Question Paper Preview

Question Paper Name:	Mechanical Engineering 3rd May 2019 S2
Subject Name:	Mechanical Engineering
Duration:	120
Share Answer Key With Delivery Engine:	Yes
Actual Answer Key:	Yes

Mechanical Engineering

Display Number Panel:	Yes
Group All Questions:	No

Question Number : 1 Question Id : 2501071441 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If A is a matrix of order 3 and rank 2 then the system AX = 0 has ____.

Options :

1. only the trivial solution

2. one independent solution

3. two independent solutions

4. three independent solutions

Question Number : 2 Question Id : 2501071442 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The function $f(x, y) = \frac{x + y}{1 - xy}$ is ____.

Options :

1. not continuous at (0, 1)

continuous at (1, 1)

2.

continuous at (0, 0)

3.

not continuous at (0, 0)

4.

Question Number : 3 Question Id : 2501071443 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The work done by the force $\overline{F} = yz\bar{i} + zx\bar{j} + xy\bar{k}$ in moving a particle from the point (1, 1, 1) to the point (3, 3, 2) along the path C is ____.

Options :

0

1.

10

2.

17

3.

not possible to find

4.

Question Number : 4 Question Id : 2501071444 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The particular integral of $\frac{d^4y}{dx^4} - y = 15\cos 2x$ is ___.

Options :

$C_1e^x + C_2e^{-x} + C_3\cos x + C_4\sin x$

1.

$\sin 2x$

2.

$\mathrm{Cos}\,2x$

3.

4. $C_1e^x+C_2e^{-x}+C_3\cos x+C_4\sin x+\sin 2x$

Question Number : 5 Question Id : 2501071445 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which of the following is an integrating factor of $\frac{dy}{dx}-\frac{y}{x+1}=1+x$.

Options :

1. $x+1$

2. $\frac{1}{x+1}$

3. $\frac{x}{x+1}$

4. $x(1+x)$

Question Number : 6 Question Id : 2501071446 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

$f(z)=z^2\bar{z}$ is _____.

Options :

1. analytic everywhere

2. not analytic everywhere

3. analytic only at $z = 0$

4. analytic at $z \neq 0$

Question Number : 7 Question Id : 2501071447 Question Type : MCQ Option Shuffling : Yes Display Q Single Line Question Option : No Option Orientation : Vertical

If an exponential distribution defined by $f(x) = ae^{-2x}, 0 < x < \infty$ then $a =$ ____.

Options :

1. -1

2. 1

3. 2

4. -2

Question Number : 8 Question Id : 2501071448 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Three unbiased coins are tossed simultaneously. This is repeated four times. The probability of getting at least one head each time is ___.

Options :

1. $\left(\frac{3}{4}\right)^4$

2. $\left(\frac{1}{8}\right)^4$

3. $\left(\frac{7}{8}\right)^4$

4. $\left(\frac{1}{4}\right)^4$

Question Number : 9 Question Id : 2501071449 Question Type : MCQ Option Shuffling : Yes Display C Single Line Question Option : No Option Orientation : Vertical

If $y_0=0, y_1=10, y_2=18, y_3=25$ and step size h = 2 then by Simpson's $\frac{3}{8}^{th}$ rule, $\int_0^6 y\,dx=$ ___.

Options :

1. 8.5

2. 82.0

3. 81.75

4. 80.75

Question Number : 10 Question Id : 2501071450 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If $y'=-xy,\ y(0)=1$, then $y(0.1)=$ _____, by Euler's formula.

Options :

1. 0

2. 1

3. 1.1

4. 1.01

Question Number : 11 Question Id : 2501071451 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A body is acted upon by a concurrent force system. It can be brought to equilibrium by the application of

Options :

1. a collinear force equal in magnitude and opposite to the direction of the resultant

2. a force acting on suitable line and a moment along the direction of the force

3. a force acting on anywhere along a suitable line

4. a force acting anywhere on the body

Question Number : 12 Question Id : 2501071452 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Hot coffee stored in a well-insulated thermos flask is an example of

Options :

1. isolated system

2. closed system

3. open system

4. non-flow adiabatic system

Question Number : 13 Question Id : 2501071453 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The centre of percussion of solid cylinder of radius 'r' resting on horizontal plane will be

Options :

1. $\frac{r}{2}$

2. $\frac{2r}{3}$

3. $\frac{r}{4}$

4. $\frac{3r}{2}$

Question Number : 14 Question Id : 2501071454 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The minimum number of links in a constrained planer mechanism involving revolute pairs and two higher pairs is

Options :

1. 3

2. 4

3. 5

4. 6

Question Number : 15 Question Id : 2501071455 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The type of motion when acceleration is proportional to displacement is called

Options :

1. translation

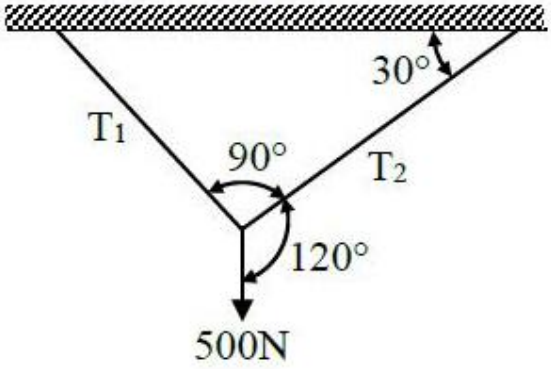
2. rotational

3. gyroscopic

4. simple harmonic

Question Number : 16 Question Id : 2501071456 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A weight of 500 N is supported by two metallic ropes as shown in the figure. The values of tensions T_1 and T_2 are respectively



Options :

1. 433 N and 250 N

2. 250 N and 433 N

3. 353.5 N and 250 N

4. 250 N and 353.5 N

Question Number : 17 Question Id : 2501071457 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which of the following formulae is used to determine the time of flight for projectile motion, when point of projection and point of landing are on same level of horizontal plane?

Options :

1. $\frac{2u \sin \alpha}{g}$

2. $\frac{u^2 \sin \alpha}{2g}$

3. $\frac{2u \sin \alpha}{g \cos \theta}$

4. $2ug \sin \alpha$

Question Number : 18 Question Id : 2501071458 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

85 kJ of heat is supplied to a closed system at constant volume. During the next process, the system rejects 90 kJ of heat at constant pressure while 20 kJ of work is done on it. The System is brought to the original state by an adiabatic process. The initial internal energy is 100 kJ. Then the quantity of work transfer during the process is

Options :

1. 30 kJ

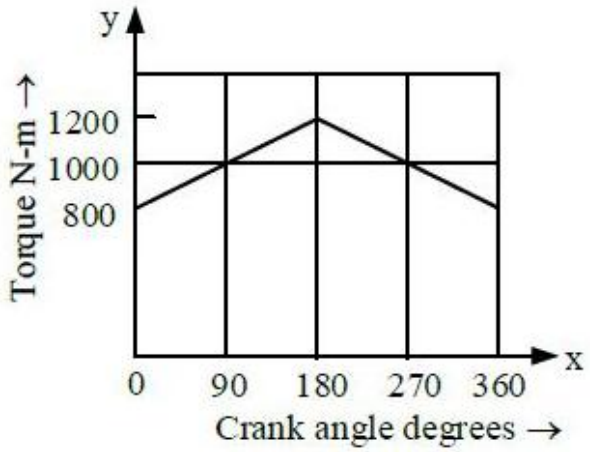
2. 25 kJ

3. 20 kJ

4. 15 kJ

Question Number : 19 Question Id : 2501071459 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In the following turning moment diagram of an engine for a cycle of operations. Maximum fluctuation of energy is



Options :

1. 628 N-m

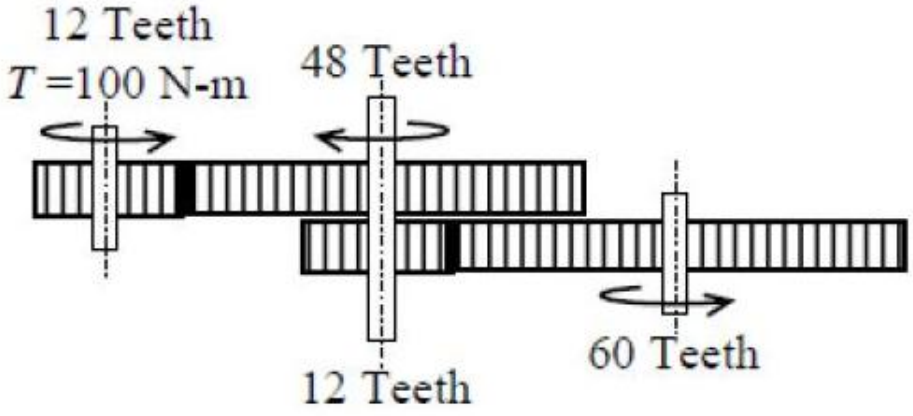
2. 314 N-m

3. 157 N-m

4. 200 N-m

Question Number : 20 Question Id : 2501071460 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A frictionless gear train is shown in the figure. The left most 12-teeth gear is given a torque of 100 N-m. The output torque from the 60-teeth gear on the right in N-m is



Options :

1. 5

2. 20

3. 500

4. 2000

Question Number : 21 Question Id : 2501071461 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The value of Poisson's ratio for cast iron is

Options :

1. 0.1 to 0.2

2. 0.23 to 0.27

3. 0.4 to 0.6

4. 3 to 4

Question Number : 22 Question Id : 2501071462 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The strain energy stored in a body of volume 'V' subjected to uniform stress σ is

Options :

1. $\frac{\sigma \times E}{V}$

2. $\frac{\sigma E^2}{V}$

3. $\frac{\sigma V^2}{E}$

4. $\frac{\sigma^2}{2E} V$

Question Number : 23 Question Id : 2501071463 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Rotating key of a lock is an example of ____

Options :

1. Varigon's Theory

2. Walton's Theory

3. Formation of couple

4. Parallel axis theorem

Question Number : 24 Question Id : 2501071464 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

For a loaded cantilever beam of uniform cross-section, the bending moment (in N-mm) along the length is $M(x) = 10x^2 + 5x + 1$, where x is the distance (in mm) measured from the free end of the beam. The magnitude of shear force (in N) in the cross-section at x = 10 mm is _____.

Options :

1. 200

2. 205

3. 210

4. 215

Question Number : 25 Question Id : 2501071465 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In Euler's formula, the column fails due to _____ alone.

Options :

1. shear

2. torsion

3. tension

4. bending

Question Number : 26 Question Id : 2501071466 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Choose the correct statement.

Options :

1. The hoop stress in a thin cylindrical shell is compressive stress.

2. The shear stress in a spherical shell is more than that of in a thin cylindrical shell.

3. The design of thin cylindrical shell is based on hoop stress.

4. The ratio of hoop stress to longitudinal stress for a thin cylindrical shell is $\frac{1}{2}$.

Question Number : 27 Question Id : 2501071467 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which of the gears has the highest contact ratio?

Options :

1. Helical

2. Spur

3. Bevel

4. Worm

Question Number : 28 Question Id : 2501071468 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A rod is of 2 m long at a temperature of 10°C, then the expansion of the rod when the temperature raised to 110°C, if $\alpha = 0.000012/°C$,

Options :

1. 0.16 cm

2. 0.24 cm

3. 0.39 cm

4. 0.54 cm

Question Number : 29 Question Id : 2501071469 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

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

Options :

1. maximum angular velocity

2. maximum angular displacement

3. maximum angular acceleration

4. zero angular displacement

Question Number : 30 Question Id : 2501071470 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The governor used in gramophone is the _____ type.

Options :

1. Pickening

2. Porter

3. Hartnell

4. Watt

Question Number : 31 Question Id : 2501071471 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In a reverted gear train, the axes of the first and last gears are _____.

Options :

1. parallel

2. co-axial

3. neither parallel nor co-axial

4. perpendicular

Question Number : 32 Question Id : 2501071472 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

During transverse vibrations, shaft is subjected to which type of stresses?

Options :

1. Tensile stresses

2. Torsional shear stresses

3. Bending stresses

4. Both tensile and bending stresses

Question Number : 33 Question Id : 2501071473 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The endurance limit of a material cannot be improved by

Options :

1. Polishing

2. Coating

3. Heat Treatment

4. Shot peening

Question Number : 34 Question Id : 2501071474 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which one of the following loadings is considered for design of axles

Options :

1. bending moment only

2. twisting moment only

3. combined bending moment and torsion

4. combined action of bending moment, twisting moment and axial thrust

Question Number : 35 Question Id : 2501071475 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

An over- damped system _____.

Options :

1. vibrates with frequency more than the natural frequency of the system

2. does not vibrate at all

3. vibrates with frequency less than the natural frequency of the system

4. vibrates with frequency equal to the natural frequency of the system

Question Number : 36 Question Id : 2501071476 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which one of the following is not a friction clutch?

Options :

1. Disc or plate clutch

2. Cone clutch

3. Centrifugal clutch

4. Jaw clutch

Question Number : 37 Question Id : 2501071477 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A vibrating machine is isolated from the floor using springs. If the ratio of excitation frequency of vibration of machine to the natural frequency of the isolation system is equal to 0.5, then transmissibility of ratio of isolation is

Options :

1. $\frac{1}{2}$

2. $\frac{3}{4}$

3. $\frac{4}{3}$

4. 2

Question Number : 38 Question Id : 2501071478 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If the damping factor of vibrating system is unity, then the system is

Options :

1. critically damped

2. not damped

3. over damped

4. under damped

Question Number : 39 Question Id : 2501071479 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

For shaft speed more than the critical speed the phase difference between displacement and centrifugal force is

Options :

1. 0°

2. 45°

3. 90°

4. $180°$

Question Number : 40 Question Id : 2501071480 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which of the following relationship is true? (p=Poisson's ratio)

Options :

1. $E = 2G\,(1 + p)$

2. $E = G\,(2 + p)$

3. $E = 2(G + p)$

4. $E = \frac{G + p}{2}$

Question Number : 41 Question Id : 2501071481 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which of the following stresses are associated with tightening of a nut on a stud?

A. Tensile stress due to stretching of a stud
B. Bending stress of stud
C. Transverse shear stress across threads
D. Torsional shear stresses in threads due to frictional resistance

Options :

1. A, B and C

2. A, B and D

3. B, C and D

4. A, C and D

Question Number : 42 Question Id : 2501071482 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A simply supported beam carries a central concentrated load, has maximum bending moment M. If the same load be uniformly distributed over the length of the beam, then the maximum bending moment is _____.

Options :

1. M

2. $\frac{M}{2}$

3. $\frac{M}{3}$

4. 2M

Question Number : 43 Question Id : 2501071483 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The amount by which the two rods to be joined are drawn together is called as _____.

Options :

1. draw

2. portray

3. lead

4. pitch

Question Number : 44 Question Id : 2501071484 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A band brake having band-width of 80 mm, drum diameter of 250 mm, coefficient of friction of 0.25 and angle of wrap of 270° is required to exert a friction torque of 1000 N-m. The maximum tension (in kN) developed in the band is _____.

Options :

1. 1.88

2. 3.56

3. 6.12

4. 11.56

Question Number : 45 Question Id : 2501071485 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In the multiple disc clutch, if there are 6 discs on the driving shaft and 5 discs on the driven shaft, then the number of pairs of contact surfaces will be equal to _____.

Options :

1. 11

2. 12

3. 10

4. 22

Question Number : 46 Question Id : 2501071486 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In defining the temperature scale, the standard reference point is taken as

Options :

1. zero kelvin

2. boiling point of water

3. triple point of water

4. zero degree centigrade

Question Number : 47 Question Id : 2501071487 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A Carnot cycle is having an efficiency of 0.75. If the temperature of the high temperature reservoir is 727°C, what is the temperature of low temperature reservoir?

Options :

1. 23°C

2. –23°C

3. 0°C

4. 250°C

Question Number : 48 Question Id : 2501071488 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The process of making hollow castings of non circular shape and desired thickness by permanent mould without the use of cores is known as

Options :

1. die casting

2. slush casting

3. pressed casting

4. centrifugal casting

Question Number : 49 Question Id : 2501071489 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The boring operation is not to _____.

Options :

1. finish the drilled hole

2. correct the hole

3. drill a hole

4. enlarge the existing holes

Question Number : 50 Question Id : 2501071490 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The instrument or a device used to measure the cutting forces in machining is _____.

Options :

1. tachometer

2. comparator

3. dynamometer

4. lactometer

Question Number : 51 Question Id : 2501071491 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A cylinder contains 3 m^3 of ideal gas at a pressure of 1 bar. This gas is compressed in a reversible isothermal process till its pressure increases to 5 bar. The work in kJ required for this process is

Options :

1. 804.7

2. 953.2

3. 981.7

4. 1012.2

Question Number : 52 Question Id : 2501071492 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The fatigue failure of a tool is due to _____.

Options :

1. abrasive friction, cutting fluid and chip breakage

2. variable thermal stresses, chip breakage and variable dimensions of cut

3. abrasive friction, chip breakage and variable dimensions of cut

4. chip breakage, variable thermal stresses and cutting fluid

Question Number : 53 Question Id : 2501071493 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Preheating is required for welding of _____.

Options :

1. Aluminium

2. Bronze

3. Cast-iron

4. Copper

Question Number : 54 Question Id : 2501071494 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

When the speed of a centrifugal pump is doubled, the power required to drive the pump will _____.

Options :

1. increase 8 times

2. increase 4 times

3. double

4. remain the same

Question Number : 55 Question Id : 2501071495 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The maximum velocity of a one-dimensional incompressible fully developed viscous flow, between two fixed parallel plates, is 6 ms^{-1}. The mean velocity (in ms^{-1}) of the flow is

Options :

1. 2

2. 3

3. 4

4. 5

Question Number : 56 Question Id : 2501071496 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In a Kaplan turbine runner, the number of blades are generally between _____.

Options :

1. 2 to 4

2. 4 to 8

3. 8 to 16

4. 16 to 24

Question Number : 57 Question Id : 2501071497 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The miller indices of a material in a plane are proportional to _____.

Options :

1. the reciprocal of numerical parameters of the intercepts

2. the square of unit cell dimensions

3. the intercepts of the planes on the coordinate axes

4. the interplanar spacing

Question Number : 58 Question Id : 2501071498 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Cast-iron is used for

Options :

1. column and struts

2. wire nails

3. member subjected to tension

4. trusses

Question Number : 59 Question Id : 2501071499 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The gas widely used in welding to shield the metals as a single or as a mixture with the other gas is

Options :

1. Argon

2. Helium

3. Neon

4. CO_2

Question Number : 60 Question Id : 2501071500 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A brazed joint may be satisfactorily used on components made of

Options :

1. tin

2. brass

3. copper

4. aluminium

Question Number : 61 Question Id : 2501071501 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The process of hot extrusion is used to produce _____.

Options :

1. Stainless steel tubes used in furniture

2. Steel pipes of domestic water supply

3. cast-iron pipes used for general purpose

4. Large size pipes used in city water mains

Question Number : 62 Question Id : 2501071502 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A large concrete slab 1 m thick has one dimensional temperature distribution:

$$T = 4 - 10x + 20x^2 + 10x^3$$

Where T is temperature and x is distance from one face towards other face of wall. If the slab material has thermal diffusivity of 2×10^{-3} m^2/hr, what is the rate of change of temperature at the other face of the wall?

Options :

1. 0.1°C/hr

2. 0.2°C/hr

3. 0.3°C/hr

4. 0.4°C/hr

Question Number : 63 Question Id : 2501071503 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In the forging operations, fullering is done to _____.

Options :

1. draw out the material

2. bend the material

3. upset the material

4. extrude the material

Question Number : 64 Question Id : 2501071504 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In metals subjected to cold working, strain hardening effect is due to

Options :

1. slip mechanism

2. twining mechanism

3. dislocation mechanism

4. fracture mechanism.

Question Number : 65 Question Id : 2501071505 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A steel ball of mass 1kg and specific heat 0.4 kJ/kg is at a temperature of 60°C. It is dropped into 1kg water at 20°C, the final steady state temperature of water is _____.

Options :

1. 23.5°C

2. 300°C

3. 35°C

4. 40°C

Question Number : 66 Question Id : 2501071506 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The shear stress distribution in laminar flow through a pipe follows _

Options :

1. Parabolic

2. Logarithmic

3. Linear

4. Exponential

Question Number : 67 Question Id : 2501071507 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In wire- drawing operation, the maximum reduction per pass for perfectly plastic material in ideal condition is

Options :

1. 68%

2. 63%

3. 58%

4. 50%

Question Number : 68 Question Id : 2501071508 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The ratio of the solidification times of two steel cylindrical risers is, if they have the values of $\frac{V}{A}$ are 8 and 4 respectively when subjected to identical condition of cooling

Options :

1. 4

2. 9

3. 2

4. 7

Question Number : 69 Question Id : 2501071509 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A fluid flow is represented by the velocity field $\mathbf{V} = ax\mathbf{i} + ay\mathbf{j}$, where 'a' is a constant. The equation of stream line passing through a point (1, 2) is

Options :

1. $x - 2y = 0$

2. $2x + y = 0$

3. $2x - y = 0$

4. $x + 2y = 0$

Question Number : 70 Question Id : 2501071510 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Directional solidification in casting can be improved by _____.

Options :

1. Chills and Chaplets

2. Chaplets and Padding

3. Chills and Padding

4. Chills, Chaplets and Padding

Question Number : 71 Question Id : 2501071511 Question Type : MCQ Option Shuffling : Yes Display 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, what is the entropy change during heat addition?

Options :

1. 0.5 kJ/K

2. 1.0 kJ/K

3. 1.5 kJ/K

4. 2.0 kJ/K

Question Number : 72 Question Id : 2501071512 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In solidification of metal during casting, compensation for solid contraction is

Options :

1. provided by the oversize pattern

2. achieved by properly placed risers

3. obtained by promoting direction solidification

4. made by providing chills

Question Number : 73 Question Id : 2501071513 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The most commonly followed system in interchangeable manufacture where precision fits are required is

Options :

1. Bilateral system

2. Shaft based system

3. Hole based system

4. Unilateral system

Question Number : 74 Question Id : 2501071514 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

During a Morse test on a 4 cylinder engine, the following measurements of brake power were taken at constant speed.

All cylinders firing 3037 kW
Number 1 cylinder not firing 2102 kW
Number 2 cylinder not firing 2102 kW
Number 3 cylinder not firing 2100 kW
Number 4 cylinder not firing 2098 kW

The mechanical efficiency of the engine is

Options :

1. 91.53%

2. 85.07%

3. 81.07%

4. 61.22%

Question Number : 75 Question Id : 2501071515 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The process of increasing the moisture content in the air is called

Options :

1. Sensible cooling

2. Humidification

3. Dehumidification

4. Sensible heating

Question Number : 76 Question Id : 2501071516 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In a model with continuous production with shortages, the production time is

Options :

1. $\frac{\text{EOQ}}{\text{rate of production}}$

2. $\frac{\text{EOQ}}{\text{rate of consumption}}$

3. $\frac{\text{EOQ}}{\text{annual demand}}$

4. EOQ × rate of production

Question Number : 77 Question Id : 2501071517 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Programmable automation is suitable for _____.

Options :

1. low production volume and large varieties of parts

2. low production volume and small varieties of parts

3. high production volume and small varieties of parts

4. high production volume and large varieties of parts

Question Number : 78 Question Id : 2501071518 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In critical ratio scheduling, if critical ratio is 2, means _____

Options :

1. time available to delivery is equal to the time require to manufacture.

2. time available to delivery is half of the time requires manufacturing.

3. time available to delivery is twice into time require to supply.

4. time available to delivery is twice the time require to manufacture.

Question Number : 79 Question Id : 2501071519 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Water at 42°C is sprayed into a stream of air at atmospheric pressure, dry bulb temperature of 40°C and a wet bulb temperature of 20°C. The air leaving the spray humidifier is not saturated. Which of the following statements is true?

Options :

1. Air gets cooled and humidified

2. Air gets heated and humidified

3. Air gets heated and dehumidified

4. Air gets cooled and dehumidified

Question Number : 80 Question Id : 2501071520 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which of the following processes does not cause tool wear ?

Options :

1. Ultrasonic machining

2. Electric discharge machining

3. Electrochemical machining

4. Anode mechanical machining

Question Number : 81 Question Id : 2501071521 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which of the following is a soft solder?

Options :

1. Copper-zinc alloy

2. Nickel-silver alloy

3. Lead-tin alloy

4. Copper-silver alloy

Question Number : 82 Question Id : 2501071522 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The maximum efficiency of power transmission through pipe is

Options :

1. 50.25%

2. 75.35%

3. 66.67%

4. 100%

Question Number : 83 Question Id : 2501071523 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which of the following represents the approximate percentage of metal loss during the blanking operation?

Options :

1. 2%

2. 5%

3. 10%

4. 30%

Question Number : 84 Question Id : 2501071524 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In a gas turbine plant, regeneration is done to

Options :

1. increase compression work

2. decrease turbine work

3. limit the maximum temperature

4. improve plant efficiency

Question Number : 85 Question Id : 2501071525 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The solution in a transportation model (of diameter m x n) is said to be degenerate if it has

Options :

1. exactly (m + n – 1) allocations

2. fewer than (m + n – 1) allocations

3. more than (m + n – 1) allocations

4. (m × n) allocations

Question Number : 86 Question Id : 2501071526 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The square root of the ratio of inertia force to force to pressure force is known as

Options :

1. Reynolds number

2. Froude number

3. Mach number

4. Euler's number

Question Number : 87 Question Id : 2501071527 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

What is the process, in which the metal is caused to flow through a restricted orifice to create an extremely elongated strip of uniform and comparatively smaller cross-sectional area, called?

Options :

1. Rolling

2. Extrusion

3. Drawing

4. Spinning

Question Number : 88 Question Id : 2501071528 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A cube shaped casting solidifies in 5 min. The solidification time in minute for a cube of the same material, which is 8 times heavier than the original casting, will be

Options :

1. 10

2. 20

3. 24

4. 40

Question Number : 89 Question Id : 2501071529 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A pattern carries _____ allowance for internal and external surface.

Options :

1. shrinkage

2. machining

3. distortion

4. draft

Question Number : 90 Question Id : 2501071530 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Bernoulli's equation is derived making assumptions that

Options :

1. the flow is uniform and incompressible

2. the flow is non-viscous, uniform and steady

3. the flow is non-uniform and incompressible

4. the flow is steady, non-viscous, incompressible and irrotational

Question Number : 91 Question Id : 2501071531 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If the arrivals are completely random, then what is the probability distribution of number of arrivals in a given time?

Options :

1. Negative exponential

2. Binomial

3. Normal

4. Poisson

Question Number : 92 Question Id : 2501071532 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Gibb's phase rule is defined as F = _____.

Options :

1. $C + P + 1$

2. $C + P + 2$

3. $C - P + 2$

4. $C - P$

Question Number : 93 Question Id : 2501071533 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Bravais lattice consists of _____ space lattices.

Options :

1. Eleven

2. Twelve

3. Thirteen

4. Fourteen

Question Number : 94 Question Id : 2501071534 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The operation in which oil is permeated into the pores of a powder metallurgy product is known as

Options :

1. mixing

2. sintering

3. impregnation

4. infiltration

Question Number : 95 Question Id : 2501071535 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which of the following parts is used to keep the casting for reducing the finishing allowance?

Options :

1. Centrifuge

2. Burette

3. Drag flask

4. Conical flask

Question Number : 96 Question Id : 2501071536 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

What is the additional time available for the performance of an activity in PERT and CPM calculated on the basis that all activities will start at their earlier start time, called _____.

Options :

1. slack

2. total float

3. free float

4. independent float

Question Number : 97 Question Id : 2501071537 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which of the following metals can be taken as the best conductor?

Options :

1. Tin

2. Mercury

3. Bismuth

4. Sodium

Question Number : 98 Question Id : 2501071538 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The process of copying data from a memory location is called _____.

Options :

1. reading

2. writing

3. controlling

4. hand shaking

Question Number : 99 Question Id : 2501071539 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In laminar flow through a circular pipe, the discharge varies _____.

Options :

1. linearly with fluid density

2. inversely with pressure drop

3. directly as square of pipe radius

4. inversely with fluid viscosity

Question Number : 100 Question Id : 2501071540 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The efficiency of the Carnot cycle may be increased by _____.

Options :

1. increasing the highest temperature

2. decreasing the highest temperature

3. increasing the lowest temperature

4. decreasing the lowest temperature

Question Number : 101 Question Id : 2501071541 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which of the following is affected by weld contour?

Options :

1. Fatigue

2. Creep

3. High pressure property

4. Low pressure property

Question Number : 102 Question Id : 2501071542 Question Type : MCQ Option Shuffling : Yes Displa Single Line Question Option : No Option Orientation : Vertical

What is the basic equation of thermal radiation from which all other equations of radiation can be derived?

Options :

1. Stefan-Boltzmann equation

2. Planck's equation

3. Wien's equation

4. Rayleigh – Jeans formula

Question Number : 103 Question Id : 2501071543 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

An insulated cylinder of volume 4 m^3 contains 20 Kg of Nitrogen. Paddle work is done on the gas by stirring it till the pressure in the gets increased from 4 bar to 8 bar. C_p and C_v in kJ/kg-K for Nitrogen are 1.04 and 0.7432 respectively. The heat transfer to the gas is

Options :

1. 4006.4 kJ

2. 0 kJ

3. –4006.4 kJ

4. 10.3 kJ

Question Number : 104 Question Id : 2501071544 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In which type of operation, motion of cutting tool is translating?

Options :

1. drilling and milling

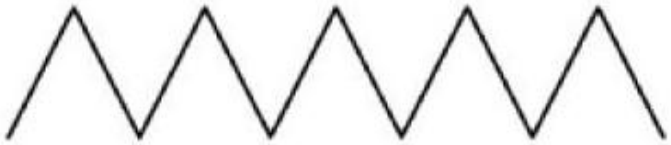
2. milling and turning

3. boring and drilling

4. turning and planning

Question Number : 105 Question Id : 2501071545 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Assume that the surface roughness profile is triangular as shown schematically in the figure. If the peak to valley height is 20 μm, the central line average surface roughness Rα (in μm) is



Options :

1. 5

2. 6.67

3. 10

4. 20

Question Number : 106 Question Id : 2501071546 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A thermodynamic system is considered to be an isolated one if _____.

Options :

1. mass transfer and entropy change are zero

2. entropy change and energy transfer are zero

3. energy transfer and mass transfer are zero

4. mass transfer and volume change are zero

Question Number : 107 Question Id : 2501071547 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In which one of the following materials, is the heat energy propagation minimum due to conduction heat transfer

Options :

1. Lead

2. Copper

3. Water

4. Air

Question Number : 108 Question Id : 2501071548 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which of the following has single start threads in universal dividing head?

Options :

1. Worm

2. Index plate

3. Sector arm

4. Drop arm

Question Number : 109 Question Id : 2501071549 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A steel bar 200 mm in diameter is turned at a feed of 0.25 mm/rev with a depth of cut of 4 mm. The rotational speed of the workpiece is 160 rpm. The material removal rate in mm^3/s is

Options :

1. 160

2. 167.6

3. 1600

4. 1675.5

Question Number : 110 Question Id : 2501071550 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

ε – NTU method is particularly useful in thermal design of heat exchangers when

Options :

1. the outlet temperatures of the fluid streams are not known as a priori

2. the outlet temperatures of the fluid streams in known as a priori

3. the outlet temperature of the hot fluid stream is known but that of cold fluid stream is not known as a priori

4. inlet temperature of the fluid streams are not known as a priori

Question Number : 111 Question Id : 2501071551 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Master schedule is prepared for

Options :

1. Single product continuous production

2. Multi product batch production

3. Assembly product continuous production

4. Single product batch

Question Number : 112 Question Id : 2501071552 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

_____ gas power cycle consists of four processes during which work alone is transferred during two processes and heat alone is transferred during the other two processes.

Options :

1. Atkinson

2. Carnot

3. Diesel

4. Otto

Question Number : 113 Question Id : 2501071553 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In a regenerative feed heating cycle, the greatest economy is affected

Options :

1. when steam is extracted from only one suitable point of steam turbine

2. when steam is extracted only from the last stage of steam turbine

3. when steam is extracted only from the first stage of steam turbine

4. when steam is extracted from several places in different stages of steam turbine

Question Number : 114 Question Id : 2501071554 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

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

Options :

1. ₹400

2. ₹ 440

3. ₹480

4. ₹500

Question Number : 115 Question Id : 2501071555 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The demand and forecast for February are 12000 and 10275, respectively. Using single exponential smoothening method (smoothening coefficient = 0.25), forecast for the month of March is

Options :

1. 431

2. 9587

3. 10706

4. 11000

Question Number : 116 Question Id : 2501071556 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

'Buffer stock' is the level of stock _____.

Options :

1. half of the actual stock

2. at which the ordering process should start

3. minimum stock level below which actual stock should not fall

4. maximum stock in inventory

Question Number : 117 Question Id : 2501071557 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A rubber ball strikes a wall and rebounds. A lead ball of the same mass and velocity strikes the same wall and falls down. Which of the following statement is correct?

Options :

1. Both undergo an equal change in momentum

2. The momentum of rubber ball is less than that of the lead ball

3. The change in momentum suffered by the lead ball is less than that of the rubber ball

4. Behaviour of lead ball and rubber ball is unpredictable

Question Number : 118 Question Id : 2501071558 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The draft tube is used for discharging water from the exit of

Options :

1. Impulse turbine

2. Francis Turbine

3. Kaplan turbine

4. Pelton wheel

Question Number : 119 Question Id : 2501071559 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The amplitude of a vibrating body situated in a resisting medium

Options :

1. decrease exponentially with time

2. increase exponentially with time

3. decreases rapidly with time

4. remains constant with time

Question Number : 120 Question Id : 2501071560 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The difference between the time available to do a job and the time required to do the job, is known as

Options :

1. event

2. float

3. duration

4. constraint