Question Paper Preview

Question Paper Name: Mechanical Engineering 11th May 2018 Shift2
Subject Name: Mechanical Engineering
Duration: 120

Mechanical Engineering

Display Number Panel: Yes
Group All Questions: No

Question Number : 1 Question Id : 2203605761 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If the system of equations $x+y+2z=1, x+4y+tz=4, x+2y+3z=2$ has a unique solution then the only possible value(s) for t is (are) _____.

Options :

1. 0

2. either 0 or 1

3. 0 or 1 or -1

4. any real number other than 5.

Question Number : 2 Question Id : 2203605762 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Let S be a closed surface bounded by a volume V. If $\bar{r}$ is the position vector of a point inside S, with $\hat{n}$ the unit normal on S ,the value of $\oint_S 3\bar{r}.\hat{n}\, ds$ is

Options :

1. $3V$

2. $6V$

3. $9V$

4. $15V$

Question Number : 3 Question Id : 2203605763 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which of the following integral is unbounded?

Options :

1. $\int_0^2 \frac{1}{2-x}\,dx$

2. $\int_0^\infty xe^{-x}\,dx$

3. $\int_0^\infty \frac{1}{x^2-1}\,dx$

4. $\int_0^{\frac{\pi}{4}} \tan x\,dx$

Question Number : 4 Question Id : 2203605764 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The solution of the differential equation $\frac{dy}{dx}+2xy=e^{-x^2}$ with the initial condition $y(0)=1$ is _____.

Options :

1. $(1+x)e^{x^2}$

2. $(1+x)e^{-x^2}$

3. $(1-x)e^{x^2}$

4. $(1-x)e^{-x^2}$

Question Number : 5 Question Id : 2203605765 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The partial differential equation $\frac{\partial f}{\partial t}=\frac{\partial^2 f}{\partial x^2}$ is of _____ type

Options :

1. Parabolic

2. Elliptic

3. Hyperbolic

4. Non- linear

Question Number : 6 Question Id : 2203605766 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The value of $\int_C \frac{1}{z-5}dz$, where $C:|z-5|=4$, is _____.

Options :

1. 0

2. $2\pi i$

3. $10\pi i$

4. $8\pi i$

Question Number : 7 Question Id : 2203605767 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A missile hits its target with probability 0.3. How many missiles should be fired so that there is at least an 80% probability of hitting a target?

Options :

1. At least 5

2. At least 7

3. At least 8

4. At least 3

Question Number : 8 Question Id : 2203605768 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Let X be a random variable having normal distribution. If $P(X < 0) = P(X > 2) = 0.4$, then the mean value of X is _____.

Options :

1. 0

2. 1

3. 1.5

4. 2

Question Number : 9 Question Id : 2203605769 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The error in Simpson's 1/3 rule is _____.

Options :

1. $O(h^2)$

2. $O(h^3)$

3. $O(h^4)$

4. $O(h^5)$

Question Number : 10 Question Id : 2203605770 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The solution of $y' = x + y, y(0) = 1$ by Euler's method for y at $x = 0.2$ is _____.

Options :

1. 1.15

2. 1.07

3. 1.2

4. 1.48

Question Number : 11 Question Id : 2203605771 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

"The moment of the resultant of two concurrent forces with respect to a center in their plane is equal to the algebraic sum of the moments of the components with respect to the same center". This statement is known as _____.

Options :

1. Newton's Theorem

2. D'Alembert's Theorem

3. Lame's Theorem

4. Varignon's Theorem

Question Number : 12 Question Id : 2203605772 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If a beam in subjected to a constant bending moment along its length then the shear force will be

Options :

1. Zero at the centre and maximum at the ends

2. Maximum at the centre and zero at the ends

3. Constant value everywhere along its length

4. Zero at all sections along the beam

Question Number : 13 Question Id : 2203605773 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If a mass ‘m’ oscillates on a spring having a mass ‘ms' and stiffness ‘k’, then the natural frequency of the respect is given by

Options :

1. $\sqrt{\frac{k}{m+\frac{ms}{3}}}$

2. $\sqrt{\frac{k}{\frac{m}{3}+ms}}$

3. $\frac{3k}{3+ms}$

4. $\frac{3k}{m+ms}$

Question Number : 14 Question Id : 2203605774 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which one of the following is the most conservative from failure criterion?

Options :

1. Gerber

2. Soderberg

3. Modified Goodman

4. ASME elliptic

Question Number : 15 Question Id : 2203605775 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The velocity of a body on reaching the ground from a height h, is

Options :

1. $2.\sqrt{(gh)}$

2. $\sqrt{(gh)}$

3. $\sqrt{(2gh)}$

4. $2g.\sqrt{h}$

Question Number : 16 Question Id : 2203605776 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A cylindrical section having no joint is known as

Options :

1. Joint less section

2. Homogeneous section

3. Perfect section

4. Seamless section

Question Number : 17 Question Id : 2203605777 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The working depth of a gear is the radial distance from the

Options :

1. Pitch circle to the bottom of a tooth

2. Pitch circle to the top of a tooth

3. Top of a tooth to the bottom of a tooth

4. Addendum circle to the clearance circle

Question Number : 18 Question Id : 2203605778 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

When a body is subjected to transverse vibrations, the stress induced in a body will be

Options :

1. Shear stress

2. Bending stress

3. Tensile stress

4. Compressive stress

Question Number : 19 Question Id : 2203605779 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In a ball bearing, ball and bearing forms a

Options :

1. Turning pair

2. Rolling pair

3. Screw pair

4. Spherical pair

Question Number : 20 Question Id : 2203605780 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In under damped vibrating system, the amplitude of vibration

Options :

1. Decreases linearly with time

2. Increases linearly with time

3. Decreases exponentially with time

4. Increases exponentially with time

Question Number : 21 Question Id : 2203605781 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The inherent property of a body which offers reluctance to change its state or its uniform motion is known as

Options :

1. Weight

2. Mass

3. Inertia

4. Momentum

Question Number : 22 Question Id : 2203605782 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The shaft of a motor starts from rest and attains the full speed of 1800 RPM in 10 seconds. The shaft has an angular acceleration of

Options :

1. 3π rad/s

2. 6π rad/s

3. 9π rad/s

4. 12π rad/s

Question Number : 23 Question Id : 2203605783 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Bicycle remains stable in running through a bend because of

Options :

1. gyroscopic action

2. Coriolis action

3. centrifugal action

4. radius of curved path

Question Number : 24 Question Id : 2203605784 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Identify the wrong statement from the following explanations about free damped vibrations.

Options :

1. Damped vibrations lead to reduction in amplitude over every cycle of vibration.

2. Damping factor is a measure of the relative amount of damping in the particular system with that necessary for the critical damping system.

3. Critical damping is said to occur when frequency of damped vibration is zero.

4. Over-damping makes the mass move quickly to the equilibrium position

Question Number : 25 Question Id : 2203605785 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The value of Young's modulus for mild-steel is of the order of

Options :

1. 2.1×10^5 kg/cm^2

2. 2.1×10^6 kg/cm^2

3. 2.1×10^7 kg/cm^2

4. 0.1×10^6 kg/cm^2

Question Number : 26 Question Id : 2203605786 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The minimum number of teeth on a gear with a pressure angle of 14½° will be

Options :

1. 11

2. 17

3. 20

4. 32

Question Number : 27 Question Id : 2203605787 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In vibration isolation systems, the transmissibility ratio of force transmitted to the disturbing force will be less than unity for all values of damping factor if ω/ω_n is

Options :

1. equal to 1

2. below $\sqrt{2}$

3. above $\sqrt{2}$

4. less than 1

Question Number : 28 Question Id : 2203605788 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Rankine's theory of failure is applicable for

Options :

1. Brittle materials

2. Ductile materials

3. Tough materials

4. Plastics

Question Number : 29 Question Id : 2203605789 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

On a simply supported beam pinned at ends, carrying a concentrated load at the centre, the bending moment variation follows the

Options :

1. parabolic relationship

2. linear relationship

3. hyperbolic relationship

4. cubical relationship

Question Number : 30 Question Id : 2203605790 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The ratio of the ultimate stress to the design stress is known as

Options :

1. elastic limit

2. strain

3. bulk modulus

4. factor of safety

Question Number : 31 Question Id : 2203605791 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In the Grubler's Equation, when the number of degrees of freedom is zero, then the mechanism is called

Options :

1. chain

2. inverted mechanism

3. direct mechanism

4. structure

Question Number : 32 Question Id : 2203605792 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

When a shaft is rotating at a speed which is less than critical speed the phase difference between displacement and centrifugal force is

Options :

1. 90°

2. 45°

3. 180°

4. $30°$

Question Number : 33 Question Id : 2203605793 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

When a Journal is rotating in its bearing, the resultant (RN) of the normal force and frictional force (μRN)

Options :

1. passes through the centre of the journal

2. is the tangent to the circle of the journal at the point of contact

3. is a tangent to a small circle of radius $r \times \sin\varphi$, where $\varphi = \tan^{-1} \mu$

4. is a tangent to a small circle of radius $r \times \varphi$, where $\varphi = \tan^{-1} \mu$

Question Number : 34 Question Id : 2203605794 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

When the frictional force helps to apply the brake, then the brake is said to be

Options :

1. Self energizing brake

2. Self locking brake

3. Frictional brake

4. Pressurised brake

Question Number : 35 Question Id : 2203605795 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The maximum frictional force which comes in to play when a body just begins to slide over the surface of the other body, is known as:

Options :

1. Static friction

2. dynamic friction

3. Limiting friction

4. coefficient of friction

Question Number : 36 Question Id : 2203605796 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The maximum deflection of a fixed beam of length ℓ carrying a central point load W is,

Options :

1. $W\ell^3 / 48\ EI$

2. $W\ell^3 / 96\ EI$

3. $W\ell^3 / 192\ EI$

4. $W\ell^3 / 384\ EI$

Question Number : 37 Question Id : 2203605797 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In a forced vibration with viscous damping, maximum amplitude occurs when forced frequency is

Options :

1. equal to the natural frequency

2. slightly less than the natural frequency

3. slightly greater than the natural frequency

4. zero

Question Number : 38 Question Id : 2203605798 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

For calculating the pitch of a riveted joint the equations relate

Options :

1. tearing strength of the plate to the shear strength of the rivet

2. shear strength of the rivet to its crushing strength

3. tearing strength of the plate to crushing strength of the rivet

4. shear strength of the rivet to the strength of the solid unriveted plate

Question Number : 39 Question Id : 2203605799 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

When a shaft transmits power through gears, the shaft experiences:

Options :

1. torsional stress alone

2. bending stress only

3. constant bending and varying torsional stresses

4. constant torsional and varying bending stresses

Question Number : 40 Question Id : 2203605800 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which of the following transducers is generally used for dynamic rather than static measurements?

Options :

1. Resistive

2. Capacitive

3. Piezo-electric

4. Inductive

Question Number : 41 Question Id : 2203605801 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In flywheel, usually most of the mass is concentrated in flywheel

Options :

1. Shaft

2. Rim

3. Arms

4. Hub

Question Number : 42 Question Id : 2203605802 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

For the design of a cast iron member, the most appropriate theory of failure is

Options :

1. Mohr's theory

2. Rankine's theory

3. Maximum strain theory

4. Maximum stress theory

Question Number : 43 Question Id : 2203605803 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If the tearing efficiency of a riveted joint is 60%, then the ratio of diameter of rivet hole to the pitch of rivets is

Options :

1. 0.4

2. 0.8

3. 0.6

4. 0.2

Question Number : 44 Question Id : 2203605804 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

When a body is subjected to transverse vibrations, the stress induced in a body will be

Options :

1. Shear stress

2. Compressive stress

3. Tensile stress

4. Shear & Compressive

Question Number : 45 Question Id : 2203605805 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A reverted gear train is one in which the output shaft and input shaft

Options :

1. rotate in opposite directions

2. are coaxial

3. are at right angles to each other

4. are at an angle to each other

Question Number : 46 Question Id : 2203605806 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In the region of the boundary layer nearest to the wall where velocity is not equal to zero, the viscous forces are

Options :

1. Of the same order of magnitude as the inertial forces

2. More than inertial forces

3. Less than inertial forces

4. Negligible

Question Number : 47 Question Id : 2203605807 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which one of the following statements is correct for a fully developed pipe flow?

Options :

1. Pressure gradient balances the wall shear stress only and has a constant value

2. Pressure gradient is greater than the wall shear stress

3. The velocity profile is changing continuously

4. Inertia force balances the wall shear stress

Question Number : 48 Question Id : 2203605808 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

For conduction through a spherical wall with constant thermal conductivity and with inner side temperature greater than outer wall temperature, (one dimensional heat transfer), what is the type of temperature distribution?

Options :

1. Linear

2. Parabolic

3. Hyperbolic

4. Elliptic

Question Number : 49 Question Id : 2203605809 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A Carnot engine operates between 327°C and 27°C. If the engine produces 300 kJ of work, the entropy change during heat addition is

Options :

1. 0.5 kJ/K

2. 1.0 kJ/K

3. 1.5 kJ/K

4. 2.0 kJ/K

Question Number : 50 Question Id : 2203605810 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Steady flow occurs when

Options :

1. The direction and magnitude of the velocity at all points are identical

2. The velocity of successive fluid particles, at any point, is the same at successive periods of time

3. The magnitude and direction of the velocity do not change from point to point in the fluid

4. The fluid particles move in plane or parallel planes and the streamline patterns are identical in each plane

Question Number : 51 Question Id : 2203605811 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The insulation ability of an insulator with the presence of moisture would

Options :

1. Increase

2. Decrease

3. Remain unaffected

4. May increase/decrease depending on temperature and thickness of insulation

Question Number : 52 Question Id : 2203605812 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which of the following has least value of conductivity?

Options :

1. Glass

2. Water

3. Plastic

4. Air

Question Number : 53 Question Id : 2203605813 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Otto cycle is also known as

Options :

1. Constant pressure cycle

2. Constant volume cycle

3. Constant temperature cycle

4. Constant temperature and pressure cycle

Question Number : 54 Question Id : 2203605814 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

According to Clausius' statement of second law of thermodynamics

Options :

1. Heat can't be transferred from low temperature source to high temperature source

2. Heat can be transferred for low temperature to high temperature source by using refrigeration cycle

3. Heat can be transferred from low temperature to high temperature source if COP of process is more than unity

4. Heat can't be transferred from low temperature to high temperature source without the aid of external energy

Question Number : 55 Question Id : 2203605815 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The reference fuels for knock rating of spark ignition engines would include

Options :

1. Iso-octane and alpha-methyl naphthalene

2. Normal octane and aniline

3. Iso-octane and normal hexane

4. Normal heptane and iso-octane

Question Number : 56 Question Id : 2203605816 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Under cooling in a refrigeration cycle

Options :

1. Increases C.O.P.

2. Decreases C.O.P.

3. C.O.P. remains unaltered

4. Other factors decide C.O.P.

Question Number : 57 Question Id : 2203605817 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

What is the formula for determining the size of equivalent pipe for two pipes that are connected in series of lengths L_1 & L_2 and diameters d_1 & d_2,? (where, L & d are length and diameter of equivalent pipe)

Options :

1. $(L / d) = (L_1 / d_1) + (L_2 / d_2)$

2. $(L / d^2) = (L_1 / d_1^2) + (L_2 / d_2^2)$

3. $(L / d^3) = (L_1 / d_1^3) + (L_2 / d_2^3)$

4. $(L / d^5) = (L_1 / d_1^5) + (L_2 / d_2^5)$

Question Number : 58 Question Id : 2203605818 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In a balanced counter flow heat exchanger with NTU = 1.0, the effectiveness of the heat exchanger is

Options :

1. 0.5

2. 1.0

3. 1.5

4. 0.2

Question Number : 59 Question Id : 2203605819 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

What is capacity ratio of the heat exchanger in which the cold fluid enters at 25°C and leaves at 75°C and the corresponding temperatures of hot fluid are 150°C and 130°C, respectively?

Options :

1. 1.2

2. 0.4

3. 0.2

4. 1.4

Question Number : 60 Question Id : 2203605820 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Combustion in Compression Ignition (CI) engine is

Options :

1. homogeneous

2. heterogeneous

3. both homogeneous and heterogeneous.

4. turbulent

Question Number : 61 Question Id : 2203605821 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In Morse test on a 2-cylinder, 2-stroke, spark ignition engine, the brake power was 9 kW whereas the brake powers of individual cylinders with spark cut off were 4.25 kW and 3.75 kW respectively. The mechanical efficiency of the engine is

Options :

1. 90 %

2. 80 %

3. 45.5 %

4. 52.5 %

Question Number : 62 Question Id : 2203605822 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A hermetically sealed unit of a refrigeration system means

Options :

1. compressor is sealed

2. compressor motor is sealed.

3. complete refrigeration unit is sealed

4. compressor and motor is sealed

Question Number : 63 Question Id : 2203605823 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A pressure of 25 m of head of water is equal to

Options :

1. 25 kPa

2. 245 kPa

3. 2.5 MPa

4. 2.5 kPa

Question Number : 64 Question Id : 2203605824 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The value of Prandtl's number for air is about

Options :

1. 0.1

2. 0.3

3. 0.7

4. 1.7

Question Number : 65 Question Id : 2203605825 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Heat is closely related with

Options :

1. Liquids

2. Entropy

3. Temperature

4. Enthalpy

Question Number : 66 Question Id : 2203605826 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In a free expansion process

Options :

1. work done is zero

2. heat transfer is zero

3. both 1) and 2)

4. work done is zero but heat decreases

Question Number : 67 Question Id : 2203605827 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

According to first law of thermodynamics,

Options :

1. mass and energy are mutually convertible

2. heat and work are mutually convertible

3. Carnot engine is most efficient

4. heat flows from hot substance to cold substance

Question Number : 68 Question Id : 2203605828 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Bernoulli's equation is applicable for a

Options :

1. steady, frictionless, incompressible and irrotational flow

2. unsteady, frictionless, incompressible and irrotational flow

3. steady, frictionless, compressible and irrotational flow

4. steady, frictionless, incompressible and rotational flow

Question Number : 69 Question Id : 2203605829 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which statement is true in the following?

Options :

1. The units of overall heat transfer coefficient and thermal conductivity are same.

2. The units of overall heat transfer coefficient and friction coefficient are same.

3. The units of overall heat transfer coefficient and film conductance are same.

4. The units of overall heat transfer coefficient and thermal diffusivity are same.

Question Number : 70 Question Id : 2203605830 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In a reversible cycle, the entropy of the system

Options :

1. increases

2. decreases

3. does not change

4. first increases and then decreases

Question Number : 71 Question Id : 2203605831 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In a vessel, steam is at a pressure of p bar and t°C. To identify the state of the steam

Options :

1. if the given pressure p is greater than the saturated pressure at t°C, then the steam is superheated state

2. if the given pressure p is less than the saturated pressure at t°C, then the steam is superheated state

3. if the given pressure p is less than the saturated pressure at t°C, then the steam is saturated state

4. if the given pressure p is greater than the saturated pressure at t°C, then the steam is saturated state

Question Number : 72 Question Id : 2203605832 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Co efficient of performance is the indicative of

Options :

1. initial cost of the refrigeration system

2. maintenance cost of the refrigeration system

3. operating cost of the refrigeration system

4. aesthetic cost of the refrigeration system

Question Number : 73 Question Id : 2203605833 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If a centrifugal pump is noisy in operation, it may be due to

Options :

1. High suction head

2. Air in Water

3. Faulty priming

4. Mechanical defect

Question Number : 74 Question Id : 2203605834 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Bernoulli's equation is applicable between any two points in

Options :

1. rotational flow of an incompressible fluid

2. irrotational flow of compressible or incompressible fluid

3. steady rotational flow of an incompressible fluid

4. steady, irrotational flow of an incompressible fluid

Question Number : 75 Question Id : 2203605835 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A hydraulic pump delivers 60 litre/min of oil at 300 bar, with inlet pressure being atmospheric pressure. The overall efficiency of the pump is 90%. The approximate input power needed for the pump is

Options :

1. 22 kW

2. 4 kW

3. 220 kW

4. 33 kW

Question Number : 76 Question Id : 2203605836 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Upto critical radius of insulation

Options :

1. Added insulation will increase heat loss

2. Added insulation will decrease heat loss

3. Convective heat loss will be less than conduction heat loss

4. Heat flux will decrease

Question Number : 77 Question Id : 2203605837 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The wet bulb temperature is approximately nearer to

Options :

1. dew point temperature

2. dry bulb temperature

3. dry air temperature of the moist air

4. temperature at the exit of adiabatic saturator

Question Number : 78 Question Id : 2203605838 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Under ideal conditions, the approximate velocity of steam in m/s at the outlet of a nozzle for a heat drop of 400 kJ/kg will be

Options :

1. 1200

2. 900

3. 600

4. sonic velocity

Question Number : 79 Question Id : 2203605839 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

High specific speed (300 to 1000) and low heads (less than 30 m) indicate that the turbine is

Options :

1. Pelton wheel

2. Francis

3. Kaplan

4. Propeller

Question Number : 80 Question Id : 2203605840 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Velocity of flame propagation in SI engines is maximum for air-fuel mixture which is _____ stoichiometric.

Options :

1. 10% richer than

2. equal to

3. richer by more than 10%

4. leaner than 10%

Question Number : 81 Question Id : 2203605841 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The hardness of steel primarily depends on

Options :

1. Percentage of carbon

2. Percentage of alloying elements

3. Heat treatment employed

4. Shape of carbides and their distribution in iron

Question Number : 82 Question Id : 2203605842 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Lack of toughness in the material implies

Options :

1. Brittleness

2. Plasticity

3. Ductility

4. Softening

Question Number : 83 Question Id : 2203605843 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Maximum percentage of carbon in austenite is

Options :

1. 0.025%

2. 0.26%

3. 0.8%

4. 1.7%

Question Number : 84 Question Id : 2203605844 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which group of the following is in descending order of corrodibility?

Options :

1. Gold, Platinum, Silver, Titanium

2. Platinum, Silver, Titanium, Gold

3. Silver, Titanium, Gold, Platinum

4. Platinum, Gold, Silver, Titanium

Question Number : 85 Question Id : 2203605845 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

When low carbon steel is heated upto upper critical temperature

Options :

1. there is no change in grain size

2. the average grain size is a minimum

3. the grain size increases very rapidly

4. the grain size increases first and then decreases very rapidly

Question Number : 86 Question Id : 2203605846 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The pattern adopted for those castings where there are some portions which are structurally weak and are likely to break by the force of ramming are called

Options :

1. Loose piece pattern

2. Follow board pattern

3. Skeleton pattern

4. Single piece pattern

Question Number : 87 Question Id : 2203605847 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The property of sand due to which the sand grains stick together is called

Options :

1. Collapsibility

2. Permeability

3. Cohesiveness

4. Adhesiveness

Question Number : 88 Question Id : 2203605848 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

When an alloy solidifies over a range of temperature, the resulting casting structure is

Options :

1. wholly equi-axed

2. wholly columnar

3. partially columnar partially equi-axed

4. dendrite

Question Number : 89 Question Id : 2203605849 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The vertical surfaces of a pattern are provided a taper known as _____ allowance.

Options :

1. distortion

2. machining

3. draft

4. shrinkage

Question Number : 90 Question Id : 2203605850 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Steel and cast iron pipes are cast by

Options :

1. die casting

2. continuous casting

3. true centrifugal casting

4. investment casting

Question Number : 91 Question Id : 2203605851 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A cup of 10 cm height and 5 cm diameter is to be made from a sheet metal of 2 mm thickness. The number of deductions necessary will be, (take LDR as 2)

Options :

1. one

2. two

3. three

4. four

Question Number : 92 Question Id : 2203605852 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The maximum possible draft in cold rolling of sheet increases with the

Options :

1. Increase in coefficient of friction

2. Decrease in coefficient of friction

3. Decrease in roll radius

4. Decrease in roll velocity

Question Number : 93 Question Id : 2203605853 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Fatigue resistance of metals can be improved by setting up compressive stresses in its surface. The task is accomplished by

Options :

1. Swaging

2. Shot peening

3. Normalizing

4. Galvanizing

Question Number : 94 Question Id : 2203605854 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Bamboo defect is a defect observed in the following manufacturing operation:

Options :

1. turning

2. casting

3. extrusion

4. forging

Question Number : 95 Question Id : 2203605855 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The welding process used for joining mild steel shanks to high speed drills is

Options :

1. spot welding

2. seam welding

3. flash butt welding

4. upset butt welding

Question Number : 96 Question Id : 2203605856 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

TIG welding is best suited for welding

Options :

1. Stainless steel

2. Carbon steel

3. Mild steel

4. Aluminium

Question Number : 97 Question Id : 2203605857 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Single U-butt welds are preferred, when the plate thickness is

Options :

1. 10 mm

2. 15 mm

3. 20 mm

4. 30 mm and above

Question Number : 98 Question Id : 2203605858 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If 't' is the thickness of sheet to be spot welded, then electrode tip diameter is equal to

Options :

1. $\sqrt{t}$

2. t

3. $2\sqrt{t}$

4. $1.5\sqrt{t}$

Question Number : 99 Question Id : 2203605859 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Hard zone cracking in a low alloy steel due to welding is the result of an absorption of

Options :

1. N_2

2. O_2

3. He

4. H_2

Question Number : 100 Question Id : 2203605860 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The oxy acetylene gas used in gas welding produces a peak flame temperature of

Options :

1. $3200^{o}C$

2. $2100^{o}C$

3. $2400^{o}C$

4. $1800^{o}C$

Question Number : 101 Question Id : 2203605861 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In which one of the following machining manual part programming is done?

Options :

1. CNC machining

2. NC machining

3. DNC machining

4. FMS machining

Question Number : 102 Question Id : 2203605862 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Negative rake is usually provided on

Options :

1. High carbon steel tools

2. Low carbon steel tools

3. Cemented carbide tools

4. Aluminium

Question Number : 103 Question Id : 2203605863 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A two flute drill bit of 20 mm diameter rotating at 500 r.p.m. with a feed rate of 0.2 mm/revolution is used to drill a through hole in a mild steel plate 40 mm thickness. The depth of cut in this drilling operation is

Options :

1. 0.2 mm

2. 10 mm

3. 20 mm

4. 40 mm

Question Number : 104 Question Id : 2203605864 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A milling cutter having 8 teeth is rotating at 150 rpm. If the feed per tooth is 0.1 mm, what would be the table speed in mm per minute?

Options :

1. 70

2. 120

3. 150

4. 187

Question Number : 105 Question Id : 2203605865 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Continuous chip with built-up-edge is formed

Options :

1. When ductile material is machined

2. When the cutting speed is high

3. When the tool-chip friction is low

4. All of the above

Question Number : 106 Question Id : 2203605866 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

According to Taylor's Principle, No Go gauge checks

Options :

1. Only one feature at a time

2. Only important dimensions at a time

3. All the dimensions at a time

4. Only related dimension at a time

Question Number : 107 Question Id : 2203605867 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Steel balls are manufactured by _____ process.

Options :

1. casting

2. machining

3. cold heading

4. spinning

Question Number : 108 Question Id : 2203605868 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The most commonly used material for surface plate in metrology is

Options :

1. alloyed close grained cast iron

2. carbide steel

3. hardened steel

4. Glass

Question Number : 109 Question Id : 2203605869 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

For general purpose sliding/ rotation of a circular shaft in a bush the tolerance grade recommended is

Options :

1. H7/f7

2. H7/n1

3. H2 /p7

4. P4/n7

Question Number : 110 Question Id : 2203605870 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which of the following metals have excellent machinability?

Options :

1. Cast iron

2. Low carbon steel

3. Bronze

4. High carbon steel

Question Number : 111 Question Id : 2203605871 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Rank order clustering, as applied to manufacturing automatic is

Options :

1. a technique of identifying process sequence in production of a component

2. a Just In Time (JIT) method

3. an approach of grouping the machines into cells in an FMS system

4. a tool to generate bill of materials

Question Number : 112 Question Id : 2203605872 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Time study is

Options :

1. the appraisal, in terms of time, of the value of work involving human effort

2. machine setting time

3. time taken by workers to do a job

4. method of fixing time for workers

Question Number : 113 Question Id : 2203605873 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Material handling is higher in the case of

Options :

1. Process layout

2. Product layout

3. Group layout

4. Fixed position layout

Question Number : 114 Question Id : 2203605874 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Scheduling

Options :

1. Prescribes the sequence of operations to be followed

2. Determines the programme for the operations

3. Is concerned with starting of processes

4. Regulates the progress of job through various processes

Question Number : 115 Question Id : 2203605875 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In a transportation problem, VAM gives a

Options :

1. final solution

2. initial approximation

3. solution close to the optimal solution

4. all the above

Question Number : 116 Question Id : 2203605876 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Annual demands for a product costing Rs. 100 per piece is Rs. 900. Ordering cost per order is Rs. 100 and the holding cost is Rs. 2 per unit per year. The economic lot size is then

Options :

1. 200

2. 300

3. 400

4. 500

Question Number : 117 Question Id : 2203605877 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The depreciation calculated by which of the following methods would be maximum

Options :

1. Straight line method

2. Sinking fund method

3. Diminishing balance method

4. Sum of year digits method

Question Number : 118 Question Id : 2203605878 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

An activity which consumes neither time nor resources on a PERT/CPM network is referred to as

Options :

1. an ordinary activity

2. a dummy activity

3. significant event representing some milestone

4. an event that is to be transferred to some other network diagram

Question Number : 119 Question Id : 2203605879 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which model involves the allocation of resources to activities in such a manner that some measure of effectiveness is optimized?

Options :

1. Sequencing

2. Allocation Models

3. Queuing Theory

4. Decision Theory

Question Number : 120 Question Id : 2203605880 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A linear programming problem with mixed constraint (some constraints of $\leq$ type and some of $\geq$ type) can be solved by which of the following methods,

Options :

1. Big-M method

2. Hungarian Method

3. Branch and bound method

4. Least cost method