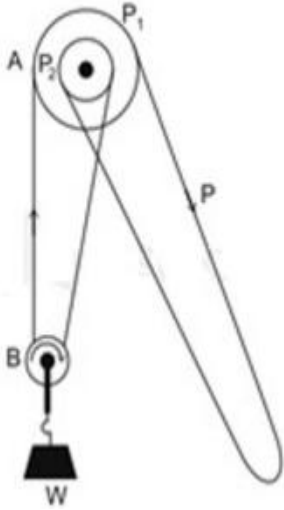
Options :

1. ✔ The ring has higher kinetic energy

2. ✖ The disc has higher kinetic energy

3. ✖ The ring and the disc have the same kinetic energy

4. ✖ Kinetic energies of both the bodies are zero

Question Number : 16 Question Id : 2839369176 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The figure shown below belongs to which of the following lifting machine?

Options :

1. ✖ Simple Pulley

2. ✖ Simple wheel axle

3. ✔ Differential pulley block

4. ✖ Worm geared pulley block

Question Number : 17 Question Id : 2839369177 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time

: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Young's modulus is defined as the ratio of

Options :

1. ✖ Lateral stress to lateral strain

2. ✔ Longitudinal stress to longitudinal strain

3. ✖ Shear stress to shear strain

4. ✖ Longitudinal stress to lateral strain

Question Number : 18 Question Id : 2839369178 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

A tensile test is performed on a round bar. After fracture, it has been found that the diameter remains approximately same at fracture, then the material under test is

Options :
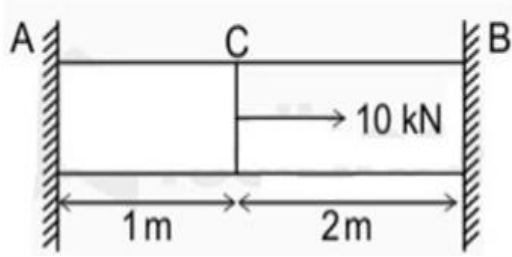
1. ✖ Mild steel

2. ✔ Cast iron

3. ✖ Copper

4. ✖ Aluminium

Question Number : 19 Question Id : 2839369179 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The reactions at the rigid supports A and B for the bar loaded as shown in the figure are respectively

Options :

1. ✗ $\dfrac{20}{3}$ kN, $\dfrac{10}{3}$ kN

2. ✔ $\dfrac{10}{3}$ kN, $\dfrac{20}{3}$ kN

3. ✗ 5 kN, 5 kN

4. ✗ 10 kN, 10 kN

Question Number : 20 Question Id : 2839369180 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Maximum energy that a given component can absorb without undergoing any permanent deformation up to elastic limit is

Options :

1. ✔ Proof Resilience

2. ✗ Resilience

3. ✖ Hardness

4. ✖ Toughness

Question Number : 21 Question Id : 2839369181 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time

: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which of the following stress can also be known as hoop stress?

Options :

1. ✖ Axial stress
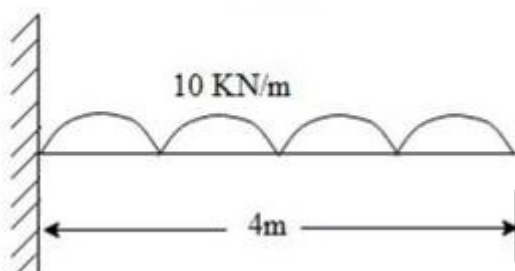
2. ✖ Longitudinal stress

3. ✖ Fluid stress

4. ✔ Circumferential stress

Question Number : 22 Question Id : 2839369182 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time

: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The moment at fixed end for the figure shown below is

Options :

1. ✖ 40 kNm

2. ✖ 50 kNm

3. ✖ 60 kNm

4. ✔ 80 kNm

Question Number : 23 Question Id : 2839369183 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time

: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Eccentrically loaded columns have to be designed for combined axial and

Options :

1. ✖ Shear force

2. ✔ Bending moments

3. ✖ Torsion

4. ✖ Creep

Question Number : 24 Question Id : 2839369184 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time

: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The radius of Mohr's circle is equal to

Options :

1. ✖ σ_x

2. ✔ τ_{max}

3. ✖ σ_y

4. ✖ $(\sigma_x + \sigma_y)/2$

Question Number : 25 Question Id : 2839369185 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The flywheel of a steam engine has a radius of gyration of 1 m and mass of 3000 kg. The starting torque of the steam engine is 2400 Nm and assumed to be constant, then the angular acceleration of the flywheel is

Options :

1. ✖ $0.6 \ \text{rad/s}^2$

2. ✔ $0.8 \ \text{rad/s}^2$

3. ✖ $1.0 \ \text{rad/s}^2$

4. ✖ $0.4 \ \text{rad/s}^2$

Question Number : 26 Question Id : 2839369186 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time

Correct Marks : 1 Wrong Marks : 0

If the axes of the first and last wheels of a gear train are co-axial, then it is called as

Options :

1. ✖ Compound gear train

2. ✔ Reverted gear train

3. ✖ Epicyclic gear train

4. ✖ Simple gear train

Question Number : 27 Question Id : 2839369187 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which inversion mechanism is also known as Gnome engine?

Options :

1. ✔ Rotary I.C. engine

2. ✖ Double crank mechanism

3. ✖ Oscillating cylinder mechanism

4. ✖ Crank and lever mechanism

Question Number : 28 Question Id : 2839369188 Question Type : MCQ Option Shuffling : Yes

Correct Marks : 1 Wrong Marks : 0

A circular object of radius 'r' rolls without slipping on a horizontal level floor with the center having velocity V, then the velocity at the point of contact between the object and the floor is

Options :

1. ✔ Zero

2. ✖ V in the direction of motion

3. ✖ V opposite to the direction of motion

4. ✖ V vertically upward from the floor

Question Number : 29 Question Id : 2839369189 Question Type : MCQ Option Shuffling : Yes

Correct Marks : 1 Wrong Marks : 0

What is the force acting on the sleeve of a governor when it is running at a constant speed?

Options :

1. ✖ Minimum

2. ✖ Maximum

3. ✔ Zero

4. ✖ Constant

Question Number : 30 Question Id : 2839369190 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

In a gear train where the gears having a relative motion of axes is known as

Options :

1. ✖ Reverted gear train

2. ✔ Epicyclic gear train

3. ✖ Compound gear train

4. ✖ Bevel wheel gear train

Question Number : 31 Question Id : 2839369191 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

When the balance weights are introduced in a plane parallel to the plane of rotation of the disturbing weight, then the minimum number of balance weights for balancing a single revolving disturbing weight is

Options :

1. ✖ One

2. ✔ Two

3. ✖ Three

4. ✖ Four

Question Number : 32 Question Id : 2839369192 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

What is the value of amplitude of vibration at node and antinode respectively?

Options :

1. ✖ Zero, Zero

2. ✔ Zero, Maximum

3. ✖ Maximum, Zero

4. ✖ Maximum, Maximum

Question Number : 33 Question Id : 2839369193 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

When there is a reduction in the amplitude for every cycle of vibration then the body is said to be in

Options :

1. ✖ Forced vibration

2. ✖ Un-damped vibration

3. ✖ Free vibration

4. ✔ Damped vibration

Question Number : 34 Question Id : 2839369194 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

During whirling of a shaft, which of the following parameters has higher value?

Options :

1. ✖ Speed

2. ✖ Acceleration

3. ✔ Amplitude

4. ✖ Frequency

Question Number : 35 Question Id : 2839369195 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The strength of a riveted joint would be

Options :

1. ✖ Sum of crushing resistance, tearing resistance and shearing resistance

2. ✔ Least of the crushing resistance, tearing resistance and shearing resistance

3. ✖ Maximum of the crushing resistance, tearing resistance and shearing resistance

4. ✖ Strength of the unriveted solid plate

Question Number : 36 Question Id : 2839369196 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time

: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which one of the following theories is suitable for brittle materials?

Options :

1. ✖ Maximum Shear stress Theory

2. ✔ Maximum principal stress theory

3. ✖ Distortion energy theory

4. ✖ Strain Energy Theory

Question Number : 37 Question Id : 2839369197 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time

: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

According to Von-Mises' distortion energy theory, the distortion energy under three-

dimensional stress state is

Options :

1. ✖ $\dfrac{1}{2E}\left[\sigma_1^2 + \sigma_2^2 + \sigma_3^2 - 2v(\sigma_1\sigma_2 + \sigma_3\sigma_2 + \sigma_1\sigma_3)\right]$

2. ✖ $\dfrac{1-2v}{6E}\left[\sigma_1^2 + \sigma_2^2 + \sigma_3^2 + 2v(\sigma_1\sigma_2 + \sigma_3\sigma_2 + \sigma_1\sigma_3)\right]$

3. ✔ $\dfrac{1+v}{3E}\left[\sigma_1^2 + \sigma_2^2 + \sigma_3^2 - (\sigma_1\sigma_2 + \sigma_3\sigma_2 + \sigma_1\sigma_3)\right]$

4. ✖ $\dfrac{1}{3E}\left[\sigma_1^2 + \sigma_2^2 + \sigma_3^2 - v(\sigma_1\sigma_2 + \sigma_3\sigma_2 + \sigma_1\sigma_3)\right]$

Question Number : 38 Question Id : 2839369198 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The fatigue strength of non-ferrous material is defined by N stress cycles, then the value of N is

Options :

1. ✖ 10^8

2. ✔ 10^7

3. ✖ 10^3

4. ✖ 10^4

Question Number : 39 Question Id : 2839369199 Question Type : MCQ Option Shuffling : Yes

Correct Marks : 1 Wrong Marks : 0

The most suitable bearing for carrying very heavy loads at slow speed is

Options :

1. ✖ Hydrodynamic bearing

2. ✖ Ball-bearing

3. ✖ Roller bearing

4. ✔ Hydro-static bearing

Question Number : 40 Question Id : 2839369200 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

A multi-disc clutch has 'n$_1$' discs on the driving shaft and 'n$_2$' discs on the driven shaft,

then number of contact surfaces are

Options :

1. ✖ n_1+n_2

2. ✔ n_1+n_2-1

3. ✖ n_1+n_2+1

4. ✖ n_1-n_2+1

Question Number : 41 Question Id : 2839369201 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The number of helical springs used in a spring loaded safety valve is/are

Options :

1. ✔ One

2. ✘ Four

3. ✘ Two

4. ✘ Three

Question Number : 42 Question Id : 2839369202 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

A small drop of water at 20 °C in contact with air has a diameter of 0.05 mm. If the pressure within the droplet is 0.6 kPa higher than that of the atmosphere, then the surface tension is

Options :

1. ✔ $7.5 \times 10^{-3} \, N / m$

2. ✘ $7.5 \times 10^{-2} \, N / m$

3. ✘ $7.5 \times 10^{-1} \, N / m$

4. ✖ 7.5 N / m

Question Number : 43 Question Id : 2839369203 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The pressure at the base of the mountain is 750 mm of mercury and at the top, the pressure is 600 mm of mercury. If the density of air is 1 kg/m^3, then the height of mountain is (approximately)

Options :

1. ✖ 3 km

2. ✔ 2 km

3. ✖ 5 km

4. ✖ 7 km

Question Number : 44 Question Id : 2839369204 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The vertical force on a submerged curved surface is equal to

Options :

1. ✖ Force on the vertical projection of the curved surface

2.

✖ Force on the horizontal projection of the curved surface

3. ✔ Weight of the liquid vertically above the curved surface

4. ✖ Product of the pressure at the centroid and the area of the curved surface

Question Number : 45 Question Id : 2839369205 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

A circular plate 1m in diameter is submerged vertically in water such that its upper edge is
8 m below the free surface of water, then the total hydrostatic pressure force on one side
of the plate is

Options :

1. ✖ 6.7 kN

2. ✔ 65.4 kN

3. ✖ 45 kN

4. ✖ 77kN

Question Number : 46 Question Id : 2839369206 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Oil having a density of 800 kg/m³ and viscosity of 0.2 N-s/m² is flowing through a pipe line of 50 mm diameter at an average velocity of 2 m/s. The Darcy friction factor for this flow is

Options :

1. ✖ 3.2

2. ✖ 0.07

3. ✔ 0.16

4. ✖ 1.6

Question Number : 47 Question Id : 2839369207 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

A metal block is thrown into a deep lake. As it sinks deeper in water the buoyancy force acting on it is

Options :

1. ✖ Increases

2. ✔ Remains the same

3. ✖ Decreases

4. ✖ First increases and then decreases

Question Number : 48 Question Id : 2839369208 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The hydrodynamic boundary layer thickness is defined as the distance from the surface where the

Options :

1. ✖ Velocity equals to the local external velocity

2. ✖ Velocity equals the approach velocity

3. ✖ Momentum equals 66% of the momentum of the free stream

4. ✔ Velocity equals 99% of the local external velocity

Question Number : 49 Question Id : 2839369209 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

A furnace is made of a red brick wall of thickness 0.5 m and conductivity 0.7 W/mK. For the same heat loss and temperature drop, what is the layer thickness of diatomite earth of the thermal conductivity 0.14 W/mK for the furnace?

Options :

1. ✖ 0.05 m

2. ✔ 0.1 m

3. ✖ 0.2 m

4. ✖ 0.5 m

Question Number : 50 Question Id : 2839369210 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time

: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The two significant dimensionless parameters in transient heat conduction are

Options :

1. ✔ Fourier number, Biot number

2. ✖ Reynolds number, Biot number

3. ✖ Reynolds number, Prandtl number

4. ✖ Fourier number, Reynolds number

Question Number : 51 Question Id : 2839369211 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time

: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Two radiating surfaces $A_1 = 6$ m^2 and $A_2 = 4$ m^2 have the shape factor $F_{1-2} = 0.1$, then the shape factor F_{2-1} will be

Options :

1. ✖ 0.18

2. ✔ 0.15

3. ✖ 0.12

4. ✖ 0.10

Question Number : 52 Question Id : 2839369212 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

In a balanced counter flow heat exchanger with, $m_h c_h = m_c c_c$, the NTU is equal to 1.0, then what is the effectiveness of the heat exchanger?

Options :

1. ✔ 0.5

2. ✖ 1.5

3. ✖ 0.33

4. ✖ 0.2

Question Number : 53 Question Id : 2839369213 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

In a counter flow heat exchanger, for the hot fluid the heat capacity = 2 kJ/kg K, mass flow rate = 5 kg/s, inlet temperature = 150°C, outlet temperature = 100°C. For the cold fluid, heat capacity = 4 kJ/kg K, mass flow rate = 10 kg/s, inlet temperature = 20°C. Neglecting heat transfer to the surroundings, the outlet temperature of the cold fluid in °C is

Options :

1. ✖ 7.5

2. ✔ 32.5

3. ✖ 45.5

4. ✖ 70.0

Question Number : 54 Question Id : 2839369214 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

In free convection process, Nusselt number depends on the following non dimensional parameter

Options :

1. ✖ Reynolds number, Prandtl number

2. ✖ Grashoff's number, Biot number

3. ✖ Reynolds number, Grashoff number

4. ✔ Prandtl number, Grashoff number

Question Number : 55 Question Id : 2839369215 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The ratio of energy transferred by convection to conduction is

Options :

1. ✖ Stanton number

2. ✔ Nusselt number

3. ✖ Biot number

4. ✖ Preclet number

Question Number : 56 Question Id : 2839369216 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which of the following are extensive properties?

1. Temperature
2. Viscosity
3. Internal energy
4. Entropy

Options :

1. ✖ 1, 2, 3 and 4

2. ✔ 3 and 4 only

3.

4. × 2 and 4 only.

Question Number : 57 Question Id : 2839369217 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

A new temperature scale in degrees N is to be defined. The boiling and freezing on this scale are 400 °N and 100 °N respectively, then what will be the reading on new scale corresponding to 60 °C?

Options :

1. × 120 °N

2. × 180 °N

3. × 220 °N

4. ✓ 280 °N

Question Number : 58 Question Id : 2839369218 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

When air is compressed, the enthalpy is increased from 100 to 200 kJ/kg. Heat lost during this compression is 50 kJ/kg. Neglecting kinetic and potential energies, the power required for a mass flow of 2 kg/s of air through the compressor is

Options :

1. ✔ 300 kW

2. ✖ 200 kW

3. ✖ 100 kW

4. ✖ 50 kW

Question Number : 59 Question Id : 2839369219 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

A reversible heat engine rejects 50 percent of the heat supplied during a cycle of operation. If this engine is reversed and operates as a heat pump, then what is its coefficient of performance?

Options :

1. ✖ 1.0

2. ✖ 1.5

3. ✔ 2.0

4. ✖ 2.5

Question Number : 60 Question Id : 2839369220 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time

Correct Marks : 1 Wrong Marks : 0

The slope of constant pressure lines in the superheated region of the Mollier diagram is

Options :

1. ✔ A positive slope

2. ✖ A negative slope

3. ✖ Zero slope

4. ✖ May have either positive or negative slopes

Question Number : 61 Question Id : 2839369221 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

What will be the loss of available energy associated with the transfer of 1000 kJ of heat from constant temperature system at 600 K to another at 400 K when the environment temperature is 300 K?

Options :

1. ✖ 150 kJ

2. ✔ 250 kJ

3. ✖ 500 kJ

4. ✖ 700 kJ

Question Number : 62 Question Id : 2839369222 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

A pure substance is

Options :

1. ✖ Two component system existing in one or more phases

2. ✔ One component system existing in one phase

3. ✖ Two component system existing in one phase

4. ✖ One component system existing in one or more phases

Question Number : 63 Question Id : 2839369223 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which of the following is correct for Maxwell's relationship?

Options :

1. ✖ $\left(\frac{\partial T}{\partial V}\right)_S = \left(\frac{\partial P}{\partial S}\right)_V$

2. ✖ $\left(\frac{\partial T}{\partial P}\right)_S = -\left(\frac{\partial V}{\partial S}\right)_P$

3. ✖ $\left(\frac{\partial P}{\partial T}\right)_V = -\left(\frac{\partial S}{\partial V}\right)_T$

4. ✔ $\left(\dfrac{\partial V}{\partial T}\right)_P = -\left(\dfrac{\partial S}{\partial P}\right)_T$

Question Number : 64 Question Id : 2839369224 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time

: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

In a Francis turbine the discharge leaves the runner radially at the exit. For this turbine

Options :

1. ✘ The blade tip is radial at the outlet

2. ✘ The blade tip is radial at the inlet

3. ✘ The guide vane angle is 90°

4. ✔ The absolute velocity is radial at the outlet

Question Number : 65 Question Id : 2839369225 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time

: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

A turbine develops 500 kW power under a net head of 30 m, if the overall efficiency of the

turbine is 0.83, then the discharge through the turbine, in m^3/s, is

Options :

1. ✘ 20.5

2. ✔ 2.05

3. ✖ 1.41

4. ✖ 1.51

Question Number : 66 Question Id : 2839369226 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

In an ideal vapour compression refrigeration cycle, the enthalpy of the refrigeration at exit from the condenser, compressor and evaporator is 80 kJ/kg, 200 kJ/kg and 180 kJ/kg respectively, then the coefficient of performance of cycle is

Options :

1. ✖ 6

2. ✔ 5

3. ✖ 3.5

4. ✖ 2.5

Question Number : 67 Question Id : 2839369227 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

During adiabatic cooling of moist air, which of the following remains constant?

Options :

1. ✖ DBT

2. ✖ Specific humidity

3. ✖ Relative humidity

4. ✔ WBT

Question Number : 68 Question Id : 2839369228 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The higher thermal efficiency in a Rankine cycle with regeneration is due to

Options :

1. ✖ Pressure inside the boiler increases

2. ✖ Heat is added before steam enters the low pressure turbine

3. ✔ Average temperature of heat addition in the boiler increases

4. ✖ Total work delivered by the turbine increases

Question Number : 69 Question Id : 2839369229 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which of the following processes consists in a Brayton cycle?

Options :

1. ✗ Two reversible isothermal and two reversible adiabatic

2. ✓ Two reversible isobaric and two reversible adiabatic

3. ✗ Two reversible isothermal and two reversible isochoric

4. ✗ Two reversible isobaric and two reversible isothermal

Question Number : 70 Question Id : 2839369230 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

In air standard Otto-cycle, the compression ratio is 10. The condition at the beginning of the compression process is 100 kPa and 27 °C. Heat added at constant volume is 1500 kJ/kg, while 700 kJ/kg of heat is rejected during the other constant volume process in the cycle. Specific gas constant for air is 0.287 kJ/kg K, the mean effective pressure (in kPa) of the cycle is

(Where R = 0.287 kJ/kg K)

Options :

1. ✗ 103

2. ✗ 310

3. ✗ 515

4. ✓ 1032

Question Number : 71 Question Id : 2839369231 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

For constant maximum pressure and heat input, the air standard efficiency of the gas power cycle is in the order

Options :

1. ✔ Diesel cycle, Dual Cycle, Otto cycle

2. ✘ Otto cycle, Diesel cycle, Dual cycle

3. ✘ Dual cycle, Otto cycle, Diesel cycle

4. ✘ Diesel cycle, Otto cycle, Dual cycle

Question Number : 72 Question Id : 2839369232 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

In a reciprocating compressor, the swept volume is 8/9 times the maximum volume, then the clearance ratio is

Options :

1. ✘ 0.11

2. ✘ 0.1

3. ✔ 0.125

4.

✖ 0.89

Question Number : 73 Question Id : 2839369233 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

In a reciprocating compressor, the value of clearance volume has direct impact on

Options :

1. ✖ Piston speed

2. ✔ Volumetric efficiency

3. ✖ Thermal efficiency

4. ✖ Noise level

Question Number : 74 Question Id : 2839369234 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Malleability of a Material is defined as

Options :

1. ✔ Ability to undergo large permanent deformations in compression

2. ✖ Ability to recover its original form

3. ✖ Ability to undergo large permanent deformations in tension.

4. ✖ Ability to undergo large elastic deformations in tension

Question Number : 75 Question Id : 2839369235 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Time-dependent deformation at elevated temperature and constant stress is

Options :

1. ✖ Fatigue

2. ✖ Endurance

3. ✖ Plastic deformation

4. ✔ Creep

Question Number : 76 Question Id : 2839369236 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Recrystallization Temperature is one

Options :

1. ✖ at which crystals start grow in big size

2. ✖ at which crystals are destroyed on heating

at which new spherical crystals first begin to form from the old deformed one when

3. ✔ a strained metal is heated

4. ✖ at which crystals start forming when molten metal is cooled

Question Number : 77 Question Id : 2839369237 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

A material is known as allotropic if it

Options :

1. ✖ has a fixed structure under all conditions

2. ✔ exists in several crystal forms at different temperatures

3. ✖ responds to heat treatment

4. ✖ has its atoms distributed in a random pattern

Question Number : 78 Question Id : 2839369238 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which of the following materials are most ductile?

Options :

1. ✔ Face centred cubic lattice

2. ✖ Simple cubic lattice

3. ✖ HCP Structure

4. ✖ Body centred cubic lattice

Question Number : 79 Question Id : 2839369239 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time

: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The percentage of carbon in Eutectoid steel is

Options :

1. ✖ 0.02%

2. ✖ 0.3%

3. ✖ 0.63%

4. ✔ 0.8%

Question Number : 80 Question Id : 2839369240 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time

: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Surveying tapes are made of a material having low coefficient of expansion and enough

strength, then the alloy used is

Options :

1. ✖ Silver metal

2. ✖ Duralumin

3. ✖ Monel metal

4. ✔ Invar

Question Number : 81 Question Id : 2839369241 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Gating ratios are indicated in which of the following order?

Options :

1. ✔ Sprue – runner – ingate

2. ✖ Runner – ingate – sprue

3. ✖ Sprue – ingate – runner

4. ✖ Runner – sprue – ingate

Question Number : 82 Question Id : 2839369242 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

In which of the following casting process the sand is mixed with a thermosetting resin to form a mould?

Options :

1. ✔ Shell moulding

2. ✘ Squeeze casting

3. ✘ Centrifugal casting

4. ✘ Die casting

Question Number : 83 Question Id : 2839369243 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Pig iron is a product of

Options :

1. ✘ Cupola

2. ✘ Bessemer converter

3. ✘ Open hearth furnace

4. ✔ Blast furnace

Question Number : 84 Question Id : 2839369244 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time

Correct Marks : 1 Wrong Marks : 0

Cuts, washes, swell, drop etc. are the examples for which of the following casting defects?

Options :

1. ✖ Gas defect

2. ✖ Pouring material defect

3. ✔ Moulding material defect

4. ✖ Metallurgical defect

Question Number : 85 Question Id : 2839369245 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time

: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

In which type of gating system aspiration effect takes place?

Options :

1. ✔ Vertical

2. ✖ Horizontal

3. ✖ Diagonal

4. ✖ Bottom

Question Number : 86 Question Id : 2839369246 Question Type : MCQ Option Shuffling : Yes

Correct Marks : 1 Wrong Marks : 0

In which of the following process no strain hardening is produced?

Options :

1. ✔ Hot working

2. ✖ Cold working

3. ✖ Warm working

4. ✖ Cold rolling

Question Number : 87 Question Id : 2839369247 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which of the following statement about cold working is not true?

Options :

1. ✖ Surface finish improves

2. ✖ Mechanical strength increases

3. ✔ Grain size remains the same

4. ✖ Number of dislocations increases

Question Number : 88 Question Id : 2839369248 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time

: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which of the following method is used to manufacture the seamless tubes?

Options :

1. ✖ Casting

2. ✖ Forging

3. ✖ Stretch forming

4. ✔ Extrusion

Question Number : 89 Question Id : 2839369249 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time

: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Silver based solder is used for

Options :

1. ✔ Brazing

2. ✖ Soldering

3. ✖ Fusion welding

4. ✖ Spot welding

Question Number : 90 Question Id : 2839369250 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which of the following methods cannot be used for welding carbon steel?

Options :

1. ✖ Arc welding

2. ✖ Gas welding

3. ✔ Ultrasonic welding

4. ✖ Forge welding

Question Number : 91 Question Id : 2839369251 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

In a fusion welding process, the Heat Affected Zone (HAZ) is the region where the work material undergoes

Options :

1. ✖ Neither melting nor microstructural changes

2. ✔ Microstructural changes but does not melt

3. ✖ Melting as well as microstructural changes after solidification

4. × Melting and retains the original microstructure after solidification

Question Number : 92 Question Id : 2839369252 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Machining properties of steel are improved by adding

Options :

1. ✓ Sulphur, lead, phosphorous

2. × Silicon, aluminium, titanium

3. × Vanadium, aluminium

4. × Chromium, nickel

Question Number : 93 Question Id : 2839369253 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

In a machining operation, if a cutting tool traces the workpiece such that the directrix is

perpendicular to plane of the generatrix, the surface generated is

Options :

1. × Sphere

2. × Plane

3. ✔ Cylindrical

4. ✖ Surface of Revolution

Question Number : 94 Question Id : 2839369254 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time

: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Cemented carbide tools are not suitable for cutting

Options :

1. ✖ Brass

2. ✖ Cast iron

3. ✖ Aluminium

4. ✔ Steel

Question Number : 95 Question Id : 2839369255 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time

: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

In modern CNC machine tools, the backlash has been eliminated by

Options :

1. ✔ preloaded ball screws

2. ✖ rack and pinion

3. ✖ ratchet and pinion

4. ✖ slider crank mechanism

Question Number : 96 Question Id : 2839369256 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

A CNC worktable is driven in a linear direction by a lead screw connected directly to a stepper motor. The pitch of the lead screw is 5 mm. The stepper motor completes one full revolution upon receiving 600 pulses. If the worktable speed is 5 m/minute and there is no missed pulse, then the pulse rate being received by the stepper motor is

Options :

1. ✖ 20 kHz

2. ✔ 10 kHz

3. ✖ 3 kHz

4. ✖ 15 kHz

Question Number : 97 Question Id : 2839369257 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The correct sequence of machining operations to be performed to finish a large diameter workpiece through hole is

Options :

1. ✖ Boring, reaming, drilling

2. ✔ Drilling, boring, reaming

3. ✖ Boring, drilling, reaming

4. ✖ Drilling, reaming, boring

Question Number : 98 Question Id : 2839369258 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

What are the main considerations for deciding the limits of a particular part?

Options :

1. ✖ Functional requirement

2. ✖ Economics and interchangeability

3. ✖ Interchangeability and functional requirement

4. ✔ Interchangeability, functional requirement and economics

Question Number : 99 Question Id : 2839369259 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time

Correct Marks : 1 Wrong Marks : 0

Which of the following is not correct for pneumatic comparator?

Options :

1. ✖ Independent of operator skill

2. ✔ Loss of accuracy due to gauge wear

3. ✖ Speedy operation

4. ✖ Total life cost is less

Question Number : 100 Question Id : 2839369260 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The angles measured by sine bar are inaccurate after the angle value is

Options :

1. ✔ 45 degree

2. ✖ 60 degree

3. ✖ 90 degree

4. ✖ 120 degree

Question Number : 101 Question Id : 2839369261 Question Type : MCQ Option Shuffling : Yes

Correct Marks : 1 Wrong Marks : 0

What is the purpose of locating cylinder in the test of the true running of the main spindle?

Options :

1. ✔ To locate the chuck

2. ✖ To locate the main spindle

3. ✖ To locate the feeler

4. ✖ To level the machine

Question Number : 102 Question Id : 2839369262 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which type of CMM is most suited for large heavy workpieces?

Options :

1. ✖ Cantilever type

2. ✖ Bridge type

3. ✔ Horizontal boring mill type

4. ✖ Floating bridge type

Question Number : 103 Question Id : 2839369263 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which of the following two disciplines are tied by a common database?

Options :

1. ✓ CAD and CAM

2. ✗ Drafting and documentation

3. ✗ Documentation and geometric modelling

4. ✗ CAM and documentation

Question Number : 104 Question Id : 2839369264 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which of the following software performs the data entry, design, analysis, drafting, and manufacturing functions?

Options :

1. ✗ Graphics software

2. ✗ Programming software

3. ✗ Operating software

4. ✓ Application software

Question Number : 105 Question Id : 2839369265 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

In rapid Proto Typing, the process of converting STL file model into layers is

Options :

1. ✖ Chopping

2. ✔ Slicing

3. ✖ Cutting

4. ✖ Trimming

Question Number : 106 Question Id : 2839369266 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The correct sequence of operations in the Production Planning and Control process is

Options :

1. ✖ Routing – Scheduling – Follow up – Dispatching

2. ✖ Scheduling – Follow up – Dispatching – Routing

3. ✔ Routing – Scheduling – Dispatching – Follow up

4. ✖ Dispatching – Routing – Scheduling – Follow up

Question Number : 107 Question Id : 2839369267 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time

: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which is not a simple forecasting method among the following mentioned below?

Options :

1. ✔ Trend revised exponential achievement or smoothing

2. ✖ Econometric models

3. ✖ Linear regression

4. ✖ Multiple regression

Question Number : 108 Question Id : 2839369268 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time

: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which of the following functions mentioned below of production planning and control are

associated with the timetable of activities?

Options :

1. ✔ Scheduling

2. ✖ Dispatching

3. ✖ Expediting

4. ✖ Routing

Question Number : 109 Question Id : 2839369269 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time

: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which of the following is not an input in the Material Requirement Planning process?

Options :

1. ✖ The item master file

2. ✖ The product structure file

3. ✖ The master production schedule

4. ✔ The planned order report

Question Number : 110 Question Id : 2839369270 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time

: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which of the following is not an advantage of one-piece flow used in production?

Options :

1. ✖ Early detection of defects

2. ✖ Flexibility for customization

3. ✖ Reduction of amount of work in progress

4. ✔ Inflexible in meeting customer demands

Question Number : 111 Question Id : 2839369271 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which of the following is not an inventory?

Options :

1. ✔ Machines

2. ✖ Raw material

3. ✖ Finished products

4. ✖ Consumable tools

Question Number : 112 Question Id : 2839369272 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The order cost per order of an inventory is Rs. 400 with an annual carrying cost of Rs. 10 per unit. The Economic Order Quantity (EOQ) for an annual demand of 2000 units is

Options :

1. ✔ 400

2. ✖ 440

3. ✖ 480

4. ✖ 500

Question Number : 113 Question Id : 2839369273 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The time period between placing an order and its receipt in stock is

Options :

1. ✖ Carrying time

2. ✖ Shortage time

3. ✖ Over time

4. ✔ Lead time

Question Number : 114 Question Id : 2839369274 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The consumption rate of a material of a firm is 20 units per week and lead time of supply of the raw material is two weeks, then the reorder point is

Options :

1. ✖ 80

2. ✔ 40

3. ✖ 20

4. ✖ 60

Question Number : 115 Question Id : 2839369275 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

What does PERT stands for in Industrial Management?

Options :

1. ✖ Program Evaluation and Resource Tracking

2. ✖ Project Evaluation and Resource Technique

3. ✖ Project Evaluation and Review Tracking

4. ✔ Project Evaluation and Review Technique

Question Number : 116 Question Id : 2839369276 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

A feasible solution to a linear programming problem

Options :

1. ✔ Must satisfy all the constraints of the problem simultaneously

2. ✘ Need not satisfy all of the constraints, only some of them

3. ✘ Must be a corner point of the feasible region

4. ✘ Must optimize the value of the objective function

Question Number : 117 Question Id : 2839369277 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

In a transportation problem with 4 supply points and 5 demand points, how many number of constraints are required in its formulation?

Options :

1. ✘ 20

2. ✘ 1

3. ✘ 0

4. ✔ 9

Question Number : 118 Question Id : 2839369278 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time

Correct Marks : 1 Wrong Marks : 0

The objective of network analysis is to

Options :

1. ✔ Minimize total project duration.

2. ✖ Minimize total project cost.

3. ✖ Minimize production delays, interruption, and conflicts.

4. ✖ Maximize total project duration

Question Number : 119 Question Id : 2839369279 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

An assignment problem is a particular case of

Options :

1. ✔ Transportation problem

2. ✖ Queuing problem

3. ✖ Travelling salesman problem

4. ✖ Replacement Problem

Question Number : 120 Question Id : 2839369280 Question Type : MCQ Option Shuffling : Yes

Correct Marks : 1 Wrong Marks : 0

The time by which the activity completion time can be delayed without affecting the start

of succeeding activities is

Options :

1. ✖ Duration

2. ✖ Total float

3. ✔ Free float

4. ✖ Interfering float