

Telangana State Council Higher Education

Notations :

- Options shown in **green** color and with  icon are correct.
- Options shown in **red** color and with  icon are incorrect.

Question Paper Name :Mechanical Engineering 29th May 2026 Shift
1**Subject Name :**

Mechanical Engineering

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120

Total Marks :

120

Display Marks:

Yes

Share Answer Key With Delivery Engine :

Yes

Actual Answer Key :

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 :

10513139

Group Maximum Duration :

0

Group Minimum Duration :

120

Show Attended Group? :

No

Edit Attended Group? :

No

Break time :

0

Group Marks :

120

Mathematics

Section Id :

10513188

Section Number :

1

Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	10
Number of Questions to be attempted :	10
Section Marks :	10
Maximum Instruction Time :	0
Sub-Section Number :	1
Sub-Section Id :	10513188
Question Shuffling Allowed :	Yes

Question Number : 1 Question Id : 1051315041 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If λ_1, λ_2 and λ_3 are the eigen values of a square matrix A, then the eigen values of $A^{-1} + 2I + A$ are

Options :

1. ✖ $\frac{1}{\lambda_1} + 2 + \lambda_1, \frac{1}{\lambda_2} + 2 + \lambda_2$ and $\frac{1}{\lambda_3} + 2 - \lambda_3$
2. ✖ $\frac{1}{\lambda_1} + 2 + \lambda_1, \frac{1}{\lambda_2} - 2 - \lambda_2$ and $\frac{1}{\lambda_3} - 2 - \lambda_3$
3. ✖ $\frac{1}{\lambda_1} - 2 - \lambda_1, \frac{1}{\lambda_2} - 2 - \lambda_2$ and $\frac{1}{\lambda_3} - 2 - \lambda_3$
4. ✔ $\frac{1}{\lambda_1} + 2 + \lambda_1, \frac{1}{\lambda_2} + 2 + \lambda_2$ and $\frac{1}{\lambda_3} + 2 + \lambda_3$

Question Number : 2 Question Id : 1051315042 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Let the matrix $A = \begin{bmatrix} 1 & 4 \\ 2 & -1 \end{bmatrix}$.

Statement-I: $A^2 = 9I$

Statement-II: The eigen values of A are -3 and 3

The correct answer is

Options :

1. ✓ Both statement-I and statement-II are true
2. ✗ Both statement-I and statement-II are false
3. ✗ Statement-I is true, but statement-II is false
4. ✗ Statement-I is false, but statement-II is true

Question Number : 3 Question Id : 1051315043 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Statement-I: The function $u = x^2 + y^2$, $v = \tan^{-1}\left(\frac{y}{x}\right)$ are functionally independent.

Statement-II: The Jacobian $\frac{\partial(u,v)}{\partial(x,y)}$ is non-zero.

The correct answer is

Options :

1. ✗ Statement-I is true, but statement-II is false
2. ✗ Statement-I is false, but statement-II is true
3. ✓ Both statement-I and statement-II are true
4. ✗ Both statement-I and statement-II are false

Question Number : 4 Question Id : 1051315044 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If f and g are the solutions of Laplace equation then $\nabla \cdot \{(f \nabla g) - (g \nabla f)\} =$

Options :

1. ✖ ∇g
2. ✔ 0
3. ✖ 1
4. ✖ ∇f

Question Number : 5 Question Id : 1051315045 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If the particular integral $y'' - 4y' = x^2 e^{2x}$ is in the form $y_p = e^{2x} y(x)$ then $y(x)$ is

Options :

1. ✔ $-\frac{1}{4} \left(x^2 + \frac{1}{2} \right)$
2. ✖ $\frac{1}{4} \left(x^2 + \frac{1}{2} \right)$
3. ✖ $x^2 + \frac{1}{2}$
4. ✖ $x + \frac{1}{2}$

Question Number : 6 Question Id : 1051315046 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

$L\{\sin(t-3)u(t-3)\} =$

Options :

1. ✖ $\frac{1}{s^2 + 1}$

2. ✖ $\frac{3}{s^2 + 9}$

3. ✔ $\frac{e^{-3s}}{s^2 + 1}$

4. ✖ $\frac{e^{-3s}}{s^2 + 9}$

Question Number : 7 Question Id : 1051315047 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The Laurent's series for the function $f(z) = 1 + \frac{3}{z+2} - \frac{8}{z+3}$ in the region $|z| < 2$

Options :

1. ✖ $\frac{3}{2} \sum_{n=0}^{\infty} (-1)^n \left(\frac{z}{3}\right)^n - \frac{8}{3} \sum_{n=0}^{\infty} (-1)^n \left(\frac{z}{2}\right)^n$

2. ✖ $1 + \frac{3}{2} \sum_{n=0}^{\infty} (-1)^n \left(\frac{z}{2}\right)^n - \frac{8}{3} \sum_{n=0}^{\infty} (-1)^n \left(\frac{z}{2}\right)^n$

3. ✔ $1 + \frac{3}{2} \sum_{n=0}^{\infty} (-1)^n \left(\frac{z}{2}\right)^n - \frac{8}{3} \sum_{n=0}^{\infty} (-1)^n \left(\frac{z}{3}\right)^n$

4. ✖ $\frac{3}{2} \sum_{n=0}^{\infty} \left(\frac{z}{2}\right)^n (-1)^n - \frac{8}{3} \sum_{n=0}^{\infty} (-1)^n \left(\frac{z}{3}\right)^n$

Question Number : 8 Question Id : 1051315048 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Given $x_0 \neq 0$, if the iteration formula $x_{n+1} = \frac{1}{2} \left(-\frac{7}{x_n} + x_n \right)$, $n \geq 0$ is used to find the root of $f(x) = 0$, then $f(x) =$

Options :

1. ✖ $9 + x^2$
2. ✖ $4 + x^2$
3. ✔ $7 + x^2$
4. ✖ $-7 + x^2$

Question Number : 9 Question Id : 1051315049 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If a random variable X , defined such that $E(X-1)^2 = 10$ and $E(X-2)^2 = 6$ then mean (μ) and variance (σ^2) are

Options :

1. ✖ $\frac{2}{7}, \frac{4}{15}$
2. ✖ $\frac{2}{7}, \frac{15}{4}$
3. ✖ $\frac{7}{2}, \frac{4}{15}$
4. ✔ $\frac{7}{2}, \frac{15}{4}$

Question Number : 10 Question Id : 1051315050 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which of the following is not the property of a distribution function $F(x)$ of a random variable X ?

Options :

1. ✖ $P(a \leq X \leq b) = F(b) - F(a)$
2. ✖ $F(x) \leq F(y)$ if $x < y$
3. ✖ $\lim_{x \rightarrow -\infty} F(x) = 0$ and $\lim_{x \rightarrow \infty} F(x) = 1$
4. ✔ $F(1) = \frac{1}{2}$

Mechanical Engineering

Section Id :	10513189
Section Number :	2
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	110
Number of Questions to be attempted :	110
Section Marks :	110
Maximum Instruction Time :	0
Sub-Section Number :	1
Sub-Section Id :	10513189
Question Shuffling Allowed :	Yes

Question Number : 11 Question Id : 1051315051 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Three coplanar equilibrium forces $P = 40 \text{ N}$, $Q = x \text{ N}$ and $R = y \text{ N}$ are acting on a body and the body is said to be in equilibrium when the angle included between each other is 120° , then $x =$

Options :

1. ✖ 20 N
2. ✔ 40 N

3. ✖ 60 N

4. ✖ 80 N

Question Number : 12 Question Id : 1051315052 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Two equal forces each of magnitude P acting at a point with an angle of (α), then the resultant force is

Options :

1. ✖ $2 P \sin \left(\frac{\alpha}{2} \right)$

2. ✖ $2 P \cot \left(\frac{\alpha}{2} \right)$

3. ✔ $2 P \cos \left(\frac{\alpha}{2} \right)$

4. ✖ $2 P \tan \left(\frac{\alpha}{2} \right)$

Question Number : 13 Question Id : 1051315053 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The range of projectile is maximum when the angle of projection is

Options :

1. ✖ 30°

2. ✔ 45°

3. ✖ 60°

4. ✖ 90° **Question Number : 14 Question Id : 1051315054 Question Type : MCQ Option Shuffling : Yes****Display Question Number : Yes****Correct Marks : 1 Wrong Marks : 0**

If the double threaded square screw is having mean diameter 8 cm and pitch 2 cm, then the lead of the double threaded square screw is

Options :

1. ✖ 1 cm

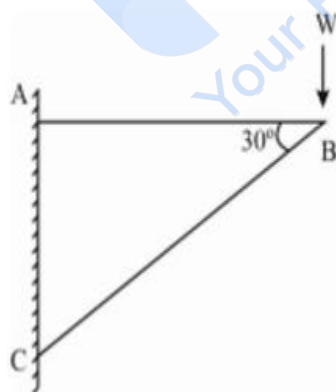
2. ✖ 2 cm

3. ✖ 6 cm

4. ✔ 4 cm

Question Number : 15 Question Id : 1051315055 Question Type : MCQ Option Shuffling : Yes**Display Question Number : Yes****Correct Marks : 1 Wrong Marks : 0**

The simple truss structure is shown below. The forces acting in the members AB and BC respectively are

**Options :**

1. ✖ 1.732 W compression & 2 W tensile

2. ✖ 1.414 W tensile and 1.732 W compression

3. ✖ 3.464 W compression & 2 W tensile

4. ✓ 1.732 W tensile and 2 W compression

Question Number : 16 Question Id : 1051315056 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If a particle has the initial velocity of $v_0 = 12 \text{ m/s}$ to the right at $S_0 = 0$. Then what is the position when $t = 10 \text{ s}$ and $a = 2 \text{ m/s}^2$ to the left?

Options :

1. ✗ 10 m
2. ✗ 15 m
3. ✓ 20 m
4. ✗ 25 m

Question Number : 17 Question Id : 1051315057 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The relation of three elastic constants of a metal in terms of Young's Modulus (E), Modulus of rigidity (G) and Bulk Modulus (K) is expressed as

Options :

1. ✗ $E = \frac{3KG}{(3K + G)}$
2. ✗ $E = \frac{6KG}{(3K + G)}$
3. ✗ $E = \frac{8KG}{(3K + G)}$
4. ✓ $E = \frac{9KG}{(3K + G)}$

Question Number : 18 Question Id : 1051315058 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which planes carry maximum normal stress and what is shear stress on these planes

Options :

1. ✖ Maximum shear planes, Maximum
2. ✔ Principal planes, zero
3. ✖ Oblique planes, Minimum
4. ✖ Oblique planes, Maximum

Question Number : 19 Question Id : 1051315059 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Based on the limiting factor to prevent bursting in thin cylinder, the design is primarily made based on which stress

Options :

1. ✖ Maximum volumetric stress
2. ✖ Maximum longitudinal stress
3. ✖ Maximum shear stress
4. ✔ Maximum hoop stress

Question Number : 20 Question Id : 1051315060 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A tapering bar varying from the diameters from ' d_1 ' to ' d_2 ' and a bar of uniform cross section ' d ' have the same length and subjected to same axial pull attains the same extension. Then the ' d ' is equal to

Options :

1. ✓ Geometric mean of d_1 and d_2
2. ✗ Arithmetic mean of d_1 and d_2
3. ✗ Harmonic mean of d_1 and d_2
4. ✗ Meridian of d_1 and d_2

Question Number : 21 Question Id : 1051315061 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

In general, a sudden jump in the bending moment diagram is due to the following type of loading condition?

Options :

1. ✗ Large point load acting at that point
2. ✓ Concentrated couple acting at that point
3. ✗ Starting point of the UDL
4. ✗ Support reaction at that point

Question Number : 22 Question Id : 1051315062 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A circular shaft has been designed for the twisting moment of 5 kN m. If the twisting moment is reduced to 4 kN m, then what will be the maximum value of bending moment that can be applied for the same designed condition?

Options :

1. ✗ 1 kN m
2. ✗ 1.5 kN m
3. ✗ 2 kN m

4. ✓ 3 kN m

Question Number : 23 Question Id : 1051315063 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A long steel column of uniform cross section is subjected to a crippling load of 10 kN as per the Euler designed condition. If the length of the column is reduced to half, then what would be the maximum Euler's crippling load?

Options :

1. ✗ 50 kN

2. ✓ 40 kN

3. ✗ 20 kN

4. ✗ 10 kN

Question Number : 24 Question Id : 1051315064 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Two bars A and B made of different material have same length. The coefficient of expansion and Young's modulus of bar B is twice that of bar A. If the temperature of both bars is increased by the same amount while preventing any expansion, then the ratio of stress developed in bar A to that in bar B is

Options :

1. ✗ 16

2. ✗ 8

3. ✓ 4

4. ✗ 2

Question Number : 25 Question Id : 1051315065 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

In a given mechanism, the number of links are five. Then the number of instantaneous centres of the mechanism is

Options :

1. ✓ 10

2. ✗ 6

3. ✗ 5

4. ✗ 15

Question Number : 26 Question Id : 1051315066 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Assume that the connecting rod and the crank of an engine forms as two sides of the triangle. If the area included in the triangle is maximum when the crank is at 60° , then the ratio of length of connecting rod to the radius of the crank is

Options :

1. ✗ 1

2. ✗ 1.414

3. ✓ 1.732

4. ✗ 0.577

Question Number : 27 Question Id : 1051315067 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

For the better dynamic performance of cam follower mechanism, the following displacement diagrams should be chosen

Options :

1. ✖ Simple harmonic motion
2. ✖ Parabolic motion
3. ✔ Cycloidal motion
4. ✖ Uniform acceleration

Question Number : 28 Question Id : 1051315068 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The minimum number of teeth on the pinion in order to avoid interference for 20° full depth involute system is

Options :

1. ✖ 12
2. ✖ 14
3. ✔ 18
4. ✖ 32

Question Number : 29 Question Id : 1051315069 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A flywheel is designed for engine speed variation from 190 rps to 210 rps. Calculate the inertia of the wheel if the kinetic energy stored in the flywheel is 400 N-m.

Options :

1. ✔ 0.02 kg-m^2
2. ✖ 0.01 kg-m^2
3. ✖ 0.2 kg-m^2

4. ✖ 0.1 kg-m^2

Question Number : 30 Question Id : 1051315070 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A governor is said to be stable, if the radius of rotation of balls

Options :

1. ✖ increases as the equilibrium speed decreases
2. ✖ decreases as the equilibrium speed decreases
3. ✔ increases as the equilibrium speed increases
4. ✖ decreases as the equilibrium speed increases

Question Number : 31 Question Id : 1051315071 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which of the following statements are associated with the complete dynamic balancing of rotating systems?

- I. Resultant couple due to all inertia forces is zero
- II. Support reactions due to forces are zero but not due to couples
- III. The system is automatically statically balanced
- IV. Centre of masses of the system lies on the axis of rotation

Options :

1. ✖ I, II, III and IV
2. ✖ I, II and III only
3. ✖ II, III and IV only
4. ✔ I, III and IV only

Question Number : 32 Question Id : 1051315072 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Consider a single degree of freedom system with viscous damping excited by a harmonic force. At resonance, the phase angle of the displacement with respect to the exciting force in degrees is

Options :

1. ✖ 0
2. ✖ 45
3. ✔ 90
4. ✖ 135

Question Number : 33 Question Id : 1051315073 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

In Rayleigh's method, which of the following energy at the mean position is equal to the maximum potential energy (or strain energy) at the extreme position?

Options :

1. ✔ Maximum kinetic energy
2. ✖ Minimum kinetic energy
3. ✖ Maximum potential energy
4. ✖ Minimum potential energy

Question Number : 34 Question Id : 1051315074 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The critical speed of the shaft is affected by the

Options :

1. ✖ Diameter and the eccentricity of the shaft

2. ✖ Span and the eccentricity of the shaft
3. ✔ Diameter and the span of the shaft
4. ✖ Frequency of vibrations

Question Number : 35 Question Id : 1051315075 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If a radial ball bearing has a basic load rating of 50 kN and desired rating life is 6000 hours, then the equivalent radial load that the bearing can carry at 500 rpm is

Options :

1. ✖ 18.85 kN
2. ✔ 8.85 kN
3. ✖ 12 kN
4. ✖ 10 kN

Question Number : 36 Question Id : 1051315076 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The difference between two principal stresses is 120 MPa, when a circular shaft is subjected to an axial force and shear force. What is the factor of safety based on maximum shear stress theory if elastic limit of the bar is 300 MPa?

Options :

1. ✖ 1.03
2. ✔ 2.5
3. ✖ 3.25
4. ✖ 5.0

Question Number : 37 Question Id : 1051315077 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If the core diameter of threads equal to the diameter of unthreaded portion of the bolt, then it is known as

Options :

1. ✖ Bolt of uniform strength
2. ✖ Bolt of fatigue strength
3. ✔ Bolt of tensile strength
4. ✖ Bolt of compressive strength

Question Number : 38 Question Id : 1051315078 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A shaft diameter 'd' is connected to the hub through a square key each of side 'd/4' and length 'l' and transmits a torque 'T'. Assume the length of key is equal to thickness of the pulley, the average shear stress developed in the key is

Options :

1. ✖ $\frac{T}{ld^2}$
2. ✖ $\frac{2T}{ld^2}$
3. ✔ $\frac{8T}{ld^2}$
4. ✖ $\frac{4T}{ld^2}$

Question Number : 39 Question Id : 1051315079 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

When brakes are applied to a moving vehicle, then the kinetic energy of the vehicle is converted to

Options :

1. ✖ Potential energy
2. ✖ Mechanical energy
3. ✖ Gravitational energy
4. ✔ Heat energy

Question Number : 40 Question Id : 1051315080 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Generally, in welded joints, the maximum size of fillet weld is considered by

Options :

1. ✖ adding 1.5 mm to thickness of thinner member to be jointed
2. ✖ adding 3 mm to thickness of thinner member to be jointed
3. ✖ subtracting 3 mm from thickness of thinner member to be jointed
4. ✔ subtracting 1.5 mm from thickness of thinner member to be jointed

Question Number : 41 Question Id : 1051315081 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The close-coiled helical springs 'A' and 'B' are of same material, same coil diameter, same wire diameter and subjected to same load. If the number of turns of spring 'A' is half that of spring 'B', the ratio of deflection of spring 'A' to spring 'B' is

Options :

1. ✔ $\frac{1}{2}$

2. ✖ 1

3. ✖ 2

4. ✖ 4

Question Number : 42 Question Id : 1051315082 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The variation of volume of liquid with respect to the pressure and its reciprocal respectively are

Options :

1. ✖ Compressibility & Young's modulus

2. ✖ Young's modulus & Compressibility

3. ✔ Compressibility & Bulk modulus

4. ✖ Bulk modulus & Compressibility

Question Number : 43 Question Id : 1051315083 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If the net rotation of fluid particles about their mass centre remains zero, then such type of flow is known as

Options :

1. ✖ Rotational flow

2. ✔ Irrotational flow

3. ✖ Laminar flow

4. ✖ Turbulent flow

Question Number : 44 Question Id : 1051315084 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

When a body is floating in the liquid and given a small angular displacement, then the body starts oscillating about a centre. That centre is called as

Options :

1. ✗ Centre of pressure
2. ✗ Centre of gravity
3. ✗ Centre of buoyancy
4. ✓ Metacentre

Question Number : 45 Question Id : 1051315085 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A pipe line has a diameter of 5 cm in which water flows at a pressure of 105 N/m^2 with a mean velocity of 2 m/s. If the head of the water at the cross section is 5 m above the datum line and consider $g = 10 \text{ m/s}^2$, then the total head is

Options :

1. ✓ 15.2 m
2. ✗ 5.2 m
3. ✗ 18.2 m
4. ✗ 21.2 m

Question Number : 46 Question Id : 1051315086 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

For the fluid flowing over the flat plate, the state of boundary layer separation occurs when

Options :

1. ✗ Pressure gradient is zero

2. ✓ Velocity gradient is zero
3. ✗ Reynolds number is zero
4. ✗ Flow is accelerating

Question Number : 47 Question Id : 1051315087 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A pipe friction test shows that, over the range of speeds used for the test, the non-dimensional friction factor varies inversely with Reynolds number. From this, one can conclude that the

Options :

1. ✓ Pipe must be smooth
2. ✗ Flow must be laminar
3. ✗ Fluid must be compressible
4. ✗ Fluid must be ideal

Question Number : 48 Question Id : 1051315088 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

In turbulent flow, the loss of pressure head is approximately
(where v is the velocity of flow)

Options :

1. ✗ Directly proportional to v
2. ✗ Inversely proportional to v
3. ✓ Directly proportional to v^2
4. ✗

Inversely proportional to v^2

Question Number : 49 Question Id : 1051315089 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

During a summer day a scooter rider feels more comfortable while on the move than while at rest at a stop light because

Options :

1. ✓ More heat is lost by convection while in motion
2. ✗ Air is transparent to radiation, hence it is cooler than the body
3. ✗ The object in motion captures less solar radiation
4. ✗ Air has a low specific heat, hence it is cooler

Question Number : 50 Question Id : 1051315090 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

For heat transfer calculation in fins, if the Biot number is very small ($Bi < 0.1$) it implies

Options :

1. ✗ Higher convective resistance
2. ✗ High temperature gradient in the fin
3. ✗ Fin is infinitely long
4. ✓ Negligible internal conduction resistance

Question Number : 51 Question Id : 1051315091 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The characteristic length (L_c) for the calculation of Biot number (Bi) for a sphere of radius 'R' subjected to Newtonian cooling is

Options :

1. ✖ R
2. ✖ $\frac{R}{2}$
3. ✔ $\frac{R}{3}$
4. ✖ 3R

Question Number : 52 Question Id : 1051315092 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

For a fully developed flow through a pipe, how will the heat transfer coefficient (h) change, when the mean flow rate is doubled with all other conditions remaining the same?

Options :

1. ✖ h increases by 50% (approx)
2. ✔ h increases by 74% (approx)
3. ✖ h decreases by 87% (approx)
4. ✖ h increases by 20% (approx)

Question Number : 53 Question Id : 1051315093 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If the surface temperature of hot body is doubled, then rate of radiation energy emitted will be enhanced by a factor of

Options :

1. ✖ 2
2. ✖ 4

3. ✓ 16

4. ✗ 32

Question Number : 54 Question Id : 1051315094 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Expansion bellows are provided in the shell and tube heat exchangers in order to

Options :

1. ✗ Increase the surface area

2. ✓ Relieve stresses caused by thermal expansion

3. ✗ Increase the turbulence

4. ✗ Reduce the pressure drop

Question Number : 55 Question Id : 1051315095 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

On the specified surface, if 35 % of incident radiation energy is reflected and the transmissivity of the body is 0.3, then the emissivity of the surface is

Options :

1. ✓ 0.35

2. ✗ 0.3

3. ✗ 1.0

4. ✗ 0

Question Number : 56 Question Id : 1051315096 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

In a combined cycle for power generation, if the topping cycle has an efficiency of 45% and for bottoming cycle 30%, then the combined efficiency of the cycle is

Options :

1. ✖ 45 %
2. ✖ 30 %
3. ✖ 75 %
4. ✔ 61.5 %

Question Number : 57 Question Id : 1051315097 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A real gas undergoes throttling from 50 bar to 10 bar from an initial temperature of 300 K. If $\mu_{JT} = -0.05 \text{ K/bar}$ for the initial condition, what is the approximate value of the exit temperature?

Options :

1. ✖ 298 K
2. ✔ 302 K
3. ✖ 300 K
4. ✖ 304 K

Question Number : 58 Question Id : 1051315098 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A mixture of gas expands from 0.03 m^3 to 0.06 m^3 at a constant pressure of 1 MPa and absorbs 84 kJ of heat during the process. The change in internal energy of the mixture is

Options :

1. ✖ 30 kJ
2. ✔ 54 kJ
3. ✖ 84 kJ
4. ✖ 114 kJ

Question Number : 59 Question Id : 1051315099 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Two reversible heat engines are operated with same heat input and heat output. One of the engine is operated between the temperature limits of T_2 and 200 K & another is between 800 K and T_2 . Then the value of T_2 is

Options :

1. ✖ 100 K
2. ✖ 200 K
3. ✔ 400 K
4. ✖ 500 K

Question Number : 60 Question Id : 1051315100 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If a substance is perfect crystal and existing at absolute zero K, then the specific entropy of the substance is

Options :

1. ✖ Infinite
2. ✖ Positive
3. ✖ Negative

4. ✓ Zero

Question Number : 61 Question Id : 1051315101 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The maximum amount of low grade energy, which is convertible into work is known as

Options :

1. ✗ Anergy

2. ✓ Exergy

3. ✗ Entropy

4. ✗ Internal energy

Question Number : 62 Question Id : 1051315102 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A balloon containing an ideal gas is initially kept in an evacuated and insulated room.

If the balloon ruptures and the gas fills the entire room, what is the correct statement at the end of the process?

Options :

1. ✗ The internal energy of the gas decreases from its initial value, but the enthalpy remains constant

2. ✗ The internal energy of the gas increases from its initial value, but the enthalpy remains constant

3. ✓ Internal energy and enthalpy of the gas remain constant

4. ✗ Internal energy and enthalpy of the gas increase

Question Number : 63 Question Id : 1051315103 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Based on second law of thermodynamics the loss in available energy is being quantified as

Options :

1. ✓ Irreversibility
2. ✗ Decrease in available energy
3. ✗ Entropy loss
4. ✗ Energy loss

Question Number : 64 Question Id : 1051315104 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The clearance is provided in the reciprocating compressor with clearance ratio of 'k'.

If the pressure ratio is $\frac{p_2}{p_1}$, then the volumetric efficiency in terms of clearance ratio k, is

Options :

1. ✓ $1 + k - k \left(\frac{p_2}{p_1} \right)^{(1/n)}$
2. ✗ $1 - k + k \left(\frac{p_2}{p_1} \right)^{(1/n)}$
3. ✗ $1 - k - k \left(\frac{p_2}{p_1} \right)^{(1/n)}$
4. ✗ $1 + k + k \left(\frac{p_2}{p_1} \right)^{(1/n)}$

Question Number : 65 Question Id : 1051315105 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

In an axial flow compressor, if the air stream is not able to follow the blade contour such phenomena is known as

Options :

1. ✖ Surging
2. ✖ Haulling
3. ✔ Stalling
4. ✖ Chocking

Question Number : 66 Question Id : 1051315106 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

In an ideal Brayton power cycle operated for the gas turbine plant, if T_1 is the minimum temperature, T_3 is the maximum temperature and pressure ratio is r_p , then the net work ratio is given as

Options :

1. ✖ $1 - \left(\frac{T_3}{T_1} \right) (r_p)^{(\gamma-1)/\gamma}$
2. ✔ $1 - \left(\frac{T_1}{T_3} \right) (r_p)^{(\gamma-1)/\gamma}$
3. ✖ $1 - \left(\frac{T_3}{T_1} \right) (r_p)^{\gamma/(\gamma-1)}$
4. ✖ $1 - \left(\frac{T_1}{T_3} \right) (r_p)^{\gamma/(\gamma-1)}$

Question Number : 67 Question Id : 1051315107 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If regenerator is added to a Brayton cycle, the thermal efficiency is improved due to

Options :

1. ✖ Increase in temperature of gases at turbine inlet
2. ✖ Decrease in compressor input
3. ✖ Increase in turbine output
4. ✔ Decrease in quantity of heat in combustion chamber

Question Number : 68 Question Id : 1051315108 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Generally, in spark ignition engines, the compression ratio cannot be enhanced beyond certain limit because to avoid

Options :

1. ✖ Auto ignition
2. ✖ Over heating
3. ✔ Knocking
4. ✖ Preheating

Question Number : 69 Question Id : 1051315109 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

In a CI engine, the delay period in the combustion process mainly corresponds to

Options :

1. ✖ Time taken for fuel injection into the cylinder
2. ✔ Time taken between the start of fuel injection and start of combustion
3. ✖ Time between the end of fuel injection and start of combustion

4. ✖ Time between the start of combustion and attaining maximum pressure

Question Number : 70 Question Id : 1051315110 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The refrigerant and absorbent used in Vapour absorption refrigeration system respectively are

Options :

1. ✖ Water and water
2. ✖ Lithium bromide and water
3. ✖ Ammonia and lithium bromide
4. ✔ Ammonia and water

Question Number : 71 Question Id : 1051315111 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

An air conditioning system mixes 30% fresh air at 35 °C DBT and 50% RH with 70% recirculated air at 35 °C DBT and 50% RH. Which of the following statements about “mixed air condition” is true

Options :

1. ✖ The mixed air DBT will be 25 °C
2. ✖ The mixed air humidity ratio will be equal to the arithmetic mean of two humidity ratios
3. ✔ The mixed air state point will lie on the straight line joining the two states on the psychometric chart
4. ✖ The relative humidity of the mixed air will be equal to 50%

Question Number : 72 Question Id : 1051315112 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The whirl component of turbine blades is zero for the following turbine.

Options :

1. ✖ Parson's reaction turbine
2. ✖ Curtis turbine
3. ✔ Axial flow turbine
4. ✖ Impulse turbine with equal blade angles at the inlet and outlet

Question Number : 73 Question Id : 1051315113 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A single stage impulse turbine with a diameter of 1.2 m runs at 3000 rpm. If the blade speed ratio is 0.42, the inlet velocity of steam will be (in ms^{-1})

Options :

1. ✔ 450
2. ✖ 900
3. ✖ 188
4. ✖ 79

Question Number : 74 Question Id : 1051315114 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

In order to increase the corrosion resistance of stainless steel, the following element is added

Options :

1. ✖ Nickel
2. ✖ Molybdenum

3. ✖ Carbon

4. ✔ Chromium

Question Number : 75 Question Id : 1051315115 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If the material has the tendency to fracture without any appreciable deformation is known as

Options :

1. ✖ Stiffness

2. ✔ Brittleness

3. ✖ Toughness

4. ✖ Malleability

Question Number : 76 Question Id : 1051315116 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The heat treatment process used to enrich the steel surface by addition of Nitrogen is known as

Options :

1. ✖ Annealing

2. ✖ Surface hardening

3. ✖ Tempering

4. ✔ Nitriding

Question Number : 77 Question Id : 1051315117 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

In a linearly hardening plastic material, the true stress beyond the initial yielding

Options :

1. ✖ Decreases linearly with the true strain
2. ✔ Increases linearly with true strain
3. ✖ Remains constant with true strain
4. ✖ Increases exponentially with true strain

Question Number : 78 Question Id : 1051315118 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The area under the linear curve of stress-strain diagram with in the elastic limit is known as

Options :

1. ✔ Strain energy
2. ✖ Kinetic energy
3. ✖ Potential energy
4. ✖ Gravitational energy

Question Number : 79 Question Id : 1051315119 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which one of the following metal has maximum value of yield strength?

Options :

1. ✖ Copper alloy
2. ✔ High-carbon steel
3. ✖ Mild steel

4. ✖ Medium-carbon steel**Question Number : 80 Question Id : 1051315120 Question Type : MCQ Option Shuffling : Yes****Display Question Number : Yes****Correct Marks : 1 Wrong Marks : 0**

Based on Iron-Carbon diagram, when austenite decomposes during cooling process, an eutectoid mixture is formed. The nature of the element is

Options :

- 1. ✖ Ferrite
- 2. ✖ Cementite
- 3. ✖ Martensite
- 4. ✔ Pearlite

Question Number : 81 Question Id : 1051315121 Question Type : MCQ Option Shuffling : Yes**Display Question Number : Yes****Correct Marks : 1 Wrong Marks : 0**

In casting process, the covering passage is used for feeding the liquid metal into the mould to

Options :

- 1. ✖ Decrease the waste of cast metal
- 2. ✔ Avoid the aspiration of air
- 3. ✖ Increase rate of feeding
- 4. ✖ Quickly break off the protecting portion of the casting

Question Number : 82 Question Id : 1051315122 Question Type : MCQ Option Shuffling : Yes**Display Question Number : Yes****Correct Marks : 1 Wrong Marks : 0**

A low projection on the drag surface of a casting commencing near the gate by erosion of sand due to the high velocity liquid metal in the bottom gating. This defect is known as

Options :

1. ✖ Cold shut
2. ✖ Swell
3. ✖ Blow holes
4. ✔ Wash

Question Number : 83 Question Id : 1051315123 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The shrinkage allowance has been provided on the pattern to compensate the shrinkage when

Options :

1. ✖ The temperature of liquid metal drops from pouring to freezing temperature
2. ✖ The metal changes from liquid to solid state at freezing temperature
3. ✔ The temperature of solid phase drops from freezing to room temperature
4. ✖ The temperature of metal drops from pouring to room temperature

Question Number : 84 Question Id : 1051315124 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The commonly used casting process for producing intricate and detailed sculptures is

Options :

1. ✖ Sand casting
2. ✔ Investment casting
3. ✖ Die casting

4. ✖ Permanent mould casting**Question Number : 85 Question Id : 1051315125 Question Type : MCQ Option Shuffling : Yes****Display Question Number : Yes****Correct Marks : 1 Wrong Marks : 0**

While designing the gating system, the ratio of 1 : 2 : 4 represents

Options :

1. ✔ Sprue base area : runner area : ingate area
2. ✖ Pouring basin area : ingate area : runner area
3. ✖ Sprue base area : ingate area : casting area
4. ✖ Runner area : ingate area : casting area

Question Number : 86 Question Id : 1051315126 Question Type : MCQ Option Shuffling : Yes**Display Question Number : Yes****Correct Marks : 1 Wrong Marks : 0**

The extrusion process used to manufacture the short length components like paste tubes, gun shells etc., is

Options :

1. ✖ Direct extrusion
2. ✖ Continuous extrusion
3. ✖ Hydrostatic extrusion
4. ✔ Indirect extrusion

Question Number : 87 Question Id : 1051315127 Question Type : MCQ Option Shuffling : Yes**Display Question Number : Yes****Correct Marks : 1 Wrong Marks : 0**

The phenomenon where a metal part tends to partially return to its original shape after the forming tool is removed is known as

Options :

1. ✓ Spring back
2. ✗ Elastic recovery
3. ✗ Strain hardening
4. ✗ Plastic flow

Question Number : 88 Question Id : 1051315128 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The secondary operation which is used to improve the self-lubricating capacity of the sintered part in powder metallurgy is

Options :

1. ✗ Infiltration
2. ✓ Impregnation
3. ✗ Repressing
4. ✗ Coining

Question Number : 89 Question Id : 1051315129 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

In MIG welding process, the commonly used gases for shielding are

Options :

1. ✓ Argon and Helium
2. ✗ Oxygen and Acetylene
3. ✗ Nitrogen and Hydrogen
4. ✗ Carbon dioxide and Nitrogen

Question Number : 90 Question Id : 1051315130 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The welding process used for joining railway tracks is

Options :

1. ✖ TIG welding
2. ✖ Spot welding
3. ✖ Submerged welding
4. ✔ Thermit welding

Question Number : 91 Question Id : 1051315131 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

What is the key requirement for an adhesive to properly bond to a surface?

Options :

1. ✖ High surface roughness
2. ✖ High surface tension
3. ✔ Good wetting
4. ✖ Friction free surface

Question Number : 92 Question Id : 1051315132 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

According to the Taylor's tool life equation, if the cutting speed is halved with index $n = 0.25$, then the tool life

Options :

1. ✖ Increases by 8 times

- 2. ✖ Decreases by 8 times
- 3. ✖ Decreases by 16 times
- 4. ✔ Increases by 16 times

Question Number : 93 Question Id : 1051315133 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The Titanium Nitride or Titanium Carbonitride coated cutting tools are majorly used to

Options :

- 1. ✖ Make the tool ductile
- 2. ✔ Reduce friction and wear resistance
- 3. ✖ Increase tool toughness
- 4. ✖ Increase thermal conductivity

Question Number : 94 Question Id : 1051315134 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

As the cutting speed increases, how do the machining cost and tooling cost behave?

Options :

- 1. ✔ Machining cost decreases while tooling cost increases
- 2. ✖ Both machining cost and tooling cost both increases
- 3. ✖ Both machining cost and tooling cost both decreases
- 4. ✖ Machining cost increases while tooling cost decreases

Question Number : 95 Question Id : 1051315135 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The vacuum is a mandatory requirement for which of the following non traditional machining process?

Options :

1. ✘ Laser beam machining
2. ✘ Water jet machining
3. ✔ Electron beam machining
4. ✘ Plasma Arc machining

Question Number : 96 Question Id : 1051315136 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A device/mechanism used to position a work piece in the same position, cycle after the cycle is called

Options :

1. ✘ Indexing device
2. ✘ Guiding device
3. ✘ Clamping device
4. ✔ Locating device

Question Number : 97 Question Id : 1051315137 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The main purpose of an Automatic Tool Changer (ATC) in CNC machining process is to reduce

Options :

1. ✘ Machining maintenance

2. ✖ Cutting speed
3. ✔ Tool change time and idle time
4. ✖ Material hardness

Question Number : 98 Question Id : 1051315138 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which type of jig is generally used for machining in more than one plane without changing the setting?

Options :

1. ✔ Box jig
2. ✖ Channel jig
3. ✖ Template jig
4. ✖ Plate jig

Question Number : 99 Question Id : 1051315139 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which of the following parameters is NOT the essential requirement for accuracy of the measurement with the sine bar?

Options :

1. ✖ Flatness of upper surface, equality of size and roundness of rollers
2. ✖ Exact distance between the roller axes and mutual parallelism
3. ✔ Parallelism between top surface and bottom surface
4. ✖ Parallelism of rollers to upper surface and equality of axis distance from surface

Question Number : 100 Question Id : 1051315140 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The instrument used for the direct measurement of surface quality by dragging a stylus across the surface is

Options :

1. ✗ Clinometer
2. ✗ Sine bar
3. ✗ Autocollimator
4. ✓ Profile meter

Question Number : 101 Question Id : 1051315141 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

As per the Indian standards, the limits and fits specify how many grades of tolerances?

Options :

1. ✗ 10
2. ✓ 18
3. ✗ 22
4. ✗ 28

Question Number : 102 Question Id : 1051315142 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which of the following is NOT a common probe type used in coordinate measuring machine?

Options :

1. ✓ Electromagnetic

2. ✖ Laser
3. ✖ Scanning
4. ✖ Touch trigger

Question Number : 103 Question Id : 1051315143 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

What is the primary purpose of direct numerical control in the context of CAD/CAM integration?

Options :

1. ✖ Generating G codes automatically
2. ✖ Converting the analog signals into digital
3. ✖ Designing 3D models
4. ✔ Networking multiple CNC machines to single computer

Question Number : 104 Question Id : 1051315144 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which of the additive manufacturing technique uses a laser to cure liquid photopolymer resin in a vat?

Options :

1. ✔ Stereolithography
2. ✖ Fused Deposition modelling
3. ✖ Selective Laser Sintering
4. ✖ Binding Jetting

Question Number : 105 Question Id : 1051315145 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Find out the correct sequence for the additive manufacturing process chain?

Options :

1. ✖ Build, post processing, STL conversion, CAD
2. ✔ CAD, STL conversion, Build, Post processing
3. ✖ Post processing, Build, STL conversion, CAD
4. ✖ STL conversion, post processing, Build, CAD

Question Number : 106 Question Id : 1051315146 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

In time series analysis of forecasting technique, which of the source variation can be estimated by ratio to trend method?

Options :

1. ✖ Cyclical
2. ✖ Irregular
3. ✖ Trend
4. ✔ Seasonal

Question Number : 107 Question Id : 1051315147 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The correct order of series of operations to be carried out in production planning control is

Options :

1. ✖ Dispatching – Routing – Scheduling – Follow up
2. ✖ Routing – Scheduling – Follow up – Dispatching

- 3. ✓ Routing – Scheduling – Dispatching – Follow up
- 4. ✗ Scheduling – Routing – Dispatching – Follow up

Question Number : 108 Question Id : 1051315148 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

In the first come first service (FCFS) scheduling algorithm, which process is executed first?

Options :

- 1. ✗ The process with the shortest burst time
- 2. ✓ The process that arrives first
- 3. ✗ The process with the highest priority
- 4. ✗ The process with longest burst time

Question Number : 109 Question Id : 1051315149 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The term Therbligs are generally relevant with

Options :

- 1. ✗ Fatigue allowance in work measurement
- 2. ✗ Scheduling processes
- 3. ✓ Elementary motions of time study
- 4. ✗ Efficiency of the operator

Question Number : 110 Question Id : 1051315150 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If the objective is maximizing the quality production by ensuring production machine availability and reducing machine breakdowns, which of the following lean tool will best work for this?

Options :

1. ✖ Kaizen
2. ✖ Visual controls
3. ✖ Control plan
4. ✔ Total productive maintenance

Question Number : 111 Question Id : 1051315151 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

For an assembly line, the inventory was calculated by considering the production rate as 4 pieces per hour and the average processing time as 60 minutes. Now, if the production rate is kept the same and the average processing time is brought down by 30%, then the change in inventory is

Options :

1. ✖ Decreased by 25%
2. ✖ Increased by 25%
3. ✔ Decreased by 30%
4. ✖ Increased by 30%

Question Number : 112 Question Id : 1051315152 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

To issue and running balance of certain items of stock in inventory, which of the following keeps a record of items?

Options :

1. ✔ Bin cards

2. ✖ Stock items
3. ✖ Quantity account
4. ✖ Value account

Question Number : 113 Question Id : 1051315153 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The demand for a commodity is 100 units per day. Every time an order is placed, a fixed cost of Rs 400 is incurred and the holding cost is Rs 0.08 per unit per day. If the lead time is 13 days, then the economic lot size and the reorder point are in units

Options :

1. ✖ 800 and 130
2. ✖ 840 and 100
3. ✖ 890 and 300
4. ✔ 1000 and 300

Question Number : 114 Question Id : 1051315154 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Average stock level required to maintain the inventory is calculated as

Options :

1. ✔ Minimum stock level + half of the reorder cost
2. ✖ Maximum stock level + half of the reorder cost
3. ✖ Minimum stock level + one fourth of the reorder cost
4. ✖ Maximum stock level + one fourth of the reorder cost

Question Number : 115 Question Id : 1051315155 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which of the following relationships hold correct for the safety stock of inventory?

Options :

1. ✖ The greater the risk of running out of stock, the small the safety of stock
2. ✖ The larger the opportunity cost of the funds invested inventory, the larger the safety stock
3. ✔ The greater the uncertainty associated with forecasted demand, the higher the safety stock
4. ✖ The higher the profit margin per unit, the higher the safety stock necessary

Question Number : 116 Question Id : 1051315156 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The pessimistic time and optimistic time of completion of an activity are given as 10 days and 4 days respectively. Then the variance of the activity is

Options :

1. ✔ 14
2. ✖ 6
3. ✖ 2
4. ✖ 1

Question Number : 117 Question Id : 1051315157 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

In a graphical solution of solving Linear Programming Problem to convert inequalities into equations, they

Options :

1. ✖ Use slack variables

2. ✖ Use surplus variables
3. ✖ Use artificial surplus variables
4. ✔ Assume them to be equations

Question Number : 118 Question Id : 1051315158 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The penalty of a row in a transportation problem is obtained by

Options :

1. ✖ Deducting smallest element in the row from all other elements of the row
2. ✔ Deducting smallest element in the row from the next highest element of the row
3. ✖ Adding smallest element in the row to all other elements of the row
4. ✖ Adding smallest element in the row from the next highest element of the row

Question Number : 119 Question Id : 1051315159 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which of the cost estimates and performance measures are not used for economic analysis of a queuing system?

Options :

1. ✖ Cost per server per unit of time
2. ✔ Average waiting time of customers in the system
3. ✖ Cost per unit time for a customer waiting in the system
4. ✖ The average number of customers in the system

Question Number : 120 Question Id : 1051315160 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The activities of W, X, Y and Z are the direct precursors of A. What is the earliest starting time for A, if the activities of earliest finishing times are 12, 15, 10 and 6?

Options :

1. ✖ 6
2. ✖ 10
3. ✔ 15
4. ✖ 12

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