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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 III Mechanical Engineering 22nd August 2023 Shift 2
Subject Name :	Paper III Mechanical Engineering
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
Is this Group for Examiner? :	No
Examiner permission :	Cant View
Show Progress Bar? :	No

Paper III Mechanical Engineering

Section type :	Online
Enable Mark as Answered Mark for Review and Clear Response :	Yes
Maximum Instruction Time :	0
Is Section Default? :	null

Question Number : 1 Question Id : 630680316755 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Which of the following processes is NOT involved in a Rankine cycle?

Options :

1. ✖ Isobaric

2. ✖ Isentropic

3. ✔ Isochoric

4. ✖ Isothermal

Question Number : 2 Question Id : 630680316756 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

The efficiency of the Rankine cycle is lower than that of the corresponding Carnot cycle because:

Options :

1. ✔ the average temperature at which heat is supplied in the Rankine cycle is less than that corresponding to the Carnot cycle

2. ✖ the Carnot cycle has gas as the working substance and the Rankine cycle has steam as the working substance

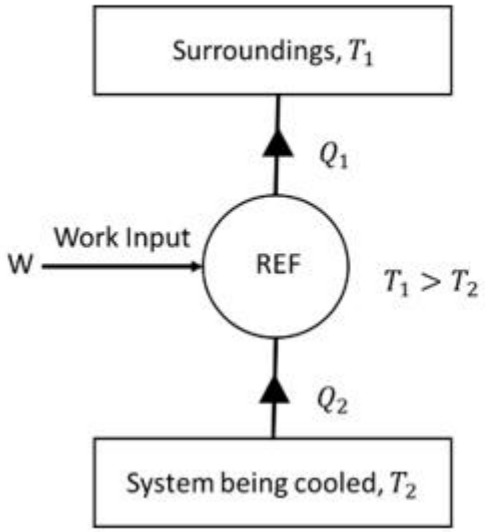
3. ✖ the Rankine cycle efficiency depends upon the properties of the working substance, whereas Carnot cycle efficiency is independent of the properties of the working substance

4. ✖ the temperature range of the Carnot cycle is greater than that of the Rankine cycle

Question Number : 3 Question Id : 630680316757 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

With reference to refrigerating system shown in the figure, the coefficient of performance of the refrigerator is:



Options :

1. ✔ $\frac{Q_2}{W}$

2. ✖ $\frac{Q_1}{W}$

3. ✖ $\frac{Q_1}{Q_2}$

4. ✖ $\frac{Q_1 - Q_2}{W}$

Question Number : 4 Question Id : 630680316758 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

If T_1 and T_2 are the highest and lowest operating temperatures in the cycle, then the coefficient of performance of a refrigerator working on Carnot cycle is

Options :

1. ✖ $\frac{T_1 - T_2}{T_1}$

2. ✖ $\frac{T_1 - T_2}{T_2}$

3. ✔ $\frac{T_2}{T_1 - T_2}$

4. ✖ $\frac{T_1}{T_1 - T_2}$

Question Number : 5 Question Id : 630680316759 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

A closed cycle gas turbine consists of:

Options :

1. ✖ compressor and turbine

2. ✖ heating chamber and turbine

3. ✖ cooling chamber and turbine

4. ✔ compressor, heater, cooler, and turbine

Question Number : 6 Question Id : 630680316760 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

If T_1 is the air inlet temperature to the compressor and T_3 is the air inlet temperature to turbine, then for the maximum work output per unit mass flow through a closed-cycle gas turbine plant, the optimum pressure ratio is given by:

Options :

1. ✖ $r_p = (\frac{T_3}{T_1})^{\frac{\gamma-1}{\gamma}}$

2. ✖ $r_p = (\frac{T_3}{T_1})^{\frac{2\gamma}{\gamma-1}}$

3. ✖ $r_p = (\frac{T_3}{T_1})^{\frac{\gamma}{2\gamma-1}}$

4. ✔ $r_p = (\frac{T_3}{T_1})^{\frac{\gamma}{2(\gamma-1)}}$

Question Number : 7 Question Id : 630680316761 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Which of the following systems is an isolated system?

Options :

1. ✖ The system which permits the passage of energy and matter across the boundaries

2. ✖ The system which permits the passage of energy only

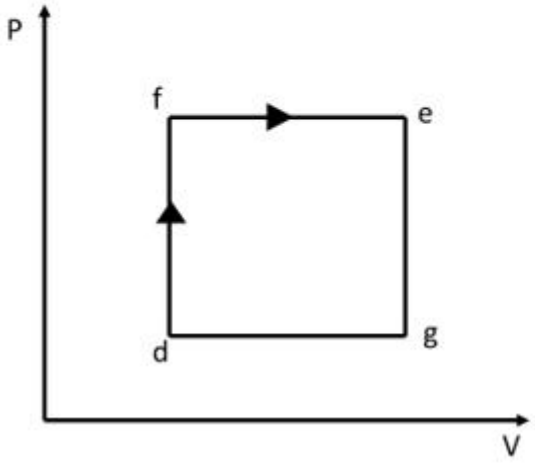
3. ✔ The system which does not permit the passage of energy and matter across it

4. ✖ The system which permits the passage of mass only

Question Number : 8 Question Id : 630680316762 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

When a system is taken from state point d to state point e along the path d-f-e as shown in figure, 100 kJ of heat flows into the system and it does 40 kJ of work. How much heat will flow into the system along path d-g-e if the work done by it along this path is 15 kJ?



Options :

1. ✖ 40 kJ

2. ✖ 60 kJ

3. ✔ 75 kJ

4. ✖ 90 kJ

Question Number : 9 Question Id : 630680316763 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Match the air standard cycle in column A with its heat addition and heat rejection characteristics in column B. For the given cycles, compression and expansion processes are carried out isentropically.

Column A	Column B
A) Otto cycle	1) Both heat addition heat rejection are at constant pressure
B) Diesel cycle	2) Heat addition at constant volume and heat rejection at constant pressure
C) Brayton cycle	3) Both heat addition and heat rejection are at constant volume
D) Atkinson cycle	4) Heat addition at constant pressure and heat rejection at constant volume

Options :

1. ✔ A-3, B-4, C-1, D-2

2. ✖ A-3, B-1, C-2, D-4

3. ✖ A-2, B-1, C-3, D-4

4. ✖ A-4, B-2, C-1, D-3

Question Number : 10 Question Id : 630680316764 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

One kg of air (R = 287 J/Kg K) undergoes an irreversible process between equilibrium state 1 (35°C, 1.6 m^3) and equilibrium state 2 (35°C, 0.8 m^3). The change in entropy $s_2 - s_1$ (in J/kg K) is:

Options :

1. ✖ -188

2. ✔ -199

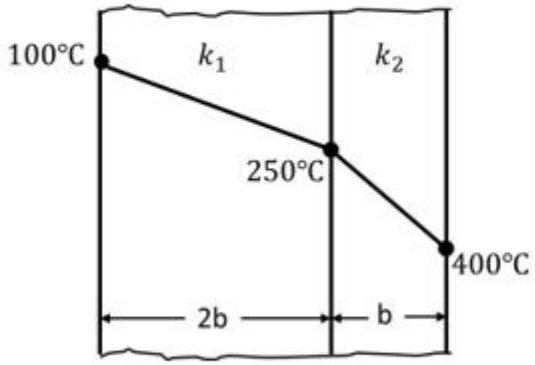
3. ✖ -205

4. ✖ -210

Question Number : 11 Question Id : 630680316765 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

A composite wall is made of two layers of thickness 2b and b having thermal conductivities k_1 and k_2 and equal surface area normal to the direction of heat flow. Temperature at the outer surfaces of composite wall is 100°C and 400°C, respectively. The temperature at the junction is 250°C.



Assuming steady-state one-dimensional heat conduction, which of the following relations is true about the respective thermal conductivities?

Options :

1. ✖ $2k_1 = k_2$

2. ✖ $k_1 = k_2$

3. ✖ $2k_1 = 3k_2$

4. ✔ $k_1 = 2k_2$

Question Number : 12 Question Id : 630680316766 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Which of the following is known as the basic law of heat conduction?

Options :

1. ✖ Newton's law of cooling

2. ✔ Fourier's law

3. ✖ Kirchhoff's law

4. ✖ Stefan's Law

Question Number : 13 Question Id : 630680316767 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

If Δt_i and Δt_o is the temperature difference between hot and cold fluids at the inlet and outlet, respectively, then the logarithmic mean temperature difference for a heat exchanger is equal to:

Options :

1. ✖ $\frac{(\Delta t_o + \Delta t_i)}{log_e(\frac{\Delta t_o}{\Delta t_i})}$

2. ✔ $\frac{(\Delta t_o - \Delta t_i)}{log_e(\frac{\Delta t_o}{\Delta t_i})}$

3. ✖ $log_e(\Delta t_o - \Delta t_i)$

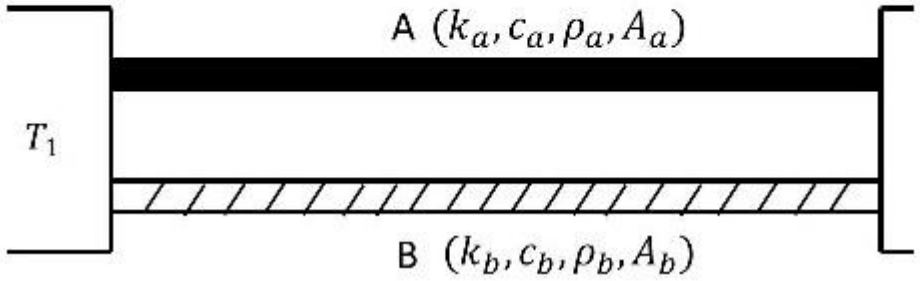
4. ✖ $\frac{1}{2} log_e(\Delta t_o - \Delta t_i)$

Question Number : 14 Question Id : 630680316768 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time :

N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

For the two metal rods A and B, the thermal conductivities, specific heats, densities and cross-sectional area are shown in the figure. Heat will flow at the same rate in both rods if:



Options :

1. ✔ $\frac{k_a}{k_b} = \frac{A_b}{A_a}$

2. ✖ $\frac{k_a}{k_b} = \frac{A_a}{A_b}$

3. ✖ $\frac{k_a}{k_b} = \sqrt{\frac{A_b}{A_a}}$

4. ✖ $\frac{k_a}{k_b} = (\frac{A_b}{A_a})^2$

Question Number : 15 Question Id : 630680316769 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Which of the following is NOT correct for unsteady state heat transfer?

Options :

1. ✔ A large number of analytical solutions are available for unsteady state heat transfer problems.

2. ✖ Unsteady-state heat transfer problems are generally more complex than steady-state problems.

3. ✖ The heat transfer rate, temperature, and other parameters change with time.

4. ✖ Some unsteady state heat transfer problems may require simplifying assumptions, such as lumped system analysis, which may not be valid for all situations.

Question Number : 16 Question Id : 630680316770 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Read the assertion and reason carefully to mark the correct option out of the options given below:

Assertion (A): Heat transfer at high temperature is dominated by radiation rather than convection.

Reason (R): Heat transfer by convection is given by expression $Q = H_c A(T_{hot} - T_{cold})$, whereas for radiation $Q = \sigma\left({T_{hot}}^4 - {T_{cold}}^4\right)A$. Which clearly shows Q is directly proportional to 4^{th} power of temperature in case of radiation and Q is directly proportional to unit power of temperature in case of convection.

Options :

1. ✔ Both A and R are true, and R is the correct explanation of A.

2. ✖ Both A and R are true, but R is not the correct explanation of A.

3. ✖ A is true, but R is false.

4. ✖ Both A and R are false.

Question Number : 17 Question Id : 630680316771 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Match the column A with appropriate meanings in column B.

Column A	Column B
A) Conduction	1) Heat transfer occurs through electromagnetic waves without involving particles.
B) Convection	2) Heat transfer occurs between objects by direct contact.
C) Radiation	3) The heat transfer takes within the fluid.

Options :

1. ✖ A-1, B-2, C-3

2. ✖ A-3, B-1, C-2

3. ✔ A-2, B-3, C-1

4. ✖ A-3, B-2, C-1

Question Number : 18 Question Id : 630680316772 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Match the column A with appropriate meanings in column B.

Column A	Column B
A) Kirchoff's Law	1) It states that the blackbody radiation curve for different temperatures will have different peaks at different wavelengths inversely proportional to temperature.
B) Stefan-Boltzman's Law	2) It states that the total electromagnetic radiation emitted by a body is not emitted continuously but is made up of discrete units or quanta of energy.
C) Planck's Law	3) At a given temperature the ratio of emissive power to absorptive power of a blackbody is a constant and is equal to the emissive power of a blackbody at the same temperature.
D) Wein's Displacement Law	4) The total radiant energy emitted from a body is proportional to the fourth power of the absolute temperature.

Options :

1. ✔ A-3, B-4, C-2, D-1

2. ✖ A-3, B-1, C-2, D-4

3. ✖ A-2, B-1, C-3, D-4

4. ✖ A-4, B-2, C-1, D-3

Question Number : 19 Question Id : 630680316773 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Read the assertion and reason carefully to mark the correct option out of the options given below:

Assertion (A): Counter flow heat exchanger design is the most efficient when comparing heat transfer rate per unit surface area.

Reason (R): Log mean temperature for a counter flow heat exchanger is larger than the log mean temperature for a similar parallel or cross flow heat exchanger.

Options :

1. ✔ Both A and R are true, and R is the correct explanation of A.

2. ✖ Both A and R are true, but R is not the correct explanation of A.

3. ✖ A is true, but R is false.

4. ✖ Both A and R are false.

Question Number : 20 Question Id : 630680316774 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

What is the minimum number of heat exchangers that all air conditioning systems contain?

Options :

1. ✖ 1

2. ✔ 2

3. ✖ 3

4. ✖ 4

Question Number : 21 Question Id : 630680316775 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

In which of the following examples are all three modes of heat transfer involved?

Options :

1. ✖ Ironing of clothes

2. ✖ Heat transfers as the barista 'steams' cold milk to make hot cocoa

3. ✖ Heat flows through the wall of the refrigerator

4. ✔ Automobile engine equipped with a thermo-syphon cooling system

Question Number : 22 Question Id : 630680316776 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Fins are used to increase the heat transfer from a surface by:

1. increasing the temperature difference
2. increasing the effective surface area
3. increasing the convective heat transfer coefficient

Options :

1. ✖ Both 1 and 2

2. ✖ Both 2 and 3

3. ✖ Both 1 and 3

4. ✔ Only 2

Question Number : 23 Question Id : 630680316777 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

The rate of the heat transfer from a solid surface to a fluid is obtained from:

Options :

1. ✔ Newton's law of cooling

2. ✖ Fourier's law

3. ✖ Kirchhoff's law

4. ✖ Stefan's Law

Question Number : 24 Question Id : 630680316778 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Which of the following statements is INCORRECT?

Options :

1. ✖ A refrigerant should have high latent heat.

2. ✖ A refrigerant should have positive evaporating pressure.

3. ✖ A refrigerant should be cheap.

4. ✔ A refrigerant should have low thermal conductivity.

Question Number : 25 Question Id : 630680316779 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Which of the following statements is correct?

Options :

1. ✖ Super-heating in a refrigeration cycle increases C.O.P.

2. ✖ Sub-cooling in a refrigeration cycle decreases C.O.P.

3. ✖ The refrigerant used in aeroplanes is Freon-II.

4. ✔ Ammonia-absorption refrigeration cycle requires less work input as compared to the vapour compression refrigeration cycle.

Question Number : 26 Question Id : 630680316780 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

If T_{Low} is the lowest absolute temperature and T_{High} is the highest absolute temperature, then the co-efficient of performance (C.O.P.) of a refrigerator working on reversed Carnot cycle is mathematically equal to:

Options :

1. ✖ $\frac{(T_{Low} - T_{High})}{T_{Low}}$

2. ✔ $\frac{T_{Low}}{(T_{High} - T_{Low})}$

3. ✖ $\frac{T_{High}}{(T_{Low} - T_{High})}$

4. ✖ $\frac{(T_{High} - T_{Low})}{T_{Low}}$

Question Number : 27 Question Id : 630680316781 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

The refrigerant usually used for refrigeration in aeroplanes is:

Options :

1. ✖ carbon dioxide

2. ✖ ammonia

3. ✖ freon-12

4. ✔ air

Question Number : 28 Question Id : 630680316782 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Which of the following statements is INCORRECT?

Options :

1. ✖ Ammonia mixed with water, attacks copper and copper alloys.

2. ✖ Ammonia mixed with water is non-corrosive to iron and steel.

3. ✖ Freon groups do not attack any metal.

4. ✔ Carbon dioxide has a high specific volume as compared to ammonia.

Question Number : 29 Question Id : 630680316783 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Which of the following statements is correct?

Options :

1. ✖ The vapour compression cycle requires a liquid pump.

2. ✖ Undercooling decreases the net refrigerating effect.

3. ✖ A good refrigerant should have low latent heat.

4. ✔ Electrolux refrigerator requires no electricity for its operation.

Question Number : 30 Question Id : 630680316784 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Which of the following statements is INCORRECT?

Options :

1. ✖ The coefficient of performance (COP) refers to the ratio of the desired effect to the energy supplied to achieve that effect.

2. ✔ COP of most refrigerators and heat pumps is less than one.

3. ✖ The higher the value of COP, the more efficient the refrigerators and heat pumps would be.

4. ✖ The refrigerators and heat pumps are reversed heat engines.

Question Number : 31 Question Id : 630680316785 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Read the assertion and reason carefully to mark the correct option out of the options given below:

Assertion (A): The Bell-Coleman refrigerating system is extensively operated on ships for carrying frozen meat.

Reason (R): The Bell-Coleman refrigerating system uses air as a refrigerant which is non-toxic, non-poisonous and non-expensive.

Options :

1. ✔ Both A and R are true, and R is the correct explanation of A.

2. ✖ Both A and R are true, but R is not the correct explanation of A.

3. ✖ A is true, but R is false.

4. ✖ Both A and R are false.

Question Number : 32 Question Id : 630680316786 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time :

N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Match the column A with appropriate meanings in column B.

Column A	Column B
A) Absorber	1) Producing ammonia vapour from high pressure ammonia strong ammonia solution
B) Generator	2) Storage of high pressure ammonia liquid
C) Receiver	3) Formation of strong aqua ammonia solution by dissolving fairly dry ammonia in water
D) Analyser	4) Removal of water vapours escaping with ammonia vapours

Options :

1. ✖ A-3, B-4, C-2, D-1

2. ✔ A-3, B-1, C-2, D-4

3. ✖ A-1, B-4, C-3, D-2

4. ✖ A-2, B-3, C-4, D-1

Question Number : 33 Question Id : 630680316787 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Read the assertion and reason carefully to mark the correct option out of the options given below:

Assertion (A): Hydrogen is essential in an Electrolux refrigeration system.

Reason (R): Hydrogen helps in maintaining low partial pressure for the evaporating ammonia.

Options :

1. ✔ Both A and R are true, and R is the correct explanation of A.

2. ✖ Both A and R are true, but R is not the correct explanation of A.

3. ✖ A is true, but R is false.

4. ✖ Both A and R are false.

Question Number : 34 Question Id : 630680316788 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

The function of receiver in a refrigerant plant is to:

Options :

1. ✖ superheat the refrigerant gas

2. ✖ reduce the power consumption

3. ✔ allow for variation of load

4. ✖ increase the refrigerant effect by allowing complete evaporation in the evaporator

Question Number : 35 Question Id : 630680316789 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time :

N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Which aspect is NOT true in the context of vapour absorption system when compared to vapour compression system?

Options :

1. ✖ A compressor is replaced by the pump, generator and absorber.

2. ✖ Energy input is mainly heat which is a low grade energy.

3. ✔ Work done by pump is higher.

4. ✖ The system has less wear and tear.

Question Number : 36 Question Id : 630680316790 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

If V_{u_2} is the whirl velocity at outlet, u_2 is the tangential velocity of wheel at outlet, and H_m is the head against which the centrifugal pump has to work, then the manometric efficiency for a centrifugal pump is defined as:

Options :

1. ✔ $\eta_{man} = \frac{gH_m}{V_{u_2}u_2}$

2. ✖ $\eta_{man} = \frac{H_m}{gV_{u_2}u_2}$

3. ✖ $\eta_{man} = \frac{gV_{u_2}u_2}{H_m}$

4. ✖ $\eta_{man} = \frac{V_{u_2} u_2}{g H_m}$

Question Number : 37 Question Id : 630680316791 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

To prevent cavitation in the centrifugal pump:

Options :

1. ✖ Net Positive Suction Head (NPSH) should be zero

2. ✖ Net Positive Suction Head (NPSH) should be negative

3. ✔ Net Positive Suction Head (NPSH) should be positive

4. ✖ Cavitation does not depend upon Net Positive Suction Head (NPSH)

Question Number : 38 Question Id : 630680316792 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Which of the following are the functions of volute casing in a centrifugal pimp?

1. To collect water from periphery of the impeller and to transmit it to the delivery pipe at a constant velocity
2. To increase the discharge of the pump
3. To increase the efficiency of the pump
4. To reduce the loss of head in discharge

Options :

1. ✖ 1, 2 and 3

2. ✖ 2, 3 and 4

3. ✔ 1, 3 and 4

4. ✖ 1 and 2

Question Number : 39 Question Id : 630680316793 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Select the correct option based on the following statement and conclusion.

Statement:

Two pumps having discharge Q and head H are connected in series and both the pumps are identical in all respect.

Conclusion:

i) New discharge is Q

ii) New head is same as H

Options :

1. ✔ Only conclusion (i) is correct.

2. ✖ Only conclusion (ii) is correct.

3. ✖ Both conclusion (i) and (ii) are correct.

4. ✖ None of the conclusions are correct.

Question Number : 40 Question Id : 630680316794 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Select the correct option based on the following statement and conclusion.

Statement:

Two pumps having discharge Q and head H are connected in parallel and both the pumps are identical in all respect.

Conclusion:

i) New discharge is 2Q.

ii) New head is same as H.

Options :

1. ✖ Only conclusion (i) is correct.

2. ✖ Only conclusion (ii) is correct.

3. ✔ Both conclusion (i) and (ii) are correct.

4. ✖ None of the conclusions are correct.

Question Number : 41 Question Id : 630680316795 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

The ratio of forces exerted by a water jet when it is made to strike a stationary flat plate held normal to it and a flat plate moving in the direction of the jet at one-third the velocity of the jet would be:

Options :

1. ✖ 3 : 1

2. ✔ 9 : 4

3. ✖ 3 : 2

4. ✖ 2 : 1

Question Number : 42 Question Id : 630680316796 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Match the column A with appropriate meanings in column B.

Column A	Column B
A) Propeller	1) Inward flow reaction
B) Francis	2) Tangential flow impulse
C) Kaplan	3) Axial flow reaction with fixed vanes
D) Pelton	4) Axial flow reaction with adjustable vanes

Options :

1. ✖ A-3, B-4, C-2, D-1

2. ✔ A-3, B-1, C-4, D-2

3. ✖ A-3, B-4, C-1, D-2

4. ✖ A-2, B-3, C-4, D-1

Question Number : 43 Question Id : 630680316797 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Which of the following statements is INCORRECT?

Options :

1. ✔ A slow runner turbine has a degree of reaction greater than 50%.

2. ✖ For a 100% reaction turbine, the energy transfer becomes zero.

3. ✖ In decreasing order of specific speed, the water turbines can be put as propellor turbine, Francis turbine and Pelton wheel.

4. ✖ A bulb or tubular turbine belongs to the category of Kaplan turbine.

Question Number : 44 Question Id : 630680316798 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Which of the followings is a wrong statement?

Options :

1. ✖ Only the tangential component of absolute velocity is considered in the estimation of theoretical head of a turbomachine.

2. ✔ A high head turbine has a high value of specific speed.

3. ✖ For the same power, a turbomachine running at high specific speed will be small in size.

4. ✖ Pelton wheel is the tangential flow turbine whereas the propeller and Kaplan turbines are axial flow units.

Question Number : 45 Question Id : 630680316799 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Which of the following turbines has not only a high design efficiency but that efficiency practically remains constant too over a wide range of regulations from the design condition?

Options :

1. ✖ Pelton wheel

2. ✖ Francis turbine

3. ✔ Kaplan turbine

4. ✖ Tubular turbine

Question Number : 46 Question Id : 630680316800 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Match the column A with appropriate meanings in column B.

Column A	Column B
A) Reynolds number	1) $\frac{p}{\rho V^2}$
B) Mach number	2) $\frac{\rho l V^2}{\sigma}$
C) Weber number	3) $\frac{V}{\sqrt{K/\rho}}$
D) Euler number	4) $\frac{\rho l V}{\mu}$

Options :

1. ✖ A-3, B-4, C-2, D-1

2. ✖ A-4, B-2, C-3, D-1

3. ✔ A-4, B-3, C-2, D-1

4. ✖ A-2, B-3, C-4, D-1

Question Number : 47 Question Id : 630680316801 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

For which of the following cases is Reynolds model law applicable?

Options :

1. ✖ Phenomenon of cavitations

2. ✖ Flow of missiles

3. ✖ Water hammer created in penstocks

4. ✔ Flow over submarines

Question Number : 48 Question Id : 630680316802 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Match the column A with appropriate meanings in column B.

Column A	Column B
A) Worm gears	1) Parallel shafts
B) Cross helical gears	2) Non-parallel intersecting shafts
C) Bevel gears	3) Non-parallel non-intersecting shafts
D) Spur gears	4) Large speed ratios

Options :

1. ✔ A-4, B-3, C-2, D-1

2. ✖ A-4, B-2, C-1, D-3

3. ✖ A-3, B-2, C-4, D-1

4. ✖ A-2, B-1, C-3, D-4

Question Number : 49 Question Id : 630680316803 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

What is the minimum number of teeth requirement in pinion for 20° stub involute gear system to avoid interference?

Options :

1. ✖ 12

2. ✔ 14

3. ✖ 17

4. ✖ 20

Question Number : 50 Question Id : 630680316804 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

In which gear drive is self-locking possible?

Options :

1. ✖ Spur gear

2. ✖ Herringbone gear

3. ✖ Bevel gear

4. ✔ Worm gear

Question Number : 51 Question Id : 630680316805 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Which of the following statements is INCORRECT?

Options :

1. ✖ The reference point for a knife edge follower is the edge of the knife.

2. ✖ The reference point for a roller follower is the centre of the roller.

3. ✖ The pitch curve and cam profile, for a knife edge follower, are the same.

4. ✔ The pressure angle is the angle between the direction of the follower motion and a tangent to the pitch curve.

Question Number : 52 Question Id : 630680316806 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

The path, followed by a trace point if the follower moved about the cam, is known as:

Options :

1. ✖ Price circle

2. ✖ Base circle

3. ✖ Pitch circle

4. ✔ Pitch curve

Question Number : 53 Question Id : 630680316807 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Which of the following statements is INCORRECT?

Options :

1. ✖ The unbalanced force due to reciprocating masses varies in magnitude but is constant in direction.

2. ✖ The effect of hammer blow can be reduced by using two or three pairs of wheels coupled together.

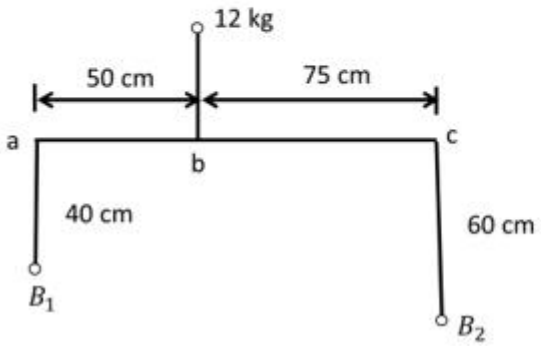
3. ✖ The resultant unbalanced force is minimum in reciprocating masses when half the reciprocating masses are balanced by rotating masses.

4. ✔ The swaying couple is due to a secondary unbalanced force.

Question Number : 54 Question Id : 630680316808 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

The following figure shows a 12 kg mass attached to a shaft at a radius of 50 cm. The balancing masses B_1 and B_2 are attached at radii 40 cm and 60 cm, respectively. If the planes of rotation of the three masses are parallel, then the balance mass B_1 is:



Options :

1. ✖ 4 kg

2. ✖ 6 kg

3. ✔ 9 kg

4. ✖ 12 kg

Question Number : 55 Question Id : 630680316809 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

If an object moves along x-axis from x = 0 to x = 16 cm under the action of a force $F_x = 24 - 3x$ (x in cm), then the:

Options :

1. ✖ work done on the object will be 384 J

2. ✔ work done on the object will be zero

3. ✖ potential energy of the object will be maximum at x = 8 cm

4. ✖ object will oscillate about its mean position.

Question Number : 56 Question Id : 630680316810 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Which of the following statements is INCORRECT?

Options :

1. ✖ A glider put into space with some initial velocity is not a projectile.

2. ✔ For a ball thrown at 45° with the horizontal and with kinetic energy E, the kinetic energy at the highest point during the flight will be 2/3 E.

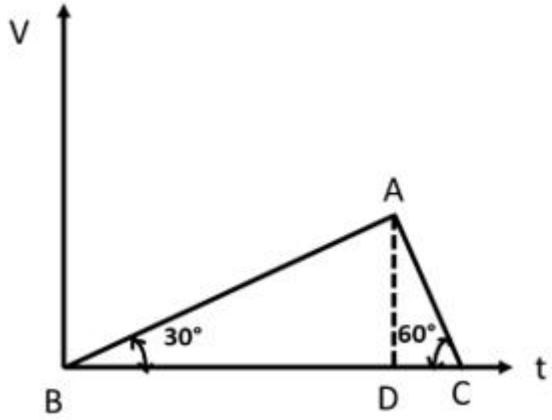
3. ✖ The sum of maximum heights attained by a projectile does not depend on the angle of projections which give the same horizontal range.

4. ✖ When a shell fired from a gun at an angle to the horizontal explodes in mid air, the centre of mass of its fragments moves along the parabolic path of the original shell.

Question Number : 57 Question Id : 630680316811 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

The velocity-time graph of a particle moving along a straight line is shown in the figure. What is the ratio of distance covered between time intervals BD and DC?



Options :

1. ✖ $\sqrt{2} : 1$

2. ✖ $\sqrt{3} : 2$

3. ✔ $3 : 1$

4. ✖ $2 : 1$

Question Number : 58 Question Id : 630680316812 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

A body falls from 10^{th} floor of building and it covers one-fourth of height in 4 second. What is the total time taken by the body to reach the ground?

Options :

1. ✖ 6.5 seconds

2. ✔ 8 seconds

3. ✖ 9 seconds

4. ✖ 9.5 seconds

Question Number : 59 Question Id : 630680316813 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Which of the following statements is correct?

Options :

1. ✖ A limit system is said to be on a shaft basis if the hole is kept constant and the shaft size is varied.

2. ✖ A limit system is said to be on a hole basis if the shaft is kept constant and the hole size is varied.

3. ✔ The standard tolerances are determined in terms of standard tolerances unit 'i' in microns.

4. ✖ The standard tolerance unit (i) for the first fundamental tolerance (IT1), is equal to $0.45 + 0.001D$, where D is the diameter in mm.

Question Number : 60 Question Id : 630680316814 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Which of the following statements is INCORRECT?

Options :

1. ✖ Fit is defined as the degree of tightness or looseness between two mating parts.

2. ✖ The interference is the amount by which the actual size of a shaft is larger than the actual finished size of the mating hole.

3. ✖ The clearance is the amount by which the actual size of the shaft is less than the actual size of the mating hole.

4. ✔ Fit is of two types namely hole basis fit and shaft basis fit.

Question Number : 61 Question Id : 630680316815 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

As per Indian standard specification, the notation 70 H6/g5 means:

Options :

1. ✖ The basic size is 30 mm and tolerance grade for shaft is 6 and for hole is 5.

2. ✖ The basic size is 70 mm and tolerance grade for shaft is 6 and for hole is 5.

3. ✖ The basic size is 30 mm and tolerance grade for hole is 6 and for shaft is 5.

4. ✔ The basic size is 70 mm and tolerance grade for hole is 6 and for shaft is 5.

Question Number : 62 Question Id : 630680316816 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

If W is the applied load, D is the mean diameter of coils, C is the modulus of rigidity, d is the diameter of spring wire and n is the number of effective coils then, in a closed-coiled helical spring, the deflection of spring coils is equal to:

Options :

1. ✖ $\frac{16WD^3n}{Cd^4}$

2. ✖ $\frac{32WD^3n}{Cd^4}$

3. ✔ $\frac{8WD^3n}{Cd^4}$

4. ✖ $\frac{4WD^3n}{Cd^4}$

Question Number : 63 Question Id : 630680316817 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

If W is the applied load, D is the mean diameter of coils, and d is the diameter of spring wire then, in a closed-coiled helical spring, the maximum shear stress induced in a wire of the circular section is equal to:

Options :

1. ✖ $\frac{16WD}{\pi d^3}$

2. ✖ $\frac{32WD}{\pi d^3}$

3. ✔ $\frac{8WD}{\pi d^3}$

4. ✖ $\frac{4WD}{\pi d^3}$

Question Number : 64 Question Id : 630680316818 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Which of the following statements is INCORRECT?

Options :

1. ✖ The value of Wahl's stress factor (K) for spring decreases exponentially with the increase of value of spring index (C).

2. ✖ The spring mostly used in gramophones is a flat spiral spring.

3. ✖ The deflection of the helical spring is directly proportional to the cube of the mean diameter of the coil.

4. ✔ With the increase in the size of the wire of the compression springs, the allowable stress increases.

Question Number : 65 Question Id : 630680316819 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

A flat spiral spring made of strip of breadth 5 mm, thickness 1 mm and length 1.5 m has been subjected to a winding couple which induces a maximum stress of 150 $\frac{N}{mm^2}$. The magnitude of winding couple is nearest to:

Options :

1. ✖ 22.6 $N\ mm$

2. ✖ 44.8 $N\ mm$

3. ✔ $62.5\ N\ mm$

4. ✖ $85.5\ N\ mm$

Question Number : 66 Question Id : 630680316820 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

In which of the following threads the lathe lead is usually provided?

Options :

1. ✖ Buttress threads

2. ✔ Acme threads

3. ✖ Knuckle threads

4. ✖ Whitworth threads

Question Number : 67 Question Id : 630680316821 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

In which of the following threads the screw jack is usually provided?

Options :

1. ✔ Square threads

2. ✖ Acme threads

3. ✖ Knuckle threads

4. ✖ Whitworth threads

Question Number : 68 Question Id : 630680316822 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

A stud has:

Options :

1. ✔ both ends threaded

2. ✖ threads in the mid portion of its length

3. ✖ a hole drilled through for intersecting locking pin

4. ✖ a plane slotted head for the screw driver

Question Number : 69 Question Id : 630680316823 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Which is NOT true in respect of sliding bearings in relation to roller contact bearings?

Options :

1. ✖ Sliding bearings has high friction losses

2. ✖ Sliding bearings are more silent in operation

3. ✔ Sliding Bearings cannot withstand shocks and vibrations

4. ✖ Sliding bearings requires more lubrication

Question Number : 70 Question Id : 630680316824 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Which is NOT true for roller bearings?

Options :

1. ✖ It has greater capacity for radial loads for a given overall size.

2. ✖ At high speeds, more noise is detected.

3. ✖ Failures can be detected easily by loud noise.

4. ✔ It has a high resistance in case of shock load.

Question Number : 71 Question Id : 630680316825 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

The torsional rigidity of a shaft is equal to the:

Options :

1. ✔ product of modulus of rigidity and polar moment of inertia

2. ✖ sum of the modulus of rigidity and polar moment of inertia

3. ✖ difference between modulus of rigidity and polar moment of inertia

4. ✖ ratio of modulus of rigidity and polar moment of inertia

Question Number : 72 Question Id : 630680316826 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

GFC drawings issued at construction sites are _____.

Options :

1. ✔ good for construction
2. ✖ gross functional components
3. ✖ geometrical fraction construction
4. ✖ golden fracture construction

Question Number : 73 Question Id : 630680316827 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

In an assembly drawing, which statement is true for the title block?

Options :

1. ✖ It is drawn in the middle of the sheet.
2. ✖ It is drawn at the top right hand corner of the sheet.
3. ✔ It is drawn at the right hand bottom corner of the sheet.
4. ✖ It is drawn at the left hand bottom corner of the sheet.

Question Number : 74 Question Id : 630680316828 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Identify the FALSE statement.

Options :

1. ✖ In third angle projection, top (plan) view is drawn above XY line.
2. ✔ In first angle projection, front (elevation) view is drawn below XY line.
3. ✖ In first angle projection, front (elevation)view is drawn above XY line.
4. ✖ In third angle projection, front (elevation) view is drawn below XY line.

Question Number : 75 Question Id : 630680316829 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Which of following is NOT shown by a general assembly drawing?

Options :

1. ✔ Details of missing components
2. ✖ Detailed drawing of individual parts
3. ✖ Detailed drawing of sub-assembly
4. ✖ Assembly drawing of machine

Question Number : 76 Question Id : 630680316830 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Surface roughness on an engineering drawing is denoted by _____.

Options :

1. ✖ pentagon
2. ✖ circle
3. ✖ semi-circle
4. ✔ inverted triangle

Question Number : 77 Question Id : 630680316831 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

_____ is a used for profile levelling.

Options :

1. ✖ Collinear method
2. ✖ Circular method
3. ✖ Circumferential method
4. ✔ Collimation method

Question Number : 78 Question Id : 630680316832 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Identify the odd one.

Options :

1. ✖ B-spline curve
2. ✖ Bezier curve
3. ✔ Ellipse
4. ✖ Hermite cubic curve

Question Number : 79 Question Id : 630680316833 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Bezier curve _____.

Options :

1. ✖ passes through each and every data point except first and last
2. ✔ does not pass through all data points except first and last
3. ✖ passes through only first control point
4. ✖ passes through only last control point

Question Number : 80 Question Id : 630680316834 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Minimum _____ control points are needed to draw a quadratic B-spline curve.

Options :

1. ✔ four
2. ✖ two
3. ✖ one
4. ✖ three

Question Number : 81 Question Id : 630680316835 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

For the curves and splines, which is the most desirable scenario?

Options :

1. ✖ Wiggles should be increased

2. ✔ Wiggles should be minimised
3. ✖ Curve should have infinite wiggles
4. ✖ Curve should be rough

Question Number : 82 Question Id : 630680316836 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Which of the following is NOT an analytic entity for a wireframe model?

Options :

1. ✖ Circle
2. ✖ Arc
3. ✔ Spline
4. ✖ Chamfer

Question Number : 83 Question Id : 630680316837 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

NURBS, a modelling approach stands for _____.

Options :

1. ✖ Notational Underestimated Recorded B-spline
2. ✖ Near Up Recorded B-spline
3. ✖ Non-negotiable Uniform Remedial B-spline
4. ✔ Non-Uniform Rational B-Spline

Question Number : 84 Question Id : 630680316838 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Identify the odd one with respect to type of lubrication system.

Options :

1. ✔ Vacuum sump lubrication system
2. ✖ Dry sump lubrication system
3. ✖ Wet sump lubrication system

4. ✖ Mist sump lubrication system

Question Number : 85 Question Id : 630680316839 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

IC engines are lubricated because of the _____ pumps.

Options :

1. ✖ positive velocity
2. ✖ negative displacement
3. ✔ positive displacement
4. ✖ negative velocity

Question Number : 86 Question Id : 630680316840 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Match column A with column B.

Column A	Column B
A. Stainless steel	1. Ferrous steel
B. Aluminium	2. Polymer
C. Teflon	3. Non-ferrous steel

Options :

1. ✖ A-1; B-2; C-3
2. ✔ A-1; B-3; C-2
3. ✖ A-2; B-1; C-3
4. ✖ A-3; B-2; C-1

Question Number : 87 Question Id : 630680316841 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Which of the following material can potentially protect ferrous metal from rusting by galvanising process?

Options :

1. ✔ Zinc
2. ✖ Graphite
3. ✖ Cardboard
4. ✖ Tantalum

Question Number : 88 Question Id : 630680316842 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Necking phenomenon occurring during creep testing occurs during _____ stage.

Options :

1. ✖ primary creep
2. ✖ secondary creep
3. ✔ tertiary creep
4. ✖ quaternary creep

Question Number : 89 Question Id : 630680316843 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

In eutectoid reaction of iron carbon phase diagram, _____.

Options :

1. ✔ solid phases convert into two different solids
2. ✖ liquid phase converts into two different liquids
3. ✖ solid phase is converted into one solid and liquid phase
4. ✖ liquid phase is converted into one solid and liquid phase

Question Number : 90 Question Id : 630680316844 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

In _____, the same number of cations and anions are missing from lattice site.

Options :

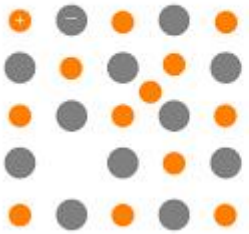
1. ✖ Frenkel defect

2. ✔ Schottky defect
3. ✖ Route defect
4. ✖ Vale defect

Question Number : 91 Question Id : 630680316845 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Study the given figure and identify the defect.



Options :

1. ✖ Schottky defect
2. ✖ Avalanche defect
3. ✖ Tunnel defect
4. ✔ Frenkel defect

Question Number : 92 Question Id : 630680316846 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

_____ is a strengthening mechanism wherein material is made harder and stronger by plastic deformation.

Options :

1. ✖ Wise hardening
2. ✖ Coupon hardening
3. ✔ Work hardening
4. ✖ Blow hardening

Question Number : 93 Question Id : 630680316847 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time :

N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Precipitation hardening is also known as ____.

Options :

1. ✖ cage hardening
2. ✔ age hardening
3. ✖ strain hardening
4. ✖ stress hardening

Question Number : 94 Question Id : 630680316848 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Identify the odd one with respect to types of surface treatment.

Options :

1. ✔ Peer carburising
2. ✖ Pack carburising
3. ✖ Ion carburising
4. ✖ Vacuum carburising

Question Number : 95 Question Id : 630680316849 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Match column A with column B.

Column A	Column B
A. Tempering	1. Hardening
B. Annealing	2. Toughening
C. Quenching	3. Softening

Options :

1. ✖ A-1; B-2; C-3
2. ✖ A-1; B-3; C-2
3. ✔ A-2; B-3; C-1

4. ✖ A-3; B-2; C-1

Question Number : 96 Question Id : 630680316850 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Select the option that is true regarding the following two statements labelled Assertion (A) and Reason (R).
(A): Austenite is the hardest microstructure of steel.
(R): Austenite is the supersaturated solution of carbon in iron.

Options :

1. ✖ Both A and R are true
2. ✔ A is true, but R is false
3. ✖ Both A and R are false
4. ✖ A is false, but R is true

Question Number : 97 Question Id : 630680316851 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Which of the following microstructure imparts maximum hardness in steel ?

Options :

1. ✖ Austenite
2. ✖ Pearlite
3. ✖ Ferrite
4. ✔ Martensite

Question Number : 98 Question Id : 630680316852 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Which of the following holds true for function of skim bob in the casting process?

Options :

1. ✔ Helps in trapping the impurities
2. ✖ Helps in cooling of metal
3. ✖ Helps in diverging the metal

4. ✖ Helps in casting hollow products

Question Number : 99 Question Id : 630680316853 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Metal is fed in to the casting cavity by a _____.

Options :

1. ✖ puddle
2. ✖ havel
3. ✔ ladle
4. ✖ hopper

Question Number : 100 Question Id : 630680316854 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Chills are placed in _____.

Options :

1. ✖ sprue
2. ✔ mould cavity
3. ✖ pouring basin
4. ✖ riser

Question Number : 101 Question Id : 630680316855 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Which of the following is NOT a sand used in casting process?

Options :

1. ✖ Parting sand
2. ✖ Green sand
3. ✖ Loam sand
4. ✔ Leak sand

Question Number : 102 Question Id : 630680316856 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Which rule is used for calculating the solidification time for the given volume of casting?

Options :

1. ✖ Namibear’s rule
2. ✖ Rockford rule
3. ✔ Chvorinov’s rule
4. ✖ Tolonov’s rule

Question Number : 103 Question Id : 630680316857 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

What is the stress type applied on a component during blanking?

Options :

1. ✖ Compressive stress
2. ✖ Tensile stress
3. ✔ Shear stress
4. ✖ Both tension and compression stress

Question Number : 104 Question Id : 630680316858 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Which of the following is NOT a extrusion process?

Options :

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

Question Number : 105 Question Id : 630680316859 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Select the correct option based on the given statements.
'Punching/Blanking are similar process wherein punch removes small pieces of metal from the sheet'.

Statement A: If the small removed piece is discarded, the process is blanking.
Statement B: If the small removed piece is used and rest of the sheet is discarded, the process is punching.

Options :

1. ✖ Only statement A is correct
2. ✖ Only statement B is correct
3. ✖ Both statements A and B are correct
4. ✔ Neither statement A nor B is correct

Question Number : 106 Question Id : 630680316860 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Atomisation process in powder metallurgy primarily _____.

Options :

1. ✔ produces powders
2. ✖ relives stresses
3. ✖ gathers atoms
4. ✖ sinters atoms

Question Number : 107 Question Id : 630680316861 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Which of the following is true for the conventional powder metallurgy process?

Options :

1. ✖ Blending is done after sintering.
2. ✔ Sintering is done after blending.
3. ✖ Sintering is done before atomisation.
4. ✖ Atomisation is done after blending.

Question Number : 108 Question Id : 630680316862 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time :

N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Match column A with column B.

Column A	Column B
A. Welding	1. Between 450°C to 850°C
B. Brazing	2. Below 450°C
C. Soldering	3. Above 900°C

Options :

1. ✔ A-3; B-1; C-2
2. ✖ A-1; B-3; C-2
3. ✖ A-1; B-2; C-3
4. ✖ A-3; B-2; C-1

Question Number : 109 Question Id : 630680316863 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Which of following are NOT alloys used for soft soldering?

Options :

1. ✖ Tin – Lead – Antimony
2. ✖ Tin – Lead
3. ✖ Tin – Lead – Cadmium
4. ✔ Tin – Lead – Vanadium

Question Number : 110 Question Id : 630680316864 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Identify the odd one with respect to classification of welding process

Options :

1. ✔ Gas welding
2. ✖ Forge welding

3. ✖ Friction stir welding
4. ✖ Ultrasonic welding

Question Number : 111 Question Id : 630680316865 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Which of the following is NOT a terminology of friction stir welding, a solid state welding process?

Options :

1. ✖ Tool shoulder
2. ✖ Pin radius
3. ✖ Pin length
4. ✔ Electrode grade

Question Number : 112 Question Id : 630680316866 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Which of the following is an additive manufacturing technique?

Options :

1. ✖ Diluted enamel deposition
2. ✔ Direct energy deposition
3. ✖ Dribbled escalated deposition
4. ✖ Diverted energy deposition

Question Number : 113 Question Id : 630680316867 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Select the option that is true regarding the following two statements labelled Assertion (A) and Reason (R).

(A): Material wastage is less in additive manufacturing route as compared to conventional manufacturing route.
(R): Additive manufacturing is a layer by layer deposition technique.

Options :

1. ✖ Both A and R are false

2. ✖ A is true, but R is false
3. ✔ Both A and R are true
4. ✖ A is false, but R is true

Question Number : 114 Question Id : 630680316868 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

The cutting speed of a milling cutter is 31.4 m/min. Find the diameter of cutter if RPM is 100.

Options :

1. ✔ 100 mm
2. ✖ 10 mm
3. ✖ 1000 mm
4. ✖ 1 mm

Question Number : 115 Question Id : 630680316869 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Chisels have a _____ cross-section.

Options :

1. ✖ square
2. ✖ triangular
3. ✖ semi-circular
4. ✔ octagonal

Question Number : 116 Question Id : 630680316870 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Match column A with column B.

Column A	Column B
A. Reducing the diameter of shaft	1. Drilling machine
B. Joining two plates	2. Lathe machine
C. Hole making in plate	3. Welding machine

Options :

1. ✖ A-1; B-2; C-3
2. ✖ A-2; B-1; C-3
3. ✔ A-2; B-3; C-1
4. ✖ A-3; B-2; C-1

Question Number : 117 Question Id : 630680316871 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Select the option that is true regarding the following two statements labelled Assertion (A) and Reason (R).

(A): Three jaw chuck is known as self-centring chuck.
(R): Each jaw in the three jaw chuck can be adjusted independently.

Options :

1. ✔ A is true, but R is false
2. ✖ Both A and R are true
3. ✖ Both A and R are false
4. ✖ A is false, but R is true

Question Number : 118 Question Id : 630680316872 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Select the correct option based on the given statements.

'A dimension is mentioned in a drawing as 25H7'.

Statement A: 25 is the basic size.
Statement B: H7 is the fit designation.

Options :

1. ✖ Only statement A is correct
2. ✖ Only statement B is correct
3. ✖ Neither statement A nor B is correct
4. ✔ Both the statements are correct

Question Number : 119 Question Id : 630680316873 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

The symbol  is for _____.

Options :

1. ✖ perpendicularity
2. ✔ position
3. ✖ parallelism
4. ✖ flatness

Question Number : 120 Question Id : 630680316874 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Which of the following symbols is for surface profile?

Options :

1. ✔ 

2. ✖ 

3. ✖ 

4. ✖

Question Number : 121 Question Id : 630680316875 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Which of the following is NOT a grade of slip gauges?

Options :

1. ✖ Grade 2
2. ✖ Grade 1
3. ✖ Grade 0
4. ✔ Grade 5

Question Number : 122 Question Id : 630680316876 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

The nozzles for abrasive jet machining process is made from _____.

Options :

1. ✖ aluminium
2. ✖ graphite
3. ✔ tungsten carbide
4. ✖ copper

Question Number : 123 Question Id : 630680316877 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

What is the material removal mechanism in laser beam machining process?

Options :

1. ✖ Cavitation

2. ✔ Melting and vaporisation
3. ✖ Mechanical shearing
4. ✖ Electrolysis

Question Number : 124 Question Id : 630680316878 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Which of the following is NOT an advantage of CNC machining system?

Options :

1. ✖ Improved quality
2. ✖ Flexibility
3. ✔ Increased scrap rate
4. ✖ Increased productivity

Question Number : 125 Question Id : 630680316879 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Exponential smoothing is a _____ type of forecasting method.

Options :

1. ✖ qualitative
2. ✖ market trial
3. ✖ market research
4. ✔ quantitative

Question Number : 126 Question Id : 630680316880 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Identify the correct statement.

Options :

1. ✔ Exponential smoothing method is used for forecasting when the horizon is large.
2. ✖ Exponential smoothing method is used for inventory control when the horizon is large.
3. ✖ Exponential smoothing method is used for repair control when the horizon is large.

4. ✖ Exponential smoothing method is used for forecasting when the horizon is very small/limited.

Question Number : 127 Question Id : 630680316881 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

The forecasting method which gives equal weightage to each of recent observation is _____.

Options :

1. ✖ exponential smoothing
2. ✔ moving average method
3. ✖ simplex method
4. ✖ queuing method

Question Number : 128 Question Id : 630680316882 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

In EOQ model, holding costs are defined as _____.

Options :

1. ✖ cost incurred due to delay
2. ✖ cost incurred for transporting it to final assembly
3. ✔ cost incurred for storing the item
4. ✖ cost incurred during ordering

Question Number : 129 Question Id : 630680316883 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Cost of insurance is included in the _____.

Options :

1. ✖ maintenance cost
2. ✖ production cost
3. ✖ repair cost
4. ✔ carrying cost

Question Number : 130 Question Id : 630680316884 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Linear programming method is used for _____.

Options :

1. ✔ optimising production processes
2. ✖ enabling research and development
3. ✖ reducing delivery times
4. ✖ reducing scrap

Question Number : 131 Question Id : 630680316885 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Which of the following data is NOT used for transportation model?

Options :

1. ✖ Origin of supply
2. ✖ Destination
3. ✔ Weight of component
4. ✖ Unit cost of shipping

Question Number : 132 Question Id : 630680316886 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Which of the following is NOT an assumption for transportation model?

Options :

1. ✖ Items are homogenous
2. ✔ Weight of the component is constant
3. ✖ Shipping costs per unit are same irrespective of quantity
4. ✖ Only one route is chosen

Question Number : 133 Question Id : 630680316887 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

There _____ on critical path.

Options :

1. ✖ are maximum floats
2. ✔ are no float
3. ✖ are only two floats
4. ✖ is only one float

Question Number : 134 Question Id : 630680316888 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

From the given table, find the critical path out of the possible paths.

Activity	Precedence	Duration (Days)
P	-	3
Q	P	7
R	P	5
S	Q, R	2

Options :

1. ✖ None are critical paths
2. ✖ All are critical paths
3. ✔ P – Q – S
4. ✖ P – R – S

Question Number : 135 Question Id : 630680316889 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Float in PERT/CPM is a measure of _____.

Options :

1. ✖ project flow
2. ✖ project performance

3. ✔ flexibility in duration for an activity
4. ✖ activity performance

Question Number : 136 Question Id : 630680316890 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Which of the following is a technique of PERT?

Options :

1. ✖ Node on node
2. ✔ Activity on node
3. ✖ Node on arrow
4. ✖ Activity on activity

Question Number : 137 Question Id : 630680316891 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Project crashing in PERT refers to _____.

Options :

1. ✖ deletion of the non-critical activity
2. ✖ deletion of activity node
3. ✖ deletion of activity arrow
4. ✔ reduction in activity duration

Question Number : 138 Question Id : 630680316892 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

_____ is used for solving linear programming problems.

Options :

1. ✖ Ranging method
2. ✔ Simplex method
3. ✖ Cross method
4. ✖ Balking method

Question Number : 139 Question Id : 630680316893 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Which of the following is a type of queuing model?

Options :

1. ✖ Basking
2. ✖ Roger
3. ✔ Reneging
4. ✖ Buffon

Question Number : 140 Question Id : 630680316894 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Identify the biggest disadvantage of explicit scheme in a time-dependent problem.

Options :

1. ✔ Limited time-step size
2. ✖ Small grid size
3. ✖ Reneging solution
4. ✖ Marching solution

Question Number : 141 Question Id : 630680316895 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

In which conditions condition does the Newton Raphson method fail?

Options :

1. ✖ When equation is linear
2. ✖ When equation in non-linear
3. ✔ When function approaches infinity
4. ✖ When function approaches zero

Question Number : 142 Question Id : 630680316896 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time :

N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Convergence of the Newton Raphson method depends on _____.

Options :

1. ✖ final derivative
2. ✔ initial assumed value
3. ✖ equation used
4. ✖ diagonal used

Question Number : 143 Question Id : 630680316897 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

If $f(x) = 2x - 3$, then $f^{-1}(x) = ?$

Options :

1. ✖ $2x + 3$
2. ✖ $(x/3) + 2$
3. ✖ $1/(2x - 3)$
4. ✔ $(x + 3)/2$

Question Number : 144 Question Id : 630680316898 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

The number of degree of freedom is calculated as number of nodes _____ number of dependent variables.

Options :

1. ✔ multiplied by
2. ✖ divided by
3. ✖ added to
4. ✖ subtracted from

Question Number : 145 Question Id : 630680316899 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Degree of freedom governs the _____ of the model.

Options :

1. ✔ solution time
2. ✖ accuracy
3. ✖ system
4. ✖ equation

Question Number : 146 Question Id : 630680316900 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Which of the following is NOT an element of relationship in state space formulation?

Options :

1. ✖ Input
2. ✖ Output
3. ✖ State of system
4. ✔ Synergy of system

Question Number : 147 Question Id : 630680316901 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Which of the following defines the correct meaning of a model of a system?

Options :

1. ✔ Constructing a conceptual framework that describes a system
2. ✖ Calculating the degrees of freedom
3. ✖ Computing the system requirements
4. ✖ Calculating the system framework

Question Number : 148 Question Id : 630680316902 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

For equation $y = 5^{\log x}$, what will be the inverse?

Options :

1. ✖ $X = 5 \text{ Log } y$
2. ✔ $X = y^{(1/\log 5)}$
3. ✖ $X = 5^{(1/\log y)}$
4. ✖ $X = Y \text{ Log } 5$

Question Number : 149 Question Id : 630680316903 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Which of the following is NOT a method for finding non-linear root?

Options :

1. ✖ Bisection method
2. ✖ Regula falsi method
3. ✔ Octant method
4. ✖ Secant method

Question Number : 150 Question Id : 630680316904 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Which of the following methods has the highest order of convergence ?

Options :

1. ✖ False position method
2. ✖ Octant method
3. ✖ Secant method
4. ✔ Newton Raphson method