

Notations :

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

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Calculator:	Scientific
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Rough Sketch/Notepad Required?:	No
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Question Shuffling Allowed : Yes

Question Number : 1 Question Id : 1842421 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical
Correct Marks : 2 Wrong Marks : 0.66

A thermodynamic isolated system is one which CANNOT interchange

Options :

- ✖ mass only
- ✖ energy only
- ✓ both mass and energy
- ✖ energy, but can interchange mass

Correct Marks : 2 Wrong Marks : 0.66

Which of the following statements is correct with respect to temperature?

Options :

1. ✓ Temperature is an intensive property of the system.
2. ✗ Temperature is not a property of the system.
3. ✗ Temperature is an extensive property of the system.
4. ✗ Temperature does not change with volume.

Question Number : 3 Question Id : 1842423 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The zeroth law of thermodynamics deals with:

Options :

1. ✗ heat and mass
2. ✗ mass only
3. ✗ fluids
4. ✓ temperature

Question Number : 4 Question Id : 1842424 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Entropy of the system _____ with the addition of heat.

Options :

1. ✓ increases
2. ✗ decreases
3. ✗ remains the same
4. ✗ first increases and then decreases

Question Number : 5 Question Id : 1842425 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The actual thermal efficiency of a cycle is _____ the air standard efficiency.

Options :

1. ✖ equal to
2. ✔ less than
3. ✖ more than
4. ✖ not comparable to

Question Number : 6 Question Id : 1842426 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical
Correct Marks : 2 Wrong Marks : 0.66

In a closed system, the heat and work for a process 1-2 is 10 kJ and 30 kJ, respectively. What is the work during the return process 2-1, if the heat is 20 kJ?

Options :

1. ✖ 40 kJ
2. ✖ 30 kJ
3. ✖ 20 kJ
4. ✔ Zero

Question Number : 7 Question Id : 1842427 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical
Correct Marks : 2 Wrong Marks : 0.66

Mist lubrication system is used in a:

Options :

1. ✖ four-stroke petrol engine
2. ✖ four-stroke diesel engine
3. ✔ two-stroke engine
4. ✖ Wankel engine

Question Number : 8 Question Id : 1842428 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical
Correct Marks : 2 Wrong Marks : 0.66

The normal range of compression ratio for diesel cycle is:

Options :

1. ✖ 4 to 6
2. ✖ 6 to 10
3. ✖ 35 to 50

Question Number : 9 Question Id : 1842429 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical
Correct Marks : 2 Wrong Marks : 0.66

The efficiency of the Carnot cycle when it operates between the temperature of 373 and 273 K is:

Options :

1. ✓ 0.268

2. ✗ 0.366

3. ✗ 0.134

4. ✗ 0.183

Question Number : 10 Question Id : 18424210 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical
Correct Marks : 2 Wrong Marks : 0.66

A 16 kW engine with 80% mechanical efficiency has the frictional power constant for all loads. If the engine is loaded with 75% of its rated power, then mechanical efficiency of this engine is:

Options :

1. ✗ 65%

2. ✗ 80%

3. ✓ 75%

4. ✗ 60%

Question Number : 11 Question Id : 18424211 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical
Correct Marks : 2 Wrong Marks : 0.66

An engine running at 3000 rpm has an injection duration of 1.8 mS. What is the corresponding injection duration in crank angle in degrees?

Options :

1. ✖ 16
2. ✔ 18
3. ✖ 30
4. ✖ 4

Question Number : 12 Question Id : 18424212 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical
Correct Marks : 2 Wrong Marks : 0.66

A four-cylinder petrol engine is tested for its mechanical efficiency. During the test, spark plugs of each cylinder were inoperative and the corresponding brake loads noted are 100, 120, 130, 120 N. If the net brake load is 180 N, then the mechanical efficiency of the engine is:

Options :

1. ✖ 75%
2. ✖ 66.6%
3. ✖ 60%
4. ✔ 72%

Question Number : 13 Question Id : 18424213 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical
Correct Marks : 2 Wrong Marks : 0.66

A diesel engine in a power plant is more efficient than a spark engine because:

Options :

1. ✖ air standard efficiency for a diesel cycle is higher than Otto cycle at a fixed compression ratio
2. ✖ diesel gives more heat per kg of fuel than gasoline
3. ✖ higher temperature in diesel engine compared to a Spark engine
4. ✔ compression ratio of a CI engine is higher than that of an SI engine

Question Number : 14 Question Id : 18424214 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical
Correct Marks : 2 Wrong Marks : 0.66

Thermal conductivity is the maximum for which of the following substances?

Options :

1. ✖ Silver
2. ✖ Ice
3. ✔ Diamond
4. ✖ Aluminium

Question Number : 15 Question Id : 18424215 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical
Correct Marks : 2 Wrong Marks : 0.66

Two walls of the same thickness and cross-sectional area have thermal conductivities in the ratio of 1 : 2. If the ratio of the temperature drop across the two walls is 2 : 3, what is the ratio of the heat flow?

Options :

1. ✖ 3 : 1
2. ✔ 1 : 3
3. ✖ 1 : 2
4. ✖ 2 : 1

Question Number : 16 Question Id : 18424216 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical
Correct Marks : 2 Wrong Marks : 0.66

In general, heat transfer takes place according to the principle of:

Options :

1. ✖ zeroth law of thermodynamics
2. ✖ first law of thermodynamics
3. ✔ second law of thermodynamics
4. ✖ third law of thermodynamics

Question Number : 17 Question Id : 18424217 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

A solid metallic plate with thermal conductivity of $200 \text{ W/m } ^\circ\text{C}$ and 100 mm thick is exposed to surface temperatures of 100 to 75°C . The heat transfer rate per unit area is:

Options :

1. ✔ 50 kW
2. ✖ 500 kW
3. ✖ 250 kW
4. ✖ 100 kW

Question Number : 18 Question Id : 18424218 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

For maximum heat dissipation in fins, the geometry of fins should have the lateral surfaces:

Options :

1. ✔ maximum near the root
2. ✖ maximum near the tip
3. ✖ constant throughout
4. ✖ minimum near the centre

Question Number : 19 Question Id : 18424219 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The Nusselt number for a laminar flow is related to the Reynolds number as:

Options :

1. ✖ $R_e^{-0.5}$

2. ✖ $R_e^{0.8}$

3. ✔ $R_e^{0.5}$

4. ✖ $R_e^{0.33}$

Question Number : 20 Question Id : 18424220 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

In radiation, the shape factor of a hemispherical body placed on a flat body with respect to itself is:

Options :

1. ✖ 0.75

2. ✔ 0.5

3. ✖ 0.2

4. ✖ 0.45

Question Number : 21 Question Id : 18424221 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

In quantum theory, the value of Planck's constant in the equation $E = h\nu$ is:

Options :

1. ✖ $1.982 \times 10^{-34} \text{ J-s}$

2. ✖ $6.476 \times 10^{-8} \text{ J-s}$

3. ✔ $6.626 \times 10^{-34} \text{ J-s}$

4. ✖ $3.453 \times 10^{-8} \text{ J-s}$

Question Number : 22 Question Id : 18424222 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Baffles are used in shell and tube type of heat exchangers to:

Options :

1. ✖ deviate flow without any effect
2. ✖ support the tubes
3. ✖ decrease the heat transfer coefficient
4. ✔ increase the heat transfer coefficient

Question Number : 23 Question Id : 18424223 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

A cylinder of outer surface area 10 m^2 loses heat on its surface at 85°C by convection to a fluid at 25°C . The average heat convection heat transfer coefficient is $35 \text{ W/m}^2\text{K}$. The heat transfer rate is:

Options :

1. ✖ 25 kW
2. ✔ 21 kW
3. ✖ 35kW
4. ✖ 60kW

Question Number : 24 Question Id : 18424224 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

An example of heat transfer by conduction, convection and radiation is/are:

Options :

1. ✔ boiler furnace

2. ✖ fins in IC engine
3. ✖ pipe carrying hot fluid
4. ✖ steam condenser

Question Number : 25 Question Id : 18424225 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Sun at 5800 K emits radiation at a wave length of 0.5μ . Another heat source at 307°C that emits through a small opening, will have the wavelength of approximately

Options :

1. ✖ 0.5μ

2. ✖ 3.07μ

3. ✖ 10μ

4. ✔ 5μ

Question Number : 26 Question Id : 18424226 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

In case of fins, the values of the Biot number for effective functioning of fins is:

Options :

1. ✖ zero

2. ✔ less than one

3. ✖ equal to one

4. ✖ more than one

Question Number : 27 Question Id : 18424227 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

In a heat exchanger, hot fluid enters at 70°C and leaves at 40°C , while cold fluid enters at 20°C and leaves at 50°C . If both hot and cold fluids have the same mass flow rate and specific heat, then the effectiveness of the heat exchanger is:

Options :

1. ✖ 0.2

2. ✖ 0.3

3. ✔ 0.6

4. ✖ 0.5

Question Number : 28 Question Id : 18424228 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Atmospheric pressure head is equal to:

Options :

1. ✖ 2.5 m of water

2. ✖ 8 m of water

3. ✖ zero m of water

4. ✔ 10.3 m of water

Question Number : 29 Question Id : 18424229 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The velocity parameters within the given fields are the same when:

Options :

1. ✖ the Nusselt numbers are same

2. ✖ the Nusselt number are different

3. ✔ the Reynolds number are same

4. ✖ the Reynolds number are different

Question Number : 30 Question Id : 18424230 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical
Correct Marks : 2 Wrong Marks : 0.66

In case of a completely submerged body, the resultant pressure of liquid act on a point at:

Options :

1. ✖ centre of buoyancy
2. ✖ metacentre
3. ✖ centre of gravity
4. ✔ centre of pressure

Question Number : 31 Question Id : 18424231 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical
Correct Marks : 2 Wrong Marks : 0.66

Multistage centrifugal pumps with impellers in series are used to:

Options :

1. ✖ distribute the power among pumps
2. ✖ increase the discharge of liquid
3. ✔ increase the head of liquid
4. ✖ decrease the head of liquid

Question Number : 32 Question Id : 18424232 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical
Correct Marks : 2 Wrong Marks : 0.66

Which of the following dimensionless numbers is significant when studying surface tension phenomena in a flow problem?

Options :

1. ✖ The Euler number
2. ✖ The Froude number
3. ✖ The Mach number
4. ✔ The Weber number

Question Number : 33 Question Id : 18424233 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical
Correct Marks : 2 Wrong Marks : 0.66

According to Euler's law, a model and prototype will be dynamically similar with respect to the ratio of inertial force to:

Options :

1. ✖ gravity force
2. ✔ pressure force
3. ✖ viscous force
4. ✖ buoyancy force

Question Number : 34 Question Id : 18424234 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The dynamic viscosity of a liquid is 1.6×10^{-4} Ns/m², whereas the density is 400 kg/m³. The kinematic viscosity in m²/s is:

Options :

1. ✖ 64×10^{-8}
2. ✖ 40×10^8
3. ✖ 64×10^{-6}
4. ✔ 40×10^{-8}

Question Number : 35 Question Id : 18424235 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

A rectangular plate, 1 m wide and 2 m deep, is held just below the surface of the water. The total pressure on this lamina is:

Options :

1. ✔ 19.62 kN

2. ✖ 2 kN

3. ✖ 9.81 kN

4. ✖ 98.1 kN

Question Number : 36 Question Id : 18424236 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

In reciprocating pumps, the acceleration pressure head is maximum at the:

Options :

1. ✖ beginning of the stroke only

2. ✔ mid of the stroke

3. ✖ beginning and end of the stroke

4. ✖ end of the stroke only

Question Number : 37 Question Id : 18424237 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

A hydraulic fuse is incorporated in the system for safety against:

Options :

1. ✖ velocity of fluid

2. ✔ pressure of fluid

3. ✖ temperature of fluid

4. ✖ viscosity of fluid

Question Number : 38 Question Id : 18424238 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Impellers of a rotary pump for high heads usually have:

Options :

1. ✖ medium specific speed

2. ✖ high specific speed
3. ✔ low specific speed
4. ✖ variable specific speed

Question Number : 39 Question Id : 18424239 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The fixed guide blades in a centrifugal pump are used to:

Options :

1. ✖ increase the kinetic energy
2. ✔ increase the pressure energy
3. ✖ simply direct the fluid
4. ✖ decrease the pressure energy

Question Number : 40 Question Id : 18424240 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

A single acting reciprocating pump having theoretical $9 \times 10^{-3} \text{ m}^3/\text{s}$ runs at 40 rpm. If the actual discharge is 300 litre/m, then the percent slip in this pump is:

Options :

1. ✔ 16.6%
2. ✖ 26.2%
3. ✖ 8.3%
4. ✖ 13.1%

Question Number : 41 Question Id : 18424241 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The pressure rise in the impeller of a centrifugal pump is:

Options :

1. ✖ $[V_f^2 + v_l^2 + v_{fl}^2 \text{Cosec}^2 \Phi]/g$

2. ✓ $[V_f^2 + v_l^2 - v_{fl}^2 \text{Cosec}^2 \Phi]/(2g)$

3. ✗ $[V_f^2 + v_l^2 - v_{fl}^2 \text{Cosec}^2 \Phi]/g$

4. ✗ $[V_f^2 + v_l^2 + v_{fl}^2 \text{Cosec}^2 \Phi]/(2g)$

Question Number : 42 Question Id : 18424242 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

A thin and closed diaphragm element is used as a sensor while measuring:

Options :

1. ✗ velocity

2. ✗ temperature

3. ✓ pressure

4. ✗ mass

Question Number : 43 Question Id : 18424243 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The resistance of a metallic conductor is given by:

Options :

1. ✗ $R = L/A$

2. ✗ $R = \rho/A$

3. ✓ $R = \rho L/A$

4. ✗ $R = A E/L$

Question Number : 44 Question Id : 18424244 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

A Wheatstone bridge used for strain measurement using electrical strain gauges is sensitive to changes in:

Options :

1. ✖ inductance
2. ✖ pressure
3. ✖ capacitance
4. ✔ resistance

Question Number : 45 Question Id : 18424245 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

A strain gauge rosette is used when:

Options :

1. ✖ direction of strain is known
2. ✖ only magnitude of stress is known
3. ✔ both magnitude and direction of strains are unknown
4. ✖ magnitude is known but the direction is unknown

Question Number : 46 Question Id : 18424246 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Transducers for the measurement of temperature make use of:

Options :

1. ✖ change in capacitance
2. ✖ change in length
3. ✖ change in area
4. ✔ change in resistivity

Question Number : 47 Question Id : 18424247 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The gauge factor of a semiconductor gauge compared to a wire strain gauge is:

Options :

1. ✓ high
2. ✗ the same
3. ✗ infinite
4. ✗ low

Question Number : 48 Question Id : 18424248 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

An electrical resistance thermometer shows a resistance of 3 ohm at 0° C and 6 ohm at 200° C. What is the temperature when the resistance indicates 5 ohm?

Options :

1. ✗ 233.3° C

2. ✓ 133.3° C

3. ✗ 150° C

4. ✗ 300° C

Question Number : 49 Question Id : 18424249 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Ceramic slip gauges are better than steel slip gauges due to its:

Options :

1. ✗ wringing capability

2. ✗ resistance to impact

3. ✗ higher thermal expansion

4. ✓ resistance to wear

Question Number : 50 Question Id : 18424250 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Temperature compensation can be achieved in strain gauge circuits using:

Options :

1. ✖ a potentiometer
2. ✖ high input voltages
3. ✔ a pair of strain gauges
4. ✖ a quarter bridge

Question Number : 51 Question Id : 18424251 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical
Correct Marks : 2 Wrong Marks : 0.66

For effective measurement, the errors should be minimised in transducers by

Options :

1. ✖ Power compensation
2. ✖ Voltage compensation
3. ✖ Resistance compensation
4. ✔ Temperature compensation

Question Number : 52 Question Id : 18424252 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical
Correct Marks : 2 Wrong Marks : 0.66

The diameters of holes are checked for aggregable using a:

Options :

1. ✖ ring gauge
2. ✖ slip gauge
3. ✔ plug gauge
4. ✖ screw pitch gauge

Question Number : 53 Question Id : 18424253 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical
Correct Marks : 2 Wrong Marks : 0.66

A flow-measuring device element which is inherently linear and requires no signal characterisation is a/an:

Options :

1. ✖ pitot tube
2. ✖ Venturi
3. ✖ orifice plate

4. ✓ turbine

Question Number : 54 Question Id : 18424254 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical
Correct Marks : 2 Wrong Marks : 0.66

Which of the following methods is used for the measurement of flow rate of a liquid?

Options :

1. ✓ Coriolis method
2. ✗ Conveyor-based method
3. ✗ Thermal mass flow method
4. ✗ Bourdon tube method

Question Number : 55 Question Id : 18424255 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical
Correct Marks : 2 Wrong Marks : 0.66

Fuel is injected in the CI engine at the end of:

Options :

1. ✗ suction stroke
2. ✓ compression stroke
3. ✗ expansion stroke
4. ✗ exhaust stroke

Question Number : 56 Question Id : 18424256 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical
Correct Marks : 2 Wrong Marks : 0.66

In two wheelers, which scavenging method is used?

Options :

1. ✗ Uniform scavenging
2. ✗ Reverse flow scavenging
3. ✗ Loop scavenging
4. ✓ Cross scavenging

Question Number : 57 Question Id : 18424257 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical
Correct Marks : 2 Wrong Marks : 0.66

Nipping of leaf springs in a vehicle is to:

Options :

1. ✖ vary the interleaf sliding
2. ✖ increase the load carrying capacity
3. ✔ keep stresses uniform in the springs
4. ✖ vary the effective length of spring

Question Number : 58 Question Id : 18424258 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Which of the following is a part of chassis?

Options :

1. ✖ Doors
2. ✖ Differential
3. ✔ Brakes
4. ✖ Wind shields

Question Number : 59 Question Id : 18424259 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

For a front-wheel drive empty car, the average proportional front to rear axle load distribution is:

Options :

1. ✖ 55 : 45
2. ✖ 50 : 50
3. ✖ 60 : 40
4. ✔ 61 : 39

Question Number : 60 Question Id : 18424260 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The effective torque at the contact between road and driving wheel is known as:

Options :

1. ✖ engine torque
2. ✖ friction power

3. ✓ tractive effort

4. ✗ brake power

Question Number : 61 Question Id : 18424261 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Which of the following is NOT an arrangement pattern of an IC engine cylinder?

Options :

1. ✗ Opposed cylinder engine

2. ✗ Radial

3. ✗ V-type engine

4. ✓ Circular

Question Number : 62 Question Id : 18424262 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

When a 12 V lead acid battery is fully charged, its open circuit voltage is:

Options :

1. ✗ 2 V

2. ✓ 2.5 V

3. ✗ 10 V

4. ✗ 12.6 V

Question Number : 63 Question Id : 18424263 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

A system in which the lubricating oil is carried in separate tanks from where it is fed to the engine is called the:

Options :

1. ✓ dry sump system

2. ✗ wet sump system

3. ✗ splash system

4. ✗ mist lubrication system

Question Number : 64 Question Id : 18424264 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical
Correct Marks : 2 Wrong Marks : 0.66

The speed of a vehicle is 'S' in km/hr and the wheel radius is 'R'. Then the rpm of the wheel is:

Options :

1. ✖ $S/(120\pi R)$
2. ✔ $1000S/(120\pi R)$
3. ✖ $1000S/(2\pi R)$
4. ✖ $1000S/(60\pi R)$

Question Number : 65 Question Id : 18424265 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical
Correct Marks : 2 Wrong Marks : 0.66

When viewed from the front, the tilting of front wheels away from the vertical in a vehicle is called:

Options :

1. ✖ caster
2. ✖ toe-in
3. ✔ camber
4. ✖ toe-out

Question Number : 66 Question Id : 18424266 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical
Correct Marks : 2 Wrong Marks : 0.66

The fuel injection pressure in a diesel engine is in the range of:

Options :

1. ✖ 20 to 25 atm
2. ✖ 30 to 40 atm
3. ✖ 60 to 70 atm

4. ✓ 100 to 170 atm

Question Number : 67 Question Id : 18424267 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical
Correct Marks : 2 Wrong Marks : 0.66

In an automobile pneumatic governor, the amount of vacuum applied to the diaphragm is controlled by the:

Options :

1. ✗ spring
2. ✗ lever
3. ✓ accelerator pedal
4. ✗ butterfly valve

Question Number : 68 Question Id : 18424268 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical
Correct Marks : 2 Wrong Marks : 0.66

A condition that causes vapour locking in a braking system is due to:

Options :

1. ✗ overcooling of the brakes during high speed driving
2. ✗ keeping the vehicle without use for an extended period
3. ✗ an excessively high engine speed on a downhill road
4. ✓ overheating of the fluid due to frequent brake application

Question Number : 69 Question Id : 18424269 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical
Correct Marks : 2 Wrong Marks : 0.66

The total number of atoms in a unit cell of a body-centred cubic space lattice is:

Options :

1. ✗ 24
2. ✗ 14
3. ✗ 6
4. ✓ 9

Bronze is an alloy of copper and:

Options :

1. ✖ aluminium
2. ✖ nickel
3. ✖ iron
4. ✔ tin

Question Number : 71 Question Id : 18424271 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical
Correct Marks : 2 Wrong Marks : 0.66

Cold rolled carbon sheet steel contains maximum carbon of:

Options :

1. ✔ 0.25%
2. ✖ 0.5%
3. ✖ 0.6%
4. ✖ 0.4%

Question Number : 72 Question Id : 18424272 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical
Correct Marks : 2 Wrong Marks : 0.66

The process which gives maximum hardness to the surface is called:

Options :

1. ✔ nitriding
2. ✖ cyaniding
3. ✖ carburizing
4. ✖ hardening

Slow plastic deformation of a material under constant stress is called:

Options :

1. ✖ proof deformation
2. ✔ creep
3. ✖ fatigue
4. ✖ gradual deformation

Question Number : 74 Question Id : 18424274 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical
Correct Marks : 2 Wrong Marks : 0.66

Alpha-iron shows the space lattice of a:

Options :

1. ✔ body-centred cubic space lattice
2. ✖ face-centred cubic space lattice
3. ✖ close packed hexagonal space lattice
4. ✖ monoclinic

Question Number : 75 Question Id : 18424275 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical
Correct Marks : 2 Wrong Marks : 0.66

Case hardening process is suitable for:

Options :

1. ✖ special steel alloys
2. ✔ low carbon steel
3. ✖ high carbon steel
4. ✖ high speed steel

Question Number : 76 Question Id : 18424276 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical
Correct Marks : 2 Wrong Marks : 0.66

Annealing of white cast iron produces:

Options :

1. ✖ nodular iron

2. ✖ grey iron
3. ✖ spheroidal iron
4. ✔ malleable iron

Question Number : 77 Question Id : 18424277 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Miller indices denotes:

Options :

1. ✖ plane
2. ✖ direction
3. ✖ number of atoms
4. ✔ family of direction

Question Number : 78 Question Id : 18424278 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Spheroidising treatment improves:

Options :

1. ✖ hardenability of mild steels
2. ✖ hardenability of high carbon steels
3. ✖ machinability of high carbon steels
4. ✔ machinability of mild steels

Question Number : 79 Question Id : 18424279 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The specific surface area of solids is:

Options :

1. ✖ surface area per unit volume
2. ✖ surface area per unit weight
3. ✖ surface weight per unit area
4. ✔ surface area per unit mass

Question Number : 80 Question Id : 18424280 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

What is the Frenkel defect in the lattice crystal?

Options :

1. ✖ Defect in which positive and negative ions are missing
2. ✖ Atoms missing in the given lattice
3. ✖ Defect in which interstitial position is occupied by extra atom in the crystal without disorganising the parent atom
4. ✔ Defect in which interstitial position is occupied by missing atoms

Question Number : 81 Question Id : 18424281 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical
Correct Marks : 2 Wrong Marks : 0.66

Austempering heat treatment process is practiced to improve:

Options :

1. ✖ hardness
2. ✖ brittleness
3. ✔ toughness
4. ✖ ductility

Question Number : 82 Question Id : 18424282 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical
Correct Marks : 2 Wrong Marks : 0.66

The material used for gas-filled cartridge in a car bumper is:

Options :

1. ✖ aluminium
2. ✔ HDPE
3. ✖ LDPE
4. ✖ steel

Question Number : 83 Question Id : 18424283 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical
Correct Marks : 2 Wrong Marks : 0.66

Which of the following statements is true, if a body moves with uniform velocity?

Options :

1. ✖ Body covers equal distance in equal interval of acceleration
2. ✔ Body covers equal distance in equal interval of time
3. ✖ Body covers equal distance in equal interval of speed
4. ✖ Body covers equal distance in equal interval of acceleration

Question Number : 84 Question Id : 18424284 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

If a body falls from height h , then the velocity v with which it will hit the ground is given by the equation:

Options :

1. ✔ $v = \sqrt{2gh}$

2. ✖ $v = \sqrt{10gh}$

3. ✖ $v = 2gh$

4. ✖ $v = \sqrt[3]{3gh}$

Question Number : 85 Question Id : 18424285 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

If a slab A having linear velocity v rotates with an angular velocity ω about an instantaneous centre C , then what will be the distance (r) of the slab A from the centre C ?

Options :

1. ✖ $\omega = v_A + r$

2. ✖ $v_A = r/\omega$

3. ✖ $r = \omega/v_A$

4. ✓ $r = v_A / \omega$

Question Number : 86 Question Id : 18424286 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical
Correct Marks : 2 Wrong Marks : 0.66

Where will be the instantaneous centre of rotation of a point A having linear velocity v equal to zero?

Options :

1. ✗ Instantaneous centre of rotation will be at infinity of a point A
2. ✓ Instantaneous centre of rotation will be at itself of a point A
3. ✗ Instantaneous centre of rotation will be at distance r from point A
4. ✗ Instantaneous centre of rotation will not exist for a point A

Question Number : 87 Question Id : 18424287 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical
Correct Marks : 2 Wrong Marks : 0.66

When two bevel gears having equal diameter connect to shafts whose axes are mutually perpendicular, then this arrangement of bevel gears is known as:

Options :

1. ✗ meter gear
2. ✗ rack and pinion gear
3. ✗ reverted gear train
4. ✓ miter

Question Number : 88 Question Id : 18424288 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical
Correct Marks : 2 Wrong Marks : 0.66

The ratio of the pitch circle diameter to the number of teeth in gear terminology is known as:

Options :

1. ✖ pitch point
2. ✔ module
3. ✖ diametral pitch
4. ✖ addendum circle

Question Number : 89 Question Id : 18424289 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical
Correct Marks : 2 Wrong Marks : 0.66

When the axes of the first gear and the last gear are co-axial in a gear train, this type of gear train is known as:

Options :

1. ✖ simple gear train
2. ✖ annular and pinion gear train
3. ✔ reverted gear train
4. ✖ epicyclic gear train

Question Number : 90 Question Id : 18424290 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical
Correct Marks : 2 Wrong Marks : 0.66

The cam and follower having a line contact between them, is known as:

Options :

1. ✖ line pair
2. ✔ higher pair
3. ✖ lower pair
4. ✖ reciprocating pair

Question Number : 91 Question Id : 18424291 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical
Correct Marks : 2 Wrong Marks : 0.66

What is the pitch point in the cams?

Options :

1. ✖ It is a point on the pitch curve having the minimum pressure angle

2. ✓ It is a point on the pitch curve having the maximum pressure angle

3. ✗ It is a point on the pitch curve having the average pressure angle

4. ✗ It is a point on the pitch curve having the maximum angle of contact with follower

Question Number : 92 Question Id : 18424292 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

When is a governor considered as an isochronous?

Options :

1. ✓ When the range of speed is zero

2. ✗ When the sensitivity of the governor is finite

3. ✗ When the radii of rotation fluctuates too much due to small change in speed.

4. ✗ When the radii of rotation does not change due to change in speed.

Question Number : 93 Question Id : 18424293 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Two parallel shafts at a distance D apart are to be connected by spur gears (gear and pinion). Which equation represents the correct relationship between centre distance D , diameters of gear (d_1) and pinion (d_2)?

Options :

1. ✗ $D = d_1 + d_2$

2. ✗ $D = 2(d_1 + d_2)$

3. ✓ $D = (d_1 + d_2)/2$

4. ✗ $D = d_1 - d_2$

Correct Marks : 2 Wrong Marks : 0.66

What is the correct formula to represent the average pressure (p_{av}) on contact surface of the clutch? (Consider W – axial thrust, r_1 – radius of external face of the friction plate, r_2 – radius of internal face of the friction surface.)

Options :

1. ✓ $p_{av} = \frac{W}{\pi[(r_1)^2 - (r_2)^2]}$

2. ✗ $p_{av} = \frac{2W}{\pi[(r_1)^2 - (r_2)^2]}$

3. ✗ $p_{av} = \frac{2W(r_1 - r_2)}{\pi[(r_1)^2 - (r_2)^2]}$

4. ✗ $p_{av} = \frac{2W(r_1 - r_2)}{\pi[(r_1)^2 - (r_2)^2]}$

Question Number : 95 Question Id : 18424295 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Which of the following equations represents the total frictional torque (T) induced in a multiple disc clutch, assuming it as uniform wear? (Consider n – number of pairs of contact surfaces, μ – coefficient of friction, r_1 – radius of external face of the friction plate, r_2 – radius of internal face of the friction surface.)

Options :

1. ✗ $T = \mu W \frac{2(r_1)^3 - (r_2)^3}{3(r_1)^2 - (r_2)^2}$

2. ✓ $T = n \mu W \frac{2[(r_1)^3 - (r_2)^3]}{3[(r_1)^2 - (r_2)^2]}$

3. ✗ $T = n \mu W \frac{r_1 + r_2}{2}$

4. ✖
$$T = n \mu W \frac{2(r_1)^2 + (r_2)^2}{3r_2}$$

Question Number : 96 Question Id : 18424296 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

A force represents the action of one body on another body is characterised by:

Options :

1. ✖ magnitude only
2. ✖ magnitude and direction only
3. ✔ magnitude, direction and point of application all are required
4. ✖ point of application only

Question Number : 97 Question Id : 18424297 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Which among the following is a unit of Force?

Options :

1. ✔ Slug
2. ✖ Henry
3. ✖ Pascal
4. ✖ Radian

Question Number : 98 Question Id : 18424298 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Which of the graphical methods is NOT used for determining the velocity and acceleration of the reciprocating parts in an engine?

Options :

1. ✖ Klien's construction
2. ✖ Ritterhaus' construction

3. ✖ Bennett's construction

4. ✔ Mohr's circle diagram

Question Number : 99 Question Id : 18424299 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The acceleration of the piston in a reciprocating engine is given by:

(Consider, angular velocity (ω), radius of crank (r) and angle of crank with the respect to the horizontal axis, length of the crank (L) and $n = L/r$.)

Options :

1. ✔ $a = \omega^2 \cdot r \left(\cos\theta + \frac{\cos 2\theta}{n} \right)$

2. ✖ $a = \omega^2 \cdot r \left(\cos\theta + \frac{\cos 2\theta}{\sin\theta} \right)$

3. ✖ $a = n \cdot \omega^2 \cdot r \left(\sin\theta + \frac{\cos 2\theta}{\sin\theta} \right)$

4. ✖ $a = \omega^2 \cdot r \left(n + \frac{\cos 2\theta}{\sin\theta} \right)$

Question Number : 100 Question Id : 184242100 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Which of the following principles states that the resultant force acting on a body together with reversed effective force or inertial force are in equilibrium?

Options :

1. ✖ Law of Parallelogram

2. ✖ Newton's first Law

3. ✖ Pascal's Law

4. ✔ D'Alembert's Law

Question Number : 101 Question Id : 184242101 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

The ratio of maximum fluctuation of energy to the work done/cycle in the engine due to flywheel is known as:

Options :

1. ✖ coefficient of fluctuation of speed
2. ✖ coefficient of fluctuation of static friction
3. ✔ coefficient of fluctuation of energy
4. ✖ coefficient of study-ness

Question Number : 102 Question Id : 184242102 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

In a dynamic balancing of a machine:

Options :

1. ✖ only centrifugal forces induced in the machine need to be balanced
2. ✖ only couple induced at the support need to be balanced
3. ✔ both centrifugal and couple need to be balanced
4. ✖ both transmissibility and magnification factor need be controlled by damping

Question Number : 103 Question Id : 184242103 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

How does the effect of the inertia constraints in longitudinal free vibration affect the natural frequency of the system?

Options :

1. ✖ Inertia constrain does not have any effect on natural frequency of the system
2. ✖ Inertia constrain increases the value of natural frequency of the system
3. ✔ Inertia constrain decreases the value of natural frequency of the system

4. ✖ Inertia constrain increases the value of natural frequency of the system by two times.

Question Number : 104 Question Id : 184242104 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical
Correct Marks : 2 Wrong Marks : 0.66

Which of following options defines resonance in the system?

Options :

1. ✔ When natural frequency confides with that of the operating frequency of the system
2. ✖ When stiffness of the structure confides with that of the stiffness of the system
3. ✖ When mass of the structure confides with that of the mass of the system
4. ✖ When the frequency of the surrounding noise confides with that of the noise of the operating system.

Question Number : 105 Question Id : 184242105 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical
Correct Marks : 2 Wrong Marks : 0.66

The free vibration in the form of twisted and untwisted of the shaft about an axis is known as:

Options :

1. ✖ damped free longitudinal vibration
2. ✖ damped longitudinal vibration
3. ✔ free torsional vibration
4. ✖ damped torsional vibration

Question Number : 106 Question Id : 184242106 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical
Correct Marks : 2 Wrong Marks : 0.66

According to the Principle of 'Virtual Work', which quantity remains zero during the analysis?

Options :

1. ✖ Virtual displacement due to external force

2. ✖ External force due to virtual work

3. ✖ External work due real displacement

4. ✔ Work due to virtual displacement

Question Number : 107 Question Id : 184242107 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Which of the following equations does NOT represent the maximum fluctuation of energy of a flywheel (ΔE)?

(Consider ω , ω_1 and ω_2 mean, maximum and minimum angular speeds of the flywheel respectively, I – moment of inertia of the flywheel, K – coefficient of fluctuation of speed.)

Options :

1. ✖ $\Delta E = \omega \cdot I(\omega_1 - \omega_2)$

2. ✖ $\Delta E = 2EK$

3. ✖ $\Delta E = I\omega^2 \cdot K$

4. ✔ $\Delta E = \frac{I\omega^2}{2}$

Question Number : 108 Question Id : 184242108 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The necessary condition in which two masses become dynamically equivalent to the body is represented by which equation? (Consider, L_1 and L_2 – as distance of two masses from the center of gravity of the body K_G – as radius of gyration of the body.)

Options :

1. ✔ $L_1 \cdot L_2 = K_G^2$

2. ✖ $L_1 \cdot L_2 = K_G$

3. ✖ $L_1 / L_2 = K_G^2$

4. ✖ $L_2 = K_G^2 \cdot L_1$

Question Number : 109 Question Id : 184242109 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical
Correct Marks : 2 Wrong Marks : 0.66

When the piston reaches at the TDC and BDC, what will be the velocity of the piston while changing the direction at these dead centres?

Options :

1. ✖ Maximum velocity at both TDC and BDC
2. ✖ Maximum velocity at TDC and zero velocity at BDC
3. ✖ Zero velocity at TDC and maximum velocity at BDC
4. ✔ Zero velocity at both TDC and BDC

Question Number : 110 Question Id : 184242110 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical
Correct Marks : 2 Wrong Marks : 0.66

Which type of welding joint is used while joining the two pipes of equal diameters?

Options :

1. ✖ Corner joint
2. ✖ Lap joint
3. ✔ Butt joint
4. ✖ Edge joint

Question Number : 111 Question Id : 184242111 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical
Correct Marks : 2 Wrong Marks : 0.66

The part of the machine whose function is to engage or disengage the driver shaft with driven shaft at will, without stopping the engine is known as:

Options :

1. ✖ governor
2. ✖ brake

3. ✖ steering

4. ✔ clutch

Question Number : 112 Question Id : 184242112 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

In which applications is leaf springs mostly used?

Options :

1. ✖ Two-wheeler front suspensions

2. ✖ In bicycles

3. ✖ Airplanes

4. ✔ In four-wheelers

Question Number : 113 Question Id : 184242113 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

In front wheel drive vehicles, which type of axle is used to transmit power from the drive shaft to wheels?

Options :

1. ✖ Rear drive axle

2. ✖ Dead axle

3. ✔ Front drive axle

4. ✖ One piece axle housing

Question Number : 114 Question Id : 184242114 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Which of the following is NOT an example of curved beam?

Options :

1. ✖ Chain links with tensile load

2. ✖ Crane hooks subjected to downward load

3. ✖ Rings with uniform tensile load

4. ✔ Cantilever beam with point load

Question Number : 115 Question Id : 184242115 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

What is bearing characteristic number (BCN)? (Consider Z – absolute viscosity of the lubricant, N – speed of the journal in rpm and p – bearing pressure on the projected bearing area.)

Options :

1. ✓ $BCN = \frac{ZN}{p}$

2. ✗ $BCN = \frac{N}{Zp}$

3. ✗ $BCN = \frac{N}{Z} \times p$

4. ✗ $BCN = \frac{Z}{Np}$

Question Number : 116 Question Id : 184242116 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Which component is located between the axles which permits wheel fitted on one axle to turn at a different speed from that of the other wheel fitted on the another axle during power transmission through shaft in heavy vehicles?

Options :

1. ✗ Universal joint

2. ✗ Journal bearing

3. ✓ Differential gear

4. ✗ Rack and pinion

Question Number : 117 Question Id : 184242117 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Why are hydraulic and electric brakes usually used only in heavy vehicles such as locomotives and heavy trucks?

Options :

1. ✖ They are complex in design
2. ✖ They are very costly to operate
3. ✖ These brakes are so strong that vehicles stop suddenly and the chance of an accident in light vehicles is high if used.
4. ✔ These brakes are only used when large amount of energy is required to retard the speed of the vehicles and it takes time to stop the vehicle fully

Question Number : 118 Question Id : 184242118 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Which among the following is NOT a type of crank shaft design?

Options :

1. ✖ Overhung crank shaft
2. ✖ Centre crank shaft
3. ✖ Single or multi-throw crank shaft
4. ✔ Rocker arm multi-throw crank shaft

Question Number : 119 Question Id : 184242119 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Which manufacturing process is mostly used to fabricate the connecting rods in industries?

Options :

1. ✖ Casting process
2. ✖ Investment casting process
3. ✖ Milling operations
4. ✔ Drop forging process

Question Number : 120 Question Id : 184242120 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

In a single block brake, when the line of action of the tangential braking Force (F_t) passes through the fulcrum O of the lever of length (L) subjected to external force (P) at end of lever in downward direction, what will be the equation of Braking torque (T_B) of this brake? (Consider μ as coefficient of friction and x is distance of reaction force from fulcrum O and drum of radius (r).)

Options :

1. ✓ $T_B = \frac{\mu \cdot P \cdot L \cdot r}{x}$

2. ✗ $T_B = \frac{P \cdot L \cdot r}{(x - \mu)}$

3. ✗ $T_B = \frac{\mu \cdot P \cdot L}{x \cdot r}$

4. ✗ $T_B = \frac{\mu \cdot P \cdot x \cdot r}{L - 1}$

Question Number : 121 Question Id : 184242121 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical
Correct Marks : 2 Wrong Marks : 0.66

While calculating the torque capacity of the old clutch, which analysis theory is more accurate and why?

Options :

1. ✗ Uniform pressure theory is more accurate as it assumes uniform pressure in old clutch plates.

2. ✗ Uniform pressure theory is more accurate as it gives non-uniform pressure in old clutch plates.

3. ✓ Uniform wear theory is more accurate as it assumes uniform wear in old clutch plates.

4. ✗ Uniform wear theory is more accurate as it assumes non-uniform wear in clutch plates.

Question Number : 122 Question Id : 184242122 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical
Correct Marks : 2 Wrong Marks : 0.66

A small weld used to temporarily hold two pieces together during actual welding joint is known as:

Options :

1. ✓ tack weld
2. ✗ fillet weld
3. ✗ puddle
4. ✗ weld bead

Question Number : 123 Question Id : 184242123 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Which among the following is NOT a standard locking device used to prevent loosening of the nut or bolt?

Options :

1. ✗ Lock nut
2. ✗ Sawn nut
3. ✗ Castle nut
4. ✓ Screwed crow nut

Question Number : 124 Question Id : 184242124 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

In which part, is a spindle mounted on the centre lathe?

Options :

1. ✓ Headstock
2. ✗ Tailstock
3. ✗ Carriage
4. ✗ Tool-post

Question Number : 125 Question Id : 184242125 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Why are shaper machines being replaced in shops?

Options :

1. ✖ Due to advances in casting and other manufacturing processes, surface finishing on components is achieved itself and therefore shaper machines become irrelevant.
2. ✔ The shaper machine is relatively a slow machine tool with very low metal removal rate. Moreover, versatile milling machine can do the work of shaper machine faster.
3. ✖ The shaper machine is a reciprocating machine tool and creates a lot of vibration and noise whereas, a milling machine can do the work of a shaper machine silently.
4. ✖ Shaper machines are not able to remove the metal from the surface of the workpiece and consume high amounts of energy compared to planner machines.

Question Number : 126 Question Id : 184242126 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

What is the basic difference between shaper machine and planner machine?

Options :

1. ✖ No difference as planner machine can also remove metal with same finishing.
2. ✔ In shaper, the cutting tool reciprocates during the cutting motion, while in planner, the workpiece reciprocates
3. ✖ In shaper, the cutting tool reciprocates during the cutting motion, while in planner, the workpiece rotates
4. ✖ In shaper, the cutting tool rotates during the cutting motion, while in planner, the workpiece reciprocates

Question Number : 127 Question Id : 184242127 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

What type of cutting tool is used in a slotting machine and which part is used to hold it?

Options :

1. ✓ Single point cutting tool is held by ram
2. ✗ Multi-point cutting tool is held by ram
3. ✗ Single point cutting tool is held by carriage
4. ✗ Single point cutting tool is held by arbor

Question Number : 128 Question Id : 184242128 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

What is name of the machining operation which is used to make a fresh hole in solid material?

Options :

1. ✗ Boring operation
2. ✓ Drilling operation
3. ✗ Reaming operation
4. ✗ Knurling operation

Question Number : 129 Question Id : 184242129 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

What is the value of the lip clearance angle for drilling operations for wood and non-metals?

Options :

1. ✓ 60 degrees
2. ✗ 128 degrees
3. ✗ More than 136 degree
4. ✗ 90 degrees

Question Number : 130 Question Id : 184242130 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Which machine and what type of operation is used to enlarge the existing drilled hole?

Options :

1. ✗ Planner machine is used for reaming operation

2. ✖ Boring machine is used for drilling operation

3. ✖ Milling machine is used for drilling operation

4. ✔ Boring machine is used for boring operation

Question Number : 131 Question Id : 184242131 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Which of the following equations accurately represents the milling power (P_m) in horse power unit? (Consider: K_p – milling power constant, C – feed factor constant and W – tool wear constant.)

Options :

1. ✔ $P_m = K_p \cdot Q \cdot C \cdot W$

2. ✖ $P_m = K_p \cdot Q \cdot C \cdot W / 746$

3. ✖ $P_m = K_p \cdot Q \cdot C \cdot W / 2\pi$

4. ✖ $P_m = K_p \cdot Q \cdot C \cdot W \cdot \left(\frac{746}{100}\right)$

Question Number : 132 Question Id : 184242132 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The process of obtaining final finishing operation done with loose abrasive is known as:

Options :

1. ✖ planning

2. ✖ grinding

3. ✖ honing

4. ✔ lapping

Question Number : 133 Question Id : 184242133 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

What will be the effect on surface finish on a workpiece at maximum depth of cut during an operation?

Options :

1. ✖ Surface finish and rate of material removal rate increases but cutting tool gets heated
2. ✔ Surface finish and cutting tool cooling rate decreases, but material removal rate increases
3. ✖ Surface finish and cutting tool cooling rate increases, but material removal rate decreases.
4. ✖ Surface finish and rate of material removal rate increases but cutting tool temperature remains constant

Question Number : 134 Question Id : 184242134 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The unwanted cooling of molten metals during pouring in moulds causes rupture of the casting. This is due to which type of defect?

Options :

1. ✔ Hot tears
2. ✖ Cold shut
3. ✖ Fusion
4. ✖ Pinhole porosity

Question Number : 135 Question Id : 184242135 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The machine used in a foundry for mixing large quantity of sand is known as:

Options :

1. ✖ feeder
2. ✔ batch muller
3. ✖ screener
4. ✖ incinerator

Question Number : 136 Question Id : 184242136 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

What is a machine tool?

Options :

1. ✖ It is a single point cutting tool used in sophisticated CNC machines which can be operated from remote locations.
2. ✖ It is a type of advanced abrasive multipoint cutting tool and which gives highest quality of surface machining.
3. ✔ It is a tool which while holding the cutting tool and able to remove metal from workpiece in order to give required size, configuration and surface finish.
4. ✖ It is a type of turret lathe machine which while holding the multiple cutting tools and able to perform all the basic operations metal from workpiece in order to give required size, configuration and surface finish.

Question Number : 137 Question Id : 184242137 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

In a centre lathe, which component is used to provide motion to the cutting tool in direction perpendicular direction to the axis of rotation of the workpiece?

Options :

1. ✖ Tool post
2. ✖ Lead screw
3. ✖ Carriage
4. ✔ Cross-slide

Question Number : 138 Question Id : 184242138 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The art of getting work through people, with satisfaction for employer, employees and the public is known as:

Options :

1. ✖ aesthetics-ness

2. ✖ agronomics

3. ✔ management

4. ✖ administration

Question Number : 139 Question Id : 184242139 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Which type of management looks after merchandising, advertising, sales and critical path analysis?

Options :

1. ✖ Financial management

2. ✖ Maintenance management

3. ✖ Production management

4. ✔ Distribution management

Question Number : 140 Question Id : 184242140 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The decisions such as setting basic goals, objectives and establishing policies are the functions of which type of management?

Options :

1. ✔ Top management

2. ✖ Lower management

3. ✖ Operating force

4. ✖ Middle management

Question Number : 141 Question Id : 184242141 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Which of the following terms implies taking away of responsibilities of the person during the period of emergency?

Options :

1. ✖ Transfer

2. ✔ Lay-off

3. ✖ Promotion

4. ✖ Dismissal

Question Number : 142 Question Id : 184242142 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The process of planning, organising, directing people for the purpose of contributing to the organisation goals is known as:

Options :

1. ✖ process management

2. ✖ procurement management

3. ✔ personnel management

4. ✖ principles management

Question Number : 143 Question Id : 184242143 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Which of the following equations represents the wage incentive (W) as per Rowan Plan? (Consider: R – hourly wage rate, T – actual time taken to complete the job and S – standard time.)

Options :

1. ✔ $W = R.T + \left(\frac{S-T}{S}\right) \times R.T$

2. ✖ $W = R.T + \left(\frac{S-T}{S}\right)$

3. ✖ $W = R.T + \left(\frac{S-T}{S.R.T}\right)$

4. ✖ $W = R.T \times \left(\frac{S-T}{S}\right)$

Question Number : 144 Question Id : 184242144 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

According to Emerson's efficiency plan, how is efficiency of a worker defined?

Options :

1. ✖ It is the ratio of average time to the actual time taken by the worker to complete the job
2. ✔ It is the ratio of standard time to the actual time taken by the worker to complete the job
3. ✖ It is the ratio of actual time to the average time taken by the worker to complete the job
4. ✖ It is the ratio of actual time to the standard time taken by the worker to complete the job

Question Number : 145 Question Id : 184242145 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Which equation among the following represents the economic batch quantity (EBQ)? (Consider R – annual requirement of products, S – preparation and set-up cost, C – constant per piece and I – inventory carrying charges.)

Options :

1. ✖ $EBQ = \sqrt{\frac{RS}{2CI}}$

2. ✖ $EBQ = \sqrt{\frac{RS}{CI}}$

3. ✔ $EBQ = \sqrt{\frac{2RS}{CI}}$

4. ✖ $EBQ = \sqrt{\frac{2CS}{RI}}$

Question Number : 146 Question Id : 184242146 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3 Option Orientation : Vertical

If an organisation offers a range of products to the market for consumption and service is known:

Options :

1. ✖ price mix
2. ✖ organisation mix
3. ✖ sale mix
4. ✔ product mix

Question Number : 147 Question Id : 184242147 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The ratio of the total number of separations to the average workforce per unit period in terms of percentage in the organisation is known as:

Options :

1. ✖ net turnover of employer
2. ✔ net labour turnover
3. ✖ gross domestic people turnover
4. ✖ gross domestic people loss

Question Number : 148 Question Id : 184242148 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The payment made in terms of non-money for the use of labour in industries is known as:

Options :

1. ✖ wages
2. ✖ incentives
3. ✔ fringe benefits
4. ✖ bonus

Question Number : 149 Question Id : 184242149 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Which of the following actions of personnel management is known as capital punishment of the industry for the employee?

Options :

1. ✖ Transfer
2. ✖ Demotion
3. ✖ Lay-off
4. ✔ Discharge

Question Number : 150 Question Id : 184242150 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical
Correct Marks : 2 Wrong Marks : 0.66

Which of the following activities is usually done prior to the launch of a new product in the market?

Options :

1. ✖ Advertising
2. ✔ Market research
3. ✖ Sales forecasting
4. ✖ Sales and promotion