APPSC
Technical Assistant

Previous Year Paper
(Automobile Engineering)
21 Oct 2022 Paper II

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Notations :

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

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

Question Paper Name :	Paper II Automobile Engineering
Subject Name :	Paper II Automobile Engineering
Creation Date :	2022-10-21 17:58:47
Duration :	150
Total Marks :	300
Display Marks:	Yes
Share Answer Key With Delivery Engine :	No
Actual Answer Key :	Yes
Calculator :	None
Magnifying Glass Required? :	No
Ruler Required? :	No
Eraser Required? :	No
Scratch Pad Required? :	No
Rough Sketch/Notepad Required? :	No
Protractor Required? :	No
Show Watermark on Console? :	Yes
Highlighter :	No
Auto Save on Console?	Yes
Change Font Color :	No
Change Background Color :	No
Change Theme :	No
Help Button :	No
Show Reports :	No
Show Progress Bar :	No

Paper II Automobile Engineering

Group Number :	1
Group Id :	8277888
Is this Group for Examiner? :	No
Examiner permission :	Cant View
Show Progress Bar? :	No

Automobile Engineering

Section Id :	8277889
Section Number :	1
Section type :	Online
Enable Mark as Answered Mark for Review and Clear Response :	Yes
Maximum Instruction Time :	0
Sub-Section Number :	1
Sub-Section Id :	82778811
Question Shuffling Allowed :	Yes
Is Section Default? :	null

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Question Number : 1 Question Id : 8277881003 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

$\frac{N}{m}$ is SI unit of which of the following quantity?

Options :

1. ✖ Stress
2. ✖ Work
3. ✖ Energy
4. ✔ Surface Tension

Question Number : 2 Question Id : 8277881004 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

Which of the following quantity is dimensionless?

Options :

1. ✔ Specific gravity
2. ✖ Specific weight
3. ✖ Elastic modulus
4. ✖ Dynamic viscosity

Question Number : 3 Question Id : 8277881005 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

Which of the following fluid is non-Newtonian?

Options :

1. ✖ Water
2. ✖ Kerosene
3. ✖ Glycerine
4. ✔ Printer's ink

Question Number : 4 Question Id : 8277881006 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

At a depth of 2000 meters in the ocean the pressure is 840 $kg(f)cm^2$. Assume the specific weight at surface as 1025 $kg(f)cm^3$ and that the average bulk modulus of elasticity is $24 \times 10^3 kg(f)cm^2$ for that pressure range. What will be the change in specific volume between that at the surface and at that depth?

Options :

1. ✖ $3.41 \times 10^{-4} m^3/kg(f)$
2. ✔ $3.41 \times 10^{-5} m^3/kg(f)$
3. ✖ $6.82 \times 10^{-4} m^3/kg(f)$
4. ✖ $6.82 \times 10^{-5} m^3/kg(f)$

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Question Number : 5 Question Id : 8277881007 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

Consider the Chezy equation for flow velocity through a channel: $V = C\sqrt{mi}$ where V is the flow velocity in m/s, m is the hydraulic mean depth in m and i is the longitudinal slope of the channel. In $[M, L, T]$ notation system, the dimensions of the Chezy constant C are:

Options :

1. ✖ $ML^{-1}T$

2. ✖ $M^0L^0T^0$

3. ✔ $L^{1/2}T^{-1}$

4. ✖ $M^0L^2T^{-1}$

Question Number : 6 Question Id : 8277881008 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

Which of the following is true for Reynolds number (R_e)?

Options :

1. ✖ $R_e = \frac{\rho \mu L}{V}$

2. ✖ $R_e = \frac{V \mu L}{\rho}$

3. ✖ $R_e = \frac{\rho V L}{\vartheta}$

4. ✔ $R_e = \frac{\rho V d}{\mu}$

Question Number : 7 Question Id : 8277881009 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

Fluid statics deals with the following forces:

Options :

1. ✔ Gravity and Pressure Forces
2. ✖ Viscous and Inertia Forces
3. ✖ Gravity and Viscous Forces
4. ✖ Pressure and Inertia Forces

Question Number : 8 Question Id : 8277881010 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

Choose the correct statement in the context of bulk modulus and coefficient of compressibility.

Options :

1. ✖ The bulk modulus of elasticity of a fluid is the same as its coefficient of compressibility
2. ✖ Most of the liquids have a low value of bulk modulus
3. ✖ The bulk modulus is not influenced by changes in pressure and temperature
4. ✔ The relative change of volume per unit pressure is called the coefficient of compressibility

Question Number : 9 Question Id : 8277881011 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

What will be the shear stress for the fluid which is in rest?

Options :

1. ✖ Infinite
2. ✖ One
3. ✖ Minimum
4. ✔ Zero

Question Number : 10 Question Id : 8277881012 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

For which of the following condition the floating ship is considered to be in stable equilibrium.

Options :

1. ✔ When the metacentre M is above the centre of gravity G of the ship
2. ✖ When the metacentre M coincides with the centre of gravity G of the ship
3. ✖ When the metacentre M is below the centre of gravity G of the ship
4. ✖ When the centre of buoyancy B is above the centre of gravity G of the ship

Question Number : 11 Question Id : 8277881013 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

For which of the following condition the floating boat is considered to be in unstable equilibrium.

Options :

1. ✖ When the metacentre M is above the centre of gravity G of the boat
2. ✖ When the metacentre M coincides with the centre of gravity G of the boat
3. ✔ When the metacentre M is below the centre of gravity G of the boat
4. ✖ When the centre of buoyancy B is above the centre of gravity G of the boat

Question Number : 12 Question Id : 8277881014 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

A wooden block of rectangular section 1.25 m wide, 2 m deep, 4 m long floats horizontally in sea water. If the specific gravity of wood is 0.64 and water weights 1025 $\frac{kg(f)}{m^3}$, What will be the centre of buoyancy?

Options :

1. ✖ 0.312 m above the base
2. ✔ 0.624 m above the base
3. ✖ 0.824 m above the base
4. ✖ 1.0 m above the base

Question Number : 13 Question Id : 8277881015 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

How many numbers of impellers are required for a multistage pump to lift 4200 liters /minute against a total head of 185 m, at a speed of 750 r.p.m.? The specific speed is not to exceed 700.

Options :

1. ✖ 4
2. ✖ 6
3. ✖ 8
4. ✔ 10

Question Number : 14 Question Id : 8277881016 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

At what height from water surface a centrifugal pump may be installed in the following case to avoid cavitation: atmospheric pressure 101 kPa; vapour pressure 2.34 kPa; inlet and other losses in suction pipe 1.55 m; effective head of pump 52.5 m; and cavitation parameter $\sigma = 0.118$

Options :

1. ✖ 0.512 m
2. ✖ 1.245 m
3. ✔ 2.312 m
4. ✖ 3.126 m

Question Number : 15 Question Id : 8277881017 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

Mechanical efficiency of a centrifugal pump is given by:

Options :

1. ✔ Power at the impeller / shaft power
2. ✖ Shaft power / power at the impeller
3. ✖ Power possessed by water / power at the impeller
4. ✖ Power possessed by water / shaft power

Question Number : 16 Question Id : 8277881018 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

Which of the following statement is correct?

Options :

1. ✖ Centrifugal pumps convert mechanical energy into hydraulic energy by sucking liquid into chamber.
2. ✖ Reciprocating pumps convert mechanical energy into hydraulic energy by means of centrifugal force
3. ✔ Centrifugal pumps convert mechanical energy into hydraulic energy by means of centrifugal force
4. ✖ Reciprocating pumps convert hydraulic energy into mechanical energy

Question Number : 17 Question Id : 8277881019 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

A single acting reciprocating pump has piston of diameter 150 mm and stroke of length 250 mm. the piston makes 50 double strokes per minute. The suction and delivery heads are 5 m and 15 m respectively. What will be the discharge capacity of the pump?

Options :

1. ✖ 215 litres per minute
2. ✔ 221 litres per minute
3. ✖ 230 litres per minute
4. ✖ 242 litres per minute

Question Number : 18 Question Id : 8277881020 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

A double acting reciprocating pump having piston area 0.1 m^2 has a stroke 0.30 m long. The pump is discharging 2.4 m^3 of water per minute at 45 r.p.m. through a height of 10 m. what will be the slip of the pump?

Options :

1. ✖ 0.002 m^3/s
2. ✖ 0.003 m^3/s
3. ✖ 0.004 m^3/s
4. ✔ 0.005 m^3/s

Question Number : 19 Question Id : 8277881021 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

Which statement corresponds to Zeroth law of thermodynamics?

Options :

1. ✖ Work can be completely converted to heat
2. ✔ Two systems in thermal equilibrium with a third system are in thermal equilibrium with each other
3. ✖ There can not be transfer of heat from a system at low temperature to another system at high temperature
4. ✖ It is practically impossible to attain a zero degree absolute temperature

Question Number : 20 Question Id : 8277881022 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

Which of the following statement does not represent the essence of first law of thermodynamics?

Options :

1. ✖ Heat input to a system equals the net work done plus change in internal energy
2. ✖ The sum of heat and work effects will be zero if the system undergoes a cycle
3. ✔ Heat input can not be more than work output
4. ✖ For an isolated system, energy remains constant

Question Number : 21 Question Id : 8277881023 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

The identity $\delta Q = p\,dv + du$ is true for:

Options :

1. ✖ Any process and open system
2. ✖ Any process and closed system

3. ✖ Irreversible process and open system
4. ✔ Reversible process and closed system

Question Number : 22 Question Id : 8277881024 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

In a general compression process, 1 kJ of mechanical work is supplied to 2 kg of fluid and 400 J of heat is rejected to the cooling jacket. The change in specific internal energy (in J) would be:

Options :

1. ✖ 800
2. ✖ 500
3. ✔ 300
4. ✖ 200

Question Number : 23 Question Id : 8277881025 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

A tank containing air is stirred by a paddle wheel. The work input to the paddle wheel is 9000 kJ and the heat transferred to the surroundings from the tank is 3000 kJ. The external work done by the system is:

Options :

1. ✔ 0 kJ
2. ✖ 1500 kJ
3. ✖ 3000 kJ
4. ✖ 4500 kJ

Question Number : 24 Question Id : 8277881026 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

Which is the essence of second law of thermodynamics?

Options :

1. ✖ The whole of heat supplied to a system can be converted into equivalent mechanical work
2. ✖ No engine can be 100 % efficient
3. ✔ A refrigerator can reduce the temperature to zero
4. ✖ Reversible engines working between the same temperature limits can have different thermal efficiencies.

Question Number : 25 Question Id : 8277881027 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

The relation $ds = \partial Q/T$ for entropy change during a process is valid for:

Options :

1. ✖ All real processes
2. ✔ Only for reversible processes
3. ✖ Only for irreversible processes
4. ✖ Both for reversible and irreversible processes

Question Number : 26 Question Id : 8277881028 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

A system undergoes a state change from 1 to 2. According to the second law of thermodynamics for the process to be feasible, the entropy change $(s_2 - s_1)$ of the system.

Options :

1. ✖ Is positive or zero
2. ✖ Is negative or zero
3. ✖ Is zero
4. ✔ Can be positive, negative or zero

Question Number : 27 Question Id : 8277881029 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

For any natural process, the entropy change would be:

Options :

1. ✖ zero
2. ✔ positive
3. ✖ negative
4. ✖ unpredictable

Question Number : 28 Question Id : 8277881030 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

For a fixed quantity of heat added to a system under specific conditions, the entropy change will be maximum in case of:

Options :

1. ✖ Isentropic Process
2. ✖ Isobaric Process
3. ✔ Isothermal Process
4. ✖ Isochoric Process

Question Number : 29 Question Id : 8277881031 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

Which of the following statement is NOT correct?

Options :

1. ✖ Calculations can be made for the entropy change and not for the absolute value of entropy
2. ✔ Constant pressure lines on temperature entropy plot are steeper than the constant volume lines
3. ✖ The amount of heat transfer is represented by the area under a reversible process on a temperature-entropy diagram
4. ✖ The units in SI system for the specific entropy are KJ/kg K

Question Number : 30 Question Id : 8277881032 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

Compared to four-stroke cycle engine, a two-stroke cycle engine.

Options :

1. ✔ Can be easily started
2. ✖ Has lesser shocks and vibrations
3. ✖ Greater thermal efficiency
4. ✖ Less wear and tear of moving parts

Question Number : 31 Question Id : 8277881033 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

For an otto cycle, an increase in compression ratio leads to:

Options :

1. ✔ An increase in both thermal efficiency and mean effective pressure
2. ✖ A decrease in both thermal efficiency and mean effective pressure
3. ✖ An increase in thermal efficiency but a decrease in mean effective pressure
4. ✖ A decrease in thermal efficiency but an increase in mean effective pressure

Question Number : 32 Question Id : 8277881034 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

Which of following processes is not associated with diesel cycle?

Options :

1. ✖ Constant volume
2. ✖ Constant pressure
3. ✔ Isothermal
4. ✖ Adiabatic

Question Number : 33 Question Id : 8277881035 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

Highest useful compression ratio is the compression ratio at which the engine.

Options :

1. ✖ Gives maximum power output
2. ✔ Can operate without detonation
3. ✖ Consumes minimum fuel for a particular power output
4. ✖ Maintains operating pressures and temperatures within prescribed limits

Question Number : 34 Question Id : 8277881036 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

Specific fuel consumption is expressed as:

Options :

1. ✖ Fuel consumed per km of distance moved
2. ✖ Fuel consumption during one hour of running
3. ✖ Fuel consumption for producing unit brake power
4. ✔ Fuel consumption per brake power per hour

Question Number : 35 Question Id : 8277881037 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

In the carburetor of petrol engine.

Options :

1. ✖ Air and petrol are mixed in the ratio of about 15 parts of petrol to one part of air
2. ✔ Air pressure is reduced when the air passes through a venturi
3. ✖ Air should be prevented from entering the tank
4. ✖ Air entering the induction system through a broken gasket at the manifold would give a condition called rich mixture

Question Number : 36 Question Id : 8277881038 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

The process of augmenting the engine power by raising the pressure of charge, fed into the engine cylinder, is called:

Options :

1. ✖ Scavenging
2. ✔ Supercharging
3. ✖ Pumping
4. ✖ Dropping

Question Number : 37 Question Id : 8277881039 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

An engine is supercharged essentially for:

Options :

1. ✖ Fuel economy
2. ✖ Increased efficiency
3. ✖ Knock free engine performance
4. ✔ Reduce weight and bulk of the engine for a given output

Question Number : 38 Question Id : 8277881040 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

What is not true in the context of supercharging of IC engines?

Options :

1. ✖ Air is supplied to the engine at a pressure and density greater than atmospheric
2. ✖ Compensates the power loss at higher altitudes due to rarified atmosphere
3. ✔ The specific fuel consumption of the super charged engine is more
4. ✖ More favorable with diesel engine than with petrol engine

Question Number : 39 Question Id : 8277881041 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

The linear variable differential transformer (LVDT) is an inductive transducer which functions due to:

Options :

1. ✖ Change in the air gap
2. ✖ Change in the amount of core material
3. ✔ Variation in the position of core
4. ✖ Movement of the coil or conductor within the field or permanent magnet

Question Number : 40 Question Id : 8277881042 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

Point out the device that refers to a self-generating transducer.

Options :

1. ✖ Resistive
2. ✖ Photo-voltaic
3. ✔ Piezo-electric
4. ✖ LVDT

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Question Number : 41 Question Id : 8277881043 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

Which grade of slip gauges are used to setting up machine tools and milling cutter on the shop floor?

Options :

1. ✖ Grade 00
2. ✖ Grade 0
3. ✖ Grade 1
4. ✔ Grade 2

Question Number : 42 Question Id : 8277881044 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

The bob of a pendulum of length 0.9 m is pulled to one side till the string makes an angle of $60°$ with the vertical and is released. The bob acquires a maximum velocity of (Take $g = 10\frac{m}{s^2}$)

Options :

1. ✖ 1.5 m/s
2. ✔ 3.0 m/s
3. ✖ 5 m/s
4. ✖ 7 m/s

Question Number : 43 Question Id : 8277881045 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

A body weighing 625 N stands on a spring weighing machine inside a lift. The lift commences its downward journey and the machine reads 500 N. At that instant, the lift is descending with an acceleration of (Take $g = 10\frac{m}{s^2}$)

Options :

1. ✖ $1.3\ \frac{m}{s^2}$
2. ✔ $2.0\ \frac{m}{s^2}$
3. ✖ $5.0\ \frac{m}{s^2}$
4. ✖ $8.0\ \frac{m}{s^2}$

Question Number : 44 Question Id : 8277881046 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

A crank of radius 12 cm is rotating at 60 rpm with an angular acceleration of 50 rad/sec^2. The tangential acceleration (m/s^2) of the crank is about:

Options :

1. ✖ 4.7
2. ✖ 5.2
3. ✔ 6
4. ✖ 7.3

Question Number : 45 Question Id : 8277881047 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

Which of the following statement is not correct?

Options :

1. ✖ The instantaneous centre of a moving body goes on changing from one instant to another, and the locus of all such instantaneous centres is known as centrode
2. ✖ The instantaneous centres which remain in the same place for all configuration of the machine are called fixed instantaneous centres
3. ✖ Three bodies moving relatively to each other have three instantaneous centres and these lie on a straight line
4. ✔ Two rigid links will tend to rotate instantaneously relative to each other at the instantaneous centre

Question Number : 46 Question Id : 8277881048 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

A line drawn through an instantaneous centre and perpendicular to the plane of motion is called instantaneous axis. The locus of this axis is known as:

Options :

1. ✖ centrode
2. ✖ body centrode
3. ✖ space centrode
4. ✔ axode

Question Number : 47 Question Id : 8277881049 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

Instantaneous centre of motion of a piston in an internal combustion engine lies at:

Options :

1. ✖ Centre of crank pin
2. ✖ Centre of piston pin
3. ✔ Centre of crankshaft bearing
4. ✖ Infinity

Question Number : 48 Question Id : 8277881050 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

Three bodies moving relative to each other.

Options :

1. ✖ Have only one instantaneous centre
2. ✖ Have two instantaneous centres and these two centres lie on a circle
3. ✖ Have three instantaneous centres and these three centres lie on a curved line
4. ✔ Have three instantaneous centres and these three centres lie on a straight line

Question Number : 49 Question Id : 8277881051 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3

Option Orientation : Vertical
Correct Marks : 2 Wrong Marks : 0.33
Coriolis component of acceleration exists whenever a point moves along a path that has:
Options :
1. ✖ Linear motion
2. ✖ Tangential acceleration
3. ✔ Rotational motion
4. ✖ Centripetal acceleration

Question Number : 50 Question Id : 8277881052 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical
Correct Marks : 2 Wrong Marks : 0.33
Which of the following statement about fast and loose pulley drive are true, except?
Options :
1. ✖ Used when the driven shaft is to be rotated and stopped too frequently
2. ✖ The drive shaft runs at uniform speed during operation
3. ✔ Working or fast pulley is keyed onto the driving shafts
4. ✖ An idler or loose pulley rotates freely over the driven shaft

Question Number : 51 Question Id : 8277881053 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical
Correct Marks : 2 Wrong Marks : 0.33
The average tensions on the tight and slack side of a flat belt drive system are 700 N and 400 N respectively. If linear velocity of the belt is 5 m/s, the power in kW transmitted by the system would be about:
Options :
1. ✔ 1.5
2. ✖ 2
3. ✖ 2.7
4. ✖ 3.5

Question Number : 52 Question Id : 8277881054 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical
Correct Marks : 2 Wrong Marks : 0.33
Which is not the feature of gear design done by invoking the basic Lewis equation?
Options :
1. ✖ Each tooth is considered as a cantilever beam
2. ✖ Static strength of tooth is considered in bending
3. ✖ Dynamic effects due to high pitch line velocities are not taken into account
4. ✔ Allowance is made for the stress concentration at the root

Question Number : 53 Question Id : 8277881055 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical
Correct Marks : 2 Wrong Marks : 0.33
The function of a governor is to:
Options :
1. ✖ Smoothen the cyclic fluctuations of speed
2. ✖ Help to start the engine
3. ✔ Take care of output fluctuations and control the input accordingly
4. ✖ Store up energy and give up the same whenever required during a cycle

Question Number : 54 Question Id : 8277881056 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

Which one of the following is a spring controlled centrifugal governor?

Options :

1. ✔ Pickering governor
2. ✖ Porter governor
3. ✖ Proell governor
4. ✖ Watt governor

Question Number : 55 Question Id : 8277881057 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

The controlling force curve used to determine the stability and sensitiveness of a governor is a graph between the controlling force and

Options :

1. ✖ Lift of sleeve
2. ✖ Height of governor
3. ✔ Radius of rotation of balls
4. ✖ Speed of rotation of the engine shaft

Question Number : 56 Question Id : 8277881058 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

Two parallel and coplanar shafts are connected by:

Options :

1. ✔ Spur gears
2. ✖ Bevel gears
3. ✖ Spiral gears
4. ✖ Double helical gears

Question Number : 57 Question Id : 8277881059 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

Helical gears are subjected to:

Options :

1. ✔ Hoop stresses
2. ✖ Transverse shear stresses
3. ✖ Bending stresses
4. ✖ Torsional shear stresses

Question Number : 58 Question Id : 8277881060 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

The radial distance from the top of tooth to the bottom of tooth in a meshing gear is known as:

Options :

1. ✖ addendum
2. ✖ dedendum
3. ✖ working depth
4. ✔ total depth

Question Number : 59 Question Id : 8277881061 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

Identify the wrong statement.

Options :

1. ✖ Interference refers to the action of the tip of a tooth undercutting the root of its mating gear
2. ✖ Standard pressure angles used for involute profile tooth are 14 ½ degree and 20 degree
3. ✖ Involute gears have the advantage of greater simplicity and flexibility in design and manufacture
4. ✔ Path of contact in involute gears is a complex curve

Question Number : 60 Question Id : 8277881062 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

In a gear drive, addendum equals

Options :

1. ✖ Diametral pitch
2. ✖ Circular pitch
3. ✔ Module of the gear
4. ✖ 1.57 times the module of the gear

Question Number : 61 Question Id : 8277881063 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

In a reverted gear train.

Options :

1. ✖ One gear is always fixed
2. ✖ At least one of the gear axis is in motion
3. ✔ The axes of the first and the last gear are coaxial
4. ✖ The axes of the first and the last gear are parallel

Question Number : 62 Question Id : 8277881064 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

Train value of a gear train is equal to:

Options :

1. ✖ Speed ratio of gear train
2. ✔ Reciprocal of speed ratio of gear train
3. ✖ Product of the speeds of the driver and driven gears
4. ✖ Half the value of speed ratio

Question Number : 63 Question Id : 8277881065 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

Which of the following is not an advantage of centrifugal clutch?

Options :

1. ✖ It enables the prime mover to start up under no-load conditions
2. ✖ It picks up the load gradually with increase in speed
3. ✔ It will not slip to the point of destruction

4. ✖ It is very useful when the power unit has low starting torque

Question Number : 64 Question Id : 8277881066 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

Choose the assumption made for safe design of bearings.

Options :

1. ✔ Uniform pressure when power lost in friction is to be determined
2. ✖ Uniform wear when power lost in friction is to be determined
3. ✖ Uniform pressure when power transmitted by friction is to be determined
4. ✖ Uniform wear both for determining power lost in friction and power transmitted by friction

Question Number : 65 Question Id : 8277881067 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

Identify the wrong statement.

Options :

1. ✖ The cam profile and the cam pitch curve are same for knife edge follower
2. ✖ The path described by the trace point is referred to as the pitch curve
3. ✔ The pressure angle of a cam is independent of the base circle diameter
4. ✖ The stroke of the follower equals maximum travel of follower from the base circle

Question Number : 66 Question Id : 8277881068 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

Which of the following statement are not correct?

Options :

1. ✖ Throw of a cam can be defined as the maximum distance of the follower from the prime circle
2. ✖ Cam and follower is an example of higher pair
3. ✖ High value of pressure angle in a radial cam is not desirable because it may jam the follower in the bearings
4. ✔ In the cam-follower system, pitch point is the point on the pitch curve at which the pressure angle is minimum

Question Number : 67 Question Id : 8277881069 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

The reference point on the follower for the purpose of tracing the cam profile is:

Options :

1. ✔ Trace point
2. ✖ Pitch point
3. ✖ Cam centre
4. ✖ Base point

Question Number : 68 Question Id : 8277881070 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

Which of the following is an example of steady-state heat transfer?

Options :

1. ✔ Electric bulb cools down by the surrounding atmosphere
2. ✖ Chilling effect of cold wind on a warm body

3. ✖ Boilers and turbines
4. ✖ Cooling of I.C engine

Question Number : 69 Question Id : 8277881071 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

Mark the false statement regarding effectiveness of fin.

Options :

1. ✖ Fin effectiveness represents the ratio of heat dissipation with a fin to the heat transfer that would exist without a fin
2. ✔ Fin effectiveness represents the ratio of heat transfer rate from the fin to the heat that would be dissipated if the entire fin surface area were maintained at the base temperature.
3. ✖ A high value of film coefficient adversely affects the fin effectiveness
4. ✖ Fin effectiveness is improved by having thin but closely spaced fins

Question Number : 70 Question Id : 8277881072 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

Which of the following statement is incorrect according to heat transfer?

Options :

1. ✔ Heat flow doesn't depend on temperature
2. ✖ A material medium is not necessary for heat transmission
3. ✖ The process of heat transfer is an irreversible process
4. ✖ For heat exchange, a temperature gradient must exist

Question Number : 71 Question Id : 8277881073 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

In a white body:

Options :

1. ✖ No radiation energy is transmitted
2. ✖ Entire incident energy is absorbed
3. ✔ Entire incident energy is reflected
4. ✖ All radiation energy is transmitted

Question Number : 72 Question Id : 8277881074 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

Which of the following has lowest thermal conductivity?

Options :

1. ✖ Diamond
2. ✖ Gold
3. ✖ Aluminium
4. ✔ Aerogel

Question Number : 73 Question Id : 8277881075 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

A person prefers to sit by a fire during the cold winter months. Which of the following heat transfer types gives him with the most heat?

Options :

1. ✖ Convection and radiation together
2. ✔ Radiation will provide quick warmth
3. ✖ If it is near the fire, convection sounds good
4. ✖ Conduction from the fire

Question Number : 74 Question Id : 8277881076 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

In case of specular reflection of radiation,

Options :

1. ✔ The angle of reflection = the angle of incidence
2. ✖ The angle of reflection > the angle of incidence
3. ✖ The angle of reflection < the angle of incidence
4. ✖ The angle of refraction = the angle of incidence

Question Number : 75 Question Id : 8277881077 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

The rate of heat transfer for a plane wall of homogenous material with constant thermal conductivity is given by which of the following equation?

Options :

1. ✖ $Q = 2k/\delta\ x$
2. ✖ $Q = 2kA\delta x$
3. ✔ $Q = kA\ (t_1-t_2)/\delta$
4. ✖ $Q = 2kAx/\ \delta$

Question Number : 76 Question Id : 8277881078 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

Which of the following law states that $E_1/\alpha_1 = E_2/\alpha_2$; where E_1, E_2 are emissivity powers and α_1 and α_2 are absorptivity?

Options :

1. ✖ Plank's law
2. ✖ Stefan-Boltzmann law
3. ✔ Kirchhoff's law
4. ✖ Wein's Displacement Law

Question Number : 77 Question Id : 8277881079 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

Radiation heat transfer is characterized by:

Options :

1. ✔ Movement of discrete packets of energy as electromagnetic waves
2. ✖ Due to bulk fluid motion, there is a transport of energy

3. ✖ There is the circulation of fluid by buoyancy effects
4. ✖ Thermal energy transfer as vibrational energy in the lattice structure of the material

Question Number : 78 Question Id : 8277881080 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

Which way is heat transfer believed to occur in a long, hollow cylinder kept at consistent but varied temperatures on its inner and outer surfaces?

Options :

1. ✖ Unpredictable
2. ✔ Radial only
3. ✖ No heat transfer takes place
4. ✖ Axial only

Question Number : 79 Question Id : 8277881081 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

Choose the wrong statement with respect to Nusselt number and convective heat transfer coefficient.

Options :

1. ✖ Nusselt number represents the ratio of temperature gradient at the surface to an overall or reference temperature gradient
2. ✖ Nusselt number represents the dimensionless slope of the temperature distribution curve at the surface
3. ✖ The convective coefficient can be evaluated from a knowledge of fluid temperature distribution in the neighborhood of the surface
4. ✔ For a given Nusselt number, the convective coefficient is inversely proportional to thermal conductivity of the fluid.

Question Number : 80 Question Id : 8277881082 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

A steam condenser is transferring 250 k W of thermal energy at a condensing temperature of 65 degree Celsius. The cooling water enters the condenser at 20 °C with a flow rate of 7500 kg/hr. If overall heat transfer coefficient for the condenser surface is 1250 W/m^2 K, what surface area is required to handle this load?

Options :

1. ✔ 7.08 m^2
2. ✖ 5.08 m^2
3. ✖ 4.08 m^2
4. ✖ 1.08 m^2

Question Number : 81 Question Id : 8277881083 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

Exhaust gases (C_p = 1.12 k J/kg K) flowing through a tubular heat exchanger at the rate of 1200 kg/hr are cooled from 400°C to 120°C. This cooling is affected by water (C_p = 4.18 k J/kg K) that enters the system at 10°C at the rate of 1500 kg/hr. If the overall heat transfer coefficient is 500 k J/m^2 hr °C, what heat exchanger area is required to handle the load for counter flow arrangement?

Options :

1. ✖ 1.758 m^2

2. ✖ 6.758 m^2

3. ✖ 8.758 m^2

4. ✔ 3.758 m^2

Question Number : 82 Question Id : 8277881084 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

A cross-flow type air heater has an area of 50 cm^2. The overall heat transfer coefficient is 100 W/m^2 K and the heat capacity of both hot and cold streams is 1000 W/m K. The value of NTU is:

Options :

1. ✖ 0.2
2. ✖ 6
3. ✖ 1000
4. ✔ 5

Question Number : 83 Question Id : 8277881085 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

An oil cooler in a high-performance engine has an outside surface area 0.12 m^2 and a surface temperature of 65°C. At any intermediate time, air moves over the surface of the cooler at a temperature of 30°C and gives rise to a surface coefficient equal to 45.4 W/ m^2 K. Find out the heat transfer rate?

Options :

1. ✖ 564.98 W
2. ✖ 324.67 W
3. ✔ 190.68 W
4. ✖ 768.43 W

Question Number : 84 Question Id : 8277881086 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

Water (specific heat = 4 k J/kg K) enters a cross flow exchanger (both fluids unmixed) at 15°C and flows at the rate of 7.5 kg/s. It cools air (C_p = 1 k J/kg K) flowing at the rate of 10 kg/s from an inlet temperature of 120°C. For an overall heat transfer coefficient of 780 k J/m^2 hr °C and the surface area is 240 m^2, determine the NTU.

Options :

1. ✖ 1.2
2. ✖ 8.2
3. ✖ 6.2
4. ✔ 5.2

Question Number : 85 Question Id : 8277881087 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

Which is the most widely used metal for castings?

Options :

1. ✖ Aluminium
2. ✖ Brass
3. ✖ Magnesium alloys
4. ✔ Cast iron

Question Number : 86 Question Id : 8277881088 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

In die casting process, the molten metal is:

Options :

1. ✖ Fed in the cavity of a metallic mould by gravity
2. ✔ Forced into the mould under high pressure
3. ✖ Forced by inserting a plunger in the cavity
4. ✖ Poured and allowed to solidify while the mould is revolving

Question Number : 87 Question Id : 8277881089 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

In sand moulding, the top flask is known as:

Options :

1. ✔ Cope
2. ✖ Drag
3. ✖ Fillet
4. ✖ Check

Question Number : 88 Question Id : 8277881090 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

The tool used for lifting the pattern from the mould is called:

Options :

1. ✖ Lifter
2. ✖ Slick
3. ✔ Draw spike
4. ✖ Trowel

Question Number : 89 Question Id : 8277881091 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

Chaplets in foundary practice are used to:

Options :

1. ✖ Provide efficient venting
2. ✖ Ensure directional solidification
3. ✔ Support the cores
4. ✖ Reinforce the sand in the top part of the moulding box

Question Number : 90 Question Id : 8277881092 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

The electric resistance welding operates with:

Options :

1. ✖ Low current and high voltage
2. ✔ High current and low voltage
3. ✖ Low current and low voltage
4. ✖ High current and high voltage

Question Number : 91 Question Id : 8277881093 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

Spot welding, projection welding and seam welding belong to the category of:

Options :

1. ✖ Arc welding
2. ✖ Thermit welding
3. ✖ Forge welding
4. ✔ Electric resistance welding

Question Number : 92 Question Id : 8277881094 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

Seam welding is:

Options :

1. ✔ A continuous spot welding process
2. ✖ A multi spot welding process
3. ✖ An arc welding process
4. ✖ A thermit welding process

Question Number : 93 Question Id : 8277881095 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

Which of the followings belongs to the category of fusion welding?

Options :

1. ✖ Forge welding
2. ✖ Electrical resistance welding
3. ✔ Gas welding
4. ✖ Thermit welding with pressure

Question Number : 94 Question Id : 8277881096 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

A brazed joint can be satisfactorily made on an article made of:

Options :

1. ✖ Tin
2. ✖ Aluminium
3. ✔ Copper
4. ✖ Galvanized sheet

Question Number : 95 Question Id : 8277881097 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

On a lathe machine, a mandrel is used:

Options :

1. ✖ For checking the accuracy of the finished job
2. ✖ For holding very long and heavy jobs
3. ✔ For holding and rotating a hollow piece of work
4. ✖ As a taper turning attachment

Question Number : 96 Question Id : 8277881098 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

A steady rest is the lathe unit that is used for:

Options :

1. ✖ Supporting the bed
2. ✔ Holding very long and heavy jobs
3. ✖ External taper turning
4. ✖ Performing the knurling operation

Question Number : 97 Question Id : 8277881099 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

A lathe bed is generally made of:

Options :

1. ✔ Cast iron
2. ✖ Cast steel
3. ✖ Mild steel
4. ✖ Wrought iron

Question Number : 98 Question Id : 8277881100 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

The size of a shaper is specified by:

Options :

1. ✔ Maximum travel of cutting tool
2. ✖ Gross weight of machine
3. ✖ Surface area that can be machined in one hour
4. ✖ Quick return ratio

Question Number : 99 Question Id : 8277881101 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

Which of the followings is not a part of shaper?

Options :

1. ✖ Ram
2. ✖ Table
3. ✔ Knee
4. ✖ Cross slides

Question Number : 100 Question Id : 8277881102 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

In a planer:

Options :

1. ✖ Job is mounted on a table which remains stationary and the tool reciprocates
2. ✔ Tool is held rigid and the job reciprocates
3. ✖ Tool moves over a stationary job
4. ✖ Tool moves over a reciprocating job

Question Number : 101 Question Id : 8277881103 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

The size of a planer is generally specified by:

Options :

1. ✖ Table size
2. ✖ Stroke length
3. ✔ Table size and height of cross rail
4. ✖ Number of tools provided

Question Number : 102 Question Id : 8277881104 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

The part of a milling machine upon which are mounted the milling cutters is known as:

Options :

1. ✔ arbor
2. ✖ Tool post
3. ✖ spindle
4. ✖ Brace or bracket

Question Number : 103 Question Id : 8277881105 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

Indexing of the job in a milling machine is achieved through:

Options :

1. ✖ Face plate
2. ✔ Dividing head
3. ✖ arbor
4. ✖ Differential mechanism

Question Number : 104 Question Id : 8277881106 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3

Option Orientation : Vertical
Correct Marks : 2 Wrong Marks : 0.33
Narrow grooves or slots can be produced on a work piece by a milling operation known as:
Options :
1. ✔ Saw milling
2. ✖ Face milling
3. ✖ Helical milling
4. ✖ Straddle milling

Question Number : 105 Question Id : 8277881107 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical
Correct Marks : 2 Wrong Marks : 0.33
Which of the following aspects pertains to climb milling during a machining operation?
Options :
1. ✖ Gradual increase in chip thickness
2. ✖ Enable the cutter to dig in and start the cut
3. ✖ Reduced specific power consumption
4. ✔ Better surface finish

Question Number : 106 Question Id : 8277881108 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical
Correct Marks : 2 Wrong Marks : 0.33
A milling machine which has a table that can be swivelled and set at any angle to the work piece is called:
Options :
1. ✖ Bed milling machine
2. ✖ Drum milling machine
3. ✔ Universal milling machine
4. ✖ Straddle milling machine

Question Number : 107 Question Id : 8277881109 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical
Correct Marks : 2 Wrong Marks : 0.33
A portable drilling machine is specified by:
Options :
1. ✔ Maximum diameter of drill it can hold
2. ✖ Maximum travel of spindle
3. ✖ Spindle speed and feed
4. ✖ Maximum thickness of job it can drill

Question Number : 108 Question Id : 8277881110 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical
Correct Marks : 2 Wrong Marks : 0.33
The point and clearance angles of a drill depend upon:
Options :
1. ✖ Diameter of drill
2. ✔ Thickness and hardness of job to be drilled
3. ✖ Material of job
4. ✖ Rotation speed of drill

Question Number : 109 Question Id : 8277881111 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

Oversized holes in a drilling operation are caused by:

Options :

1. ✖ Deformed cutting edges
2. ✖ Large helix angle
3. ✔ Unequal length of lips
4. ✖ Presence of chips in the flute

Question Number : 110 Question Id : 8277881112 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

In a horizontal boring machine, the motion of work piece and that of tool are respectively.

Options :

1. ✖ Rotation and translation
2. ✖ Translation and rotation
3. ✖ Rotation with translation and stationary
4. ✔ Stationary and rotation with translation

Question Number : 111 Question Id : 8277881113 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

Which is not a part of automobile transmission system?

Options :

1. ✖ Clutch
2. ✖ Gearbox
3. ✔ Axle
4. ✖ Propeller shaft

Question Number : 112 Question Id : 8277881114 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

Identify the component which constitutes a Disengageable connection between engine and transmission system of a vehicle.

Options :

1. ✖ Stub axle
2. ✖ Flywheel
3. ✔ Clutch
4. ✖ Propellor shaft

Question Number : 113 Question Id : 8277881115 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

The term ply rating as applied to a tyre refers to the:

Options :

1. ✖ Rated strength
2. ✔ Actual number of plies
3. ✖ Angle at which the ply cards are woven to the tyre axis
4. ✖ The aspect ratio

Question Number : 114 Question Id : 8277881116 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

Compared to cross ply tyre, the radial ply tyre has the disadvantage of:

Options :

1. ✖ Lower rolling resistance
2. ✖ Higher cornering power
3. ✔ Possessing low lateral stiffness
4. ✖ Uneven braking

Question Number : 115 Question Id : 8277881117 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

Circumferential grooves on automobile tyres:

Options :

1. ✖ Provide good traction
2. ✖ Prevent small stones sticking to the tyre
3. ✔ Reduce the danger of the skidding
4. ✖ Increase load carrying capacity

Question Number : 116 Question Id : 8277881118 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

What material is a brake lining usually made of?

Options :

1. ✔ Asbestos
2. ✖ Leather
3. ✖ Cork
4. ✖ Fabric

Question Number : 117 Question Id : 8277881119 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

Control of maximum oil pressure in the lubrication system is affected by:

Options :

1. ✖ Oil filter
2. ✖ Pressure switch
3. ✔ Pressure relief valve
4. ✖ Pump motor

Question Number : 118 Question Id : 8277881120 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

Most commonly used lubricant in automobile engine is:

Options :

1. ✖ Vegetable oil
2. ✔ Mineral oil
3. ✖ Animal oil
4. ✖ Synthetic oil

Question Number : 119 Question Id : 8277881121 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

What is the purpose of radiator in automobile engine?

Options :

1. ✔ To cool down the water received from the engine
2. ✖ Provide drive to the water pump
3. ✖ To heat the water received from the engine
4. ✖ Increase flow of coolant

Question Number : 120 Question Id : 8277881122 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

The self starter for a car is:

Options :

1. ✖ AC motor
2. ✖ DC shunt motor
3. ✔ DC series motor
4. ✖ DC 12 volt dynamo

Question Number : 121 Question Id : 8277881123 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

The car batteries generally used in India are of the type:

Options :

1. ✖ Dry battery
2. ✔ Lead-acid battery
3. ✖ Nickel-iron battery
4. ✖ Nickel-cadmium battery

Question Number : 122 Question Id : 8277881124 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

The function of an alternator in an automobile is to:

Options :

1. ✖ Supply power to the starter motor when the engine is being started
2. ✔ Continually recharge the battery
3. ✖ Act as a reservoir or stabilizer of electricity
4. ✖ Use chemical actions to provide electricity

Question Number : 123 Question Id : 8277881125 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

Which force forms the basis of bolt design with a large factor of safety?

Options :

1. ✔ Tensile
2. ✖ Compressive
3. ✖ Shear

4. ✖ Both tensile and shear

Question Number : 124 Question Id : 8277881126 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

Resistance of a bolt can be increased by increasing the:

Options :

1. ✖ Size of its head
2. ✔ Length
3. ✖ Shank diameter
4. ✖ Diameter of threaded portion

Question Number : 125 Question Id : 8277881127 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

The most important dimension in the design of nut is its:

Options :

1. ✔ Height
2. ✖ Size across flats
3. ✖ Size across corner
4. ✖ Inside diameter and thread size

Question Number : 126 Question Id : 8277881128 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

Frictional horse power in journal bearing varies:

Options :

1. ✖ Directly as journal diameter
2. ✖ Directly as square of journal diameter
3. ✔ Directly as cube of journal diameter
4. ✖ Inversely as cube of journal diameter

Question Number : 127 Question Id : 8277881129 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

The balls in a ball bearing are subjected to:

Options :

1. ✖ Shear stresses
2. ✖ Compressive stresses
3. ✖ Tensile stresses
4. ✔ Fatigue

Question Number : 128 Question Id : 8277881130 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

When a shaft of diameter d is subjected to pure torsional load T, the maximum shear stress f_s induced in the shaft is prescribed by the relation:

Options :

1. ✖ $f_s = \frac{8T}{\pi d^3}$

2. ✔ $f_s = \frac{16T}{\pi d^3}$

3. ✖ $f_s = \frac{32T}{\pi d^3}$

4. ✖ $f_s = \frac{64T}{\pi d^3}$

Question Number : 129 Question Id : 8277881131 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

A maximum shear stress of 60 N/mm^2 develops in a solid shaft of diameter 100 mm and length 1000 mm when it is subjected to twisting moment T. Subsequently a 50 mm diameter hole is drilled through out the length of the shaft. By how much the torque T must be reduced so that the maximum shear stress developed in the hollow shaft remains the same?

Options :

1. ✖ T/2
2. ✖ T/4
3. ✖ T/8
4. ✔ T/16

Question Number : 130 Question Id : 8277881132 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

A solid circular shaft of diameter d is subjected to a pure torsional load T. When the same load is applied to a hollow shaft of outside diameter d and ratio of inside to outside diameter is $\sqrt{0.5}$, the ratio of stress in the solid to that in the hollow shaft will be:

Options :

1. ✖ 1 : 2
2. ✖ 2 : 3
3. ✔ 3 : 4
4. ✖ 5 : 7

Question Number : 131 Question Id : 8277881133 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

For a shaft subjected to bending moment M and twisting moment T simultaneously, the equivalent bending moment is given by:

Options :

1. ✖ $\sqrt{M^2 + T^2}$

2. ✖ $M + \sqrt{M^2 + T^2}$

3. ✔ $\frac{1}{2}\left[M + \sqrt{M^2 + T^2}\right]$

4. ✖ $T + \sqrt{M^2 + T^2}$

Question Number : 132 Question Id : 8277881134 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

Concentric helical springs:

Options :

1. ✖ Should be wound with helix in the same direction
2. ✔ Should be wound with helix in the opposite direction
3. ✖ Should be wound in any direction
4. ✖ Direction of winding depends upon the nature of load

Question Number : 133 Question Id : 8277881135 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

When loaded, a helical torsional spring gets subjected to:

Options :

1. ✔ Compressive stress
2. ✖ Pure bending stress
3. ✖ Torsional shear stress
4. ✖ Torsional shear and bending stress

Question Number : 134 Question Id : 8277881136 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

At a particular rotational speed, the unbalanced force due to revolving mass:

Options :

1. ✖ Varies both in magnitude and direction
2. ✖ Is constant in magnitude as well as direction
3. ✖ Varies in magnitude but is constant in direction
4. ✔ Is constant in magnitude but varies in direction

Question Number : 135 Question Id : 8277881137 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

Consider a mass m attached at radius r from the axis of shaft which rotates with an angular velocity ω. The balancing is achieved by mounting a B kg mass at radius b from the axis of shaft. If the speed of shaft is doubled, then to attain perfect balance, the value of mass B should be

Options :

1. ✖ Halved
2. ✖ Doubled
3. ✖ Quadrupled

4. ✔ Remain unchanged

Question Number : 136 Question Id : 8277881138 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

A system in dynamic balance implies that:

Options :

1. ✖ The system is critically damped
2. ✖ There is no critical speed in the system
3. ✔ The system is also statically balanced
4. ✖ There will be absolutely no wear of bearings

Question Number : 137 Question Id : 8277881139 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

Which of the following statement is wrong?

Options :

1. ✖ Vibrations in machine may be due to loose fittings and lack of balance
2. ✔ Free vibrations have external force applied at the ends only
3. ✖ Forced vibrations are independent of natural frequency of vibration
4. ✖ A vibrating system is said to be stable if the amplitude of vibration decreases with time

Question Number : 138 Question Id : 8277881140 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

In a spring-mass system, the mass of the system is made half and the spring stiffness is doubled. The natural frequency of longitudinal vibration.

Options :

1. ✖ Is halved
2. ✔ Is doubled
3. ✖ Is quadrupled
4. ✖ Remains unaffected

Question Number : 139 Question Id : 8277881141 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

The incentive plan which works on bonus based on standard time is:

Options :

1. ✖ Rowan plan
2. ✖ Halsey premium bonus plan
3. ✖ Bedaux plan
4. ✔ Gants task bonus plan

Question Number : 140 Question Id : 8277881142 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

Four atoms exist in a unit cell of _____ space lattice.

Options :

1. ✖ BCC

2. ✔ FCC
3. ✖ HCP
4. ✖ Simple cubic

Question Number : 141 Question Id : 8277881143 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

Babbit metal (used for making bearing) comprises of:

Options :

1. ✔ Mainly tin (85%) and lead
2. ✖ Saw dust and iron dust mixture
3. ✖ Zinc and aluminium
4. ✖ Copper and aluminium

Question Number : 142 Question Id : 8277881144 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

German silver is an alloy of:

Options :

1. ✔ Copper, nickel and zinc
2. ✖ Copper, aluminium and silver
3. ✖ Silver, zinc and aluminium
4. ✖ Silver, nickel and zinc

Question Number : 143 Question Id : 8277881145 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

Recrystallization temperature is the one at which:

Options :

1. ✖ Allotropic form changes occur
2. ✖ Lattice crystal grow bigger in size
3. ✔ New spherical crystals first begin to form from the old deformed ones when a strained metal is heated
4. ✖ Crystals first start forming from molten metals when it is cooled

Question Number : 144 Question Id : 8277881146 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

Annealing of silicon transform steel is done.

Options :

1. ✖ At 350 °C in an oxidising atmosphere
2. ✖ To increase magnetising force and core loss
3. ✖ To obtain smallest possible grain size
4. ✔ To increase its flux density and flux carrying capacity

Question Number : 145 Question Id : 8277881147 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

Cold work of metal results in increasing in its:

Options :

1. ✖ dislocation density
2. ✔ strength
3. ✖ ductility
4. ✖ magnetic permeability

Question Number : 146 Question Id : 8277881148 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

Crystals of the material during cold worked attains.

Options :

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

Question Number : 147 Question Id : 8277881149 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

Atomic packing factor is maximum for:

Options :

1. ✖ Prism
2. ✖ Simple cubic
3. ✔ FCC
4. ✖ BCC

Question Number : 148 Question Id : 8277881150 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

Number of atoms per face centred cubic unit cell is:

Options :

1. ✖ 1
2. ✖ 2
3. ✔ 4
4. ✖ 8

Question Number : 149 Question Id : 8277881151 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

Which of the following iron has FCC crystalline structure?

Options :

1. ✖ $\alpha - iron$
2. ✖ $\beta - iron$
3. ✔ $\gamma - iron$
4. ✖ $\delta - iron$

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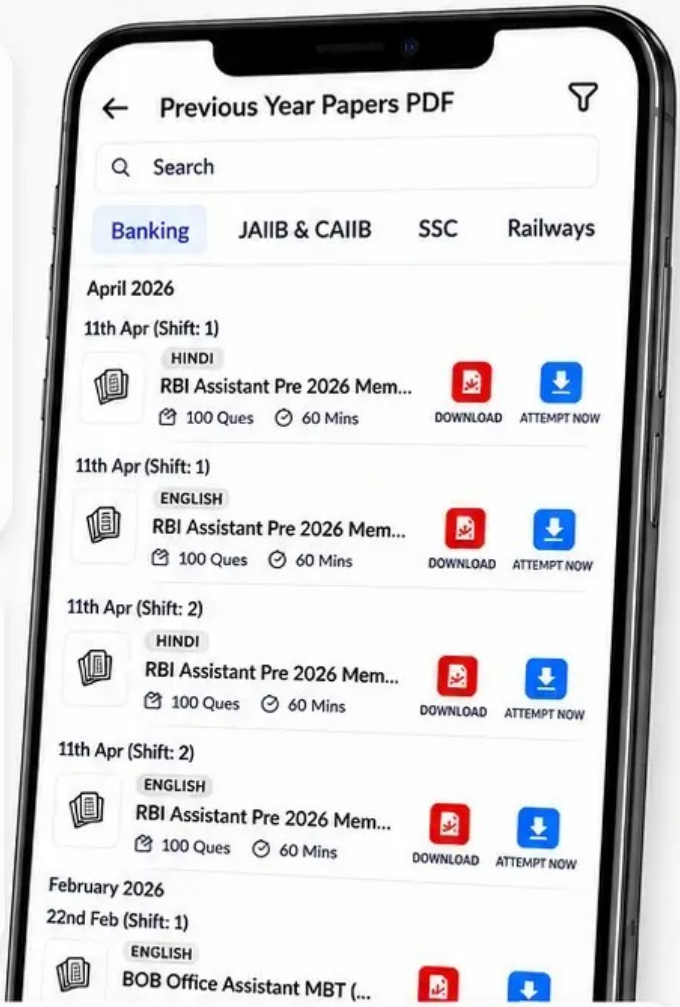
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Question Number : 150 Question Id : 8277881152 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Negative Marks Display Text : 1/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.33

Fatigue strength is important for the metallic materials subjected to:

Options :

1. ✖ Torsion load
2. ✔ Load varying with time
3. ✖ Constant load for long durations
4. ✖ Constant load at high temperature