Andhra Pradesh State Council of Higher Education

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 :	Chemical Engineering 31st May 2024 Shift 1
Duration :	120
Total Marks :	120
Display Marks:	No
Share Answer Key With Delivery Engine :	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

Chemical Engineering

Section Id :	33300853
Section Number :	1
Mandatory or Optional :	Mandatory
Number of Questions :	120
Section Marks :	120
Enable Mark as Answered Mark for Review and Clear Response :	Yes
Maximum Instruction Time :	0
Is Section Default? :	null

Question Number : 1 Question Id : 3330086241 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Which of the following states that the total pressure exerted by a gaseous mixture is equal to the sum of the partial pressures

Options :

1. ✖ Amagat's law

2. ✖ Raoult's law

3. ✔ Dalton's law

4. ✖ Avogadro's law

Question Number : 2 Question Id : 3330086242 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

If air has 21% and 79% of Oxygen and Nitrogen by volume respectively. What is the average molecular weight?

Options :

1. ✖ 29.3

2. ✖ 29

3. ✔ 28.84

4. ✖ 28

Question Number : 3 Question Id : 3330086243 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

An organic compound is found to contain C= 54.5%, O= 36.4% and H= 9.1% by weight. Its empirical formula is

Options :

1. ✖ CHO_2

2. ✔ C_2H_4O

3. ✖ C_2H_6O

4. ✖ C_3H_4O

Question Number : 4 Question Id : 3330086244 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Cox charts are plotted

Options :

1. ✖ Logarithm of vapour pressure of a substance versus logarithm of partial pressure of the reference substance

2. ✔ Logarithm of vapour pressure of a substance versus logarithm of the vapour pressure of reference substance

3. ✖ Logarithm of vapour pressure of a substance versus temperature

4. ✖ Logarithm of vapour pressure of a substance versus partial pressure

Question Number : 5 Question Id : 3330086245 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The number of degrees of freedom for a mixture of liquid water and liquid toluene (immiscible in water) in equilibrium with their vapours is

Options :

1. ✖ 3

2. ✖ 2

3. ✔ 1

4. ✖ 0

Question Number : 6 Question Id : 3330086246 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The solubility of sodium chloride in water at 290K is 35.8 kg/100kg water. What is the mass fraction of Sodium Chloride in solution?

Options :

1. ✔ 0.264

2. ✖ 0.358

3. ✖ 0.642

4. ✖ 0.736

Question Number : 7 Question Id : 3330086247 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The ratio of moles of the reactant converted to the desired product and moles of the reactant converted to undesired product is called as

Options :

1. ✖ Conversion

2. ✔ Selectivity

3. ✖ Reaction yield

4. ✖ Plant yield

Question Number : 8 Question Id : 3330086248 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

A Recycle ratio is defined as

Options :

1. ✔ Recycle stream/fresh feed stream

2. ✖ Recycle stream/gross feed stream

3. ✖ Gross feed stream/ recycle stream

4. ✖ Fresh feed stream/recycle stream

Question Number : 9 Question Id : 3330086249 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

In which of the following process involving an ideal gas, the change in internal energy and the change in enthalpy would be zero.

Options :

1. ✖ Isobaric process

2. ✔ Isothermal process

3. ✖ Adiabatic process

4. ✖ Polytropic process

Question Number : 10 Question Id : 3330086250 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The Vander Waals equation of state is given by

Options :

1. ✖ $$P = \frac{RT}{(v-b)} - \frac{a}{T^{0.5}v(v+b)}$$

2. ✔ $$P = \frac{RT}{(v-b)} - \frac{a}{v^2}$$

3. ✖

$$P = \frac{RT}{(v-b)} - \frac{a'(T)}{v(v+b)}$$

$$P = \frac{RT}{(v-b)} - \frac{a \propto}{v(v+b)+b(v-b)}$$

4. ✖

Question Number : 11 Question Id : 3330086251 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Entropy of a system is

Options :

1. ✔ A measure of disorder of the system

2. ✖ A measure of orderly behaviour of the system

3. ✖ Independent of Temperature

4. ✖ Independent of Pressure

Question Number : 12 Question Id : 3330086252 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

When the reactants and products are at their standard states, the change in enthalpy accompanying the formation of 1 mole of a substance from the constituent elements is termed as

Options :

1.

The standard heat of reaction

2. The standard heat of formation

3. The standard heat of combustion

4. The standard heat of accumulation

Question Number : 13 Question Id : 3330086253 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The Carnot cycle consists of an alternate series of

Options :

1. Two reversible isothermal processes and two reversible adiabatic processes

2. Two reversible isobaric processes and two reversible adiabatic processes

3. Two reversible isothermal processes and two reversible isobaric processes

4. Two reversible isothermal processes and two polytropic processes

Question Number : 14 Question Id : 3330086254 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

For an ideal gas mixture, the fugacity of a component is equal to

Options :

1. ✖ Vapour pressure of that component

2. ✔ Partial pressure of the component

3. ✖ The total pressure of the mixture

4. ✖ The vapour pressure of the component at STP

Question Number : 15 Question Id : 3330086255 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

For an ideal gas mixture undergoing a reversible gaseous phase chemical reaction, the equilibrium constant

Options :

1. ✖ Decreases with pressure

2. ✖ Increases with pressure

3. ✔ Is independent of pressure

4. ✖ Increases/decreases with pressure depending on the stoichiometric coefficients of the reaction

Question Number : 16 Question Id : 3330086256 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction

Time : 0

The Gibbs free energy change (ΔG°) and equilibrium constant (K) for a chemical reaction are related by

Options :

1. ✖ $\Delta G^0 = RT\ lnK$

2. ✖ $\Delta G^0 = T\ lnK$

3. ✖ $\Delta G^0 = RTK$

4. ✔ $\Delta G^0 = -RT\ lnK$

Question Number : 17 Question Id : 3330086257 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

An ideal fluid is the one which

Options :

1. ✖ Offers resistance to flow

2. ✖ Offers resistance to deformation

3. ✔ Has no viscosity

4. ✖ Has infinity viscosity

Question Number : 18 Question Id : 3330086258 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The flow of incompressible fluids without the presence of shear is referred to as

Options :

1. ✔ Potential flow

2. ✖ Turbulent flow

3. ✖ Laminar flow

4. ✖ Fully developed flow

Question Number : 19 Question Id : 3330086259 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The Bernoulli equation states that in a steady irrotational flow of an incompressible fluid,

Options :

1. ✖ The total potential energy at any point is constant

2. ✖ The total kinetic energy at any point is constant

3. ✔ The total energy at any point is constant.

4. ✖ The total pressure energy at any point is constant

Question Number : 20 Question Id : 3330086260 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

When the flow of a fluid through a circular pipe, the friction factor is

Options :

1. ✔ $f = \frac{16}{N_{Re}}$

2. ✖ $f = \frac{24}{N_{Re}}$

3. ✖ $f = 0.079 N_{Re}^{-1/2}$

4. ✖ $f = 0.079 N_{Re}^{-1/4}$

Question Number : 21 Question Id : 3330086261 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Pitot tube is used for measuring

Options :

1. ✖ Total fluid velocity

2. ✔ Local fluid velocity

3. ✖ Average velocity

4. ✖ Maximum fluid velocity

Question Number : 22 Question Id : 3330086262 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Kozney Carman equation is used for finding

Options :

1. ✖ Volumetric flow rate through a pipe line

2. ✖ Velocity of fluids through a duct

3. ✔ Pressure drop through a packed bed

4. ✖ Pressure drop through a fluidized bed

Question Number : 23 Question Id : 3330086263 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

In which of the following pumps, the displacement of fluid is by rotating action

Options :

1. ✖ Centrifugal pump

2. ✔ Gear pump

3. ✖ Plunger pump

4. ✖ Piston pump

Question Number : 24 Question Id : 3330086264 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Which of the following happens when the gas velocity increases in fluidization?

Options :

1. ✖ Bulk density of the bed increases and fluidization become less aggressive

2. ✖ Bulk density of the bed decreases and fluidization become less aggressive

3. ✖ Bulk density of the bed increases and fluidization become more aggressive

4. ✔ Bulk density of the bed decreases and fluidization become more aggressive

Question Number : 25 Question Id : 3330086265 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

100-mesh screen means

Options :

1. ✖ 100 little square openings per one linear cm of screen

2. ✖ 100 little square openings per one linear mm of screen

3. ✔ 100 little square openings per one linear inch of screen

4. ✖ 100 little square openings per one linear feet of screen

Question Number : 26 Question Id : 3330086266 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The work required for crushing a given material is proportional to the logarithm of the ratio between the initial and final diameters is a statement of

Options :

1. ✖ Rittinger's law

2. ✔ Kick's law

3. ✖ Bond's law

4. ✖ Fick's law

Question Number : 27 Question Id : 3330086267 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

In a ball mill, centrifugal force will be exactly balanced by the weight of the ball when mill runs at

Options :

1. ✖ Minimum speed

2. ✖ Maximum speed

3. ✔ Critical speed

4. ✖ Optimum speed

Question Number : 28 Question Id : 3330086268 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The mass of material that can be fed per unit time to a unit area of the screen is called as

Options :

1. ✖ Effectiveness of the screen

2. ✔ Capacity of the screen

3. ✖ Ability of the screen

4. ✖ Productivity of the screen

Question Number : 29 Question Id : 3330086269 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Which of the following is a process of gravity concentration where solids are separated based upon the differences in the behavior of particles through a moving fluid which in turn, depends upon densities/specific gravities.

Options :

1. ✖ Classification

2. ✖ Sedimentation

3. ✖ Centrifugation

4. ✔ Jigging

Question Number : 30 Question Id : 3330086270 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The filter aid is a granular or fibrous material and is used to

Options :

1. ✖ Increase the cake resistance

2. ✔ Increase the cake porosity

3. ✖ Increase the pressure drop across the cake

4. ✖ Increase the filter medium resistance

Question Number : 31 Question Id : 3330086271 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

A fluid energy mill is used for

Options :

1. ✖ Cutting

2. ✖ Grinding

3. ✔ Ultra-grinding

4. ✖ Crushing

Question Number : 32 Question Id : 3330086272 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

In a batch thickener, the rate of sedimentation can be artificially increased by

Options :

1. ✔ The addition of coagulating agents

2. ✖ Cooling the suspension to room temperature

3. ✖ Promoting the free settling

4. ✖ Controlling the flow rate

Question Number : 33 Question Id : 3330086273 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The critical radius of insulation is

Options :

1. ✔ $\frac{\text{The thermal conductivity of an insulating material}}{\text{Heat transfer coefficient at the outer surface of insulation}}$

2. ✖ $\frac{\text{The thermal conductivity of metal to be insulated}}{\text{Heat transfer coefficient at the outer surface of insulation}}$

3. ✖ $\frac{\text{The thermal conductivity of an insulating material}}{\text{Heat transfer coefficient at the inside surface of insulation}}$

4. ✖ $\frac{\text{The thermal conductivity of metal to be insulated}}{\text{Heat transfer coefficient at the inside surface of insulation}}$

Question Number : 34 Question Id : 3330086274 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The Peclet number is defined as the product of

Options :

1. ✖ The Reynolds number and Graetz number

2. ✖ The Prandtl number and Nusselt number

3. ✔ The Reynolds number and Prandtl number

4. ✖ The Reynolds number and Nusselt number

Question Number : 35 Question Id : 3330086275 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Ratio of emissive power of a body to the emissive power of a perfectly black body, is known as

Options :

1. ✔ Emissivity

2. ✖ Absorptivity

3. ✖ Transmissivity

4. ✖ Reflectivity

Question Number : 36 Question Id : 3330086276 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

In shell and tube heat exchanger, steam is condensing on the shell side and a cold fluid is flowing through the tubes in the turbulent flow region, then the Wilson plot is used to

Options :

1. ✖ The linear velocity of cold fluid

2. ✖ Overall temperature difference

3. ✖ Overall heat transfer coefficient

4. ✔ Film heat transfer coefficients

Question Number : 37 Question Id : 3330086277 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

In a heat exchanger, for the same terminal temperatures, the logarithmic mean temperature difference for counter flow is

Options :

1. ✔ Appreciable greater than that for co-current flow

2. ✖ Appreciable lower than that for co-current flow

3. ✖ Almost equal to that for co-current flow

4. ✖ Appreciable lower than that for cross flow

Question Number : 38 Question Id : 3330086278 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Dropwise condensation,

Options :

1. ✖ Requires smooth, clean uncontaminated surfaces

2. ✖ Is stable and easy to maintain

3. ✔ Have higher heat transfer coefficients

4. ✖ Heat lower heat transfer coefficients

Question Number : 39 Question Id : 3330086279 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

As per the Stefan-Boltzmann law the total energy emitted by a black body is directly proportional to

Options :

1. ✖ The third power of its absolute temperature

2. ✔ The fourth power of its absolute temperature

3. ✖ The fifth power of its absolute temperature

4. ✖ The sixth power of its absolute temperature

Question Number : 40 Question Id : 3330086280 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

In Shell and Tube heat exchanger, external cleaning of the tubes is easy in case of

Options :

1. ✖ Equilateral triangular pitch arrangement of tube layout

2. ✖ Right angle triangular pitch arrangement of tube layout

3. ✔ Square pitch arrangement of tube layout

4. ✖ Hexagonal pitch arrangement of tube layout

Question Number : 41 Question Id : 3330086281 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Use of multiple effect evaporator results in

Options :

1. ✖ Increase in steam economy only

2. ✖ Decreases steam economy only

3. ✖ Increasing evaporating capacity only

4. ✔ Increase in both steam economy and evaporating capacity

Question Number : 42 Question Id : 3330086282 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The heat flux in the nucleate boiling regimes is proportional to

Options :

1. ✖ $(\Delta T)^2$

2. ✖ $(\Delta T)^4$

3. ✔ $(\Delta T)^3$

4. ✖ $\sqrt{\Delta T}$

Question Number : 43 Question Id : 3330086283 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The steady state gas phase reaction 3A + B = C + 2D takes place on a catalyst surface. What will be the value of the flux ratio N_A/N_D?

Options :

1. ✖ -2

2. ✖ -0.5

3. ✔ -1.5

4. ✖ 2

Question Number : 44 Question Id : 3330086284 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Lewis number is the ratio of

Options :

1. ✔ Thermal diffusivity to mass diffusivity

2. ✖ Mass diffusivity to momentum diffusivity

3. ✖ Mass diffusivity to thermal diffusivity

4. ✖ Momentum diffusivity to thermal diffusivity

Question Number : 45 Question Id : 3330086285 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The penetration theory relates average mass transfer coefficient (k) with diffusivity (D) as

Options :

1. ✖ $\mathbf{k \propto D}$

2. ✔ $\mathbf{k \propto \sqrt{D}}$

3. ✖ $\mathbf{k \propto D^{1.5}}$

4. ✖ $\mathbf{k \propto D^{2}}$

Question Number : 46 Question Id : 3330086286 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The absorption factor can be increased by

Options :

1. ✗ Increasing both gas and solvent flow rates

2. ✗ Decreasing both gas and solvent flow rates

3. ✓ Decreasing gas flow rate and increasing solvent flow rate

4. ✗ Increasing gas flow rate and decreasing solvent flow rate

Question Number : 47 Question Id : 3330086287 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

A plate is called a theoretical plate when

Options :

1. ✓ The vapour and liquid leaving the plate are in equilibrium

2. ✗ The vapour and liquid entering the plate are in equilibrium

3. ✗ The vapour leaving the plate is in equilibrium with the liquid entering the plate

4. ✗ The liquid leaving the plate is in equilibrium with the vapour entering the plate

Question Number : 48 Question Id : 3330086288 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

If reflux in a distillation column is 100 mol/hr and the overhead product rate is 50 mol/hr, the reflux ratio is

Options :

1. ✖ 0.5

2. ✔ 2

3. ✖ 50

4. ✖ 150

Question Number : 49 Question Id : 3330086289 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

At a given temperature, the humid volume is

Options :

1. ✔ Linear function of humidity

2. ✖ Inverse function of humidity

3. ✖ Square function of humidity

4. ✖ No specific function of humidity

Question Number : 50 Question Id : 3330086290 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

In Liquid-Liquid Extraction, if the selectivity is unity, then

Options :

1. ✖ Separation of the components is most effective

2. ✔ No separation is possible

3. ✖ Amount of solvent requirement is minimum

4. ✖ Solvent flow rate should be very high

Question Number : 51 Question Id : 3330086291 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Higher temperature increases the rate of leaching in solid-liquid system due to

Options :

1. ✖ Increased liquid viscosity and decreased diffusivity

2. ✖ Increased liquid viscosity and increased diffusivity

3. ✖ Decreased liquid viscosity and decreased diffusivity

4. ✔ Decreased liquid viscosity and increased diffusivity

Question Number : 52 Question Id : 3330086292 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction

Time : 0

Moisture in a solid exerting an equilibrium vapour pressure equal to that of the pure liquid at that temperature is

Options :

1. ✖ Bound moisture

2. ✔ Unbound moisture

3. ✖ Critical moisture

4. ✖ Equilibrium moisture

Question Number : 53 Question Id : 3330086293 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

In case of adsorption hysteresis, the desorption equilibrium pressure is

Options :

1. ✔ Always lower than that obtained during adsorption

2. ✖ Always higher than that obtained during adsorption

3. ✖ Same as that obtained during adsorption

4. ✖ Can be either higher or lower than that obtained during adsorption.

Question Number : 54 Question Id : 3330086294 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Flooding in a distillation column is detected by a sharp

Options :

1. ✖ Increase in Murphree plate efficiency

2. ✔ Increase in pressure drop

3. ✖ Decrease in pressure drop

4. ✖ Decrease in liquid holdup in the column

Question Number : 55 Question Id : 3330086295 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The activation energy at high temperatures is lower than at lower temperatures, which represents

Options :

1. ✔ Diffusion regime

2. ✖ Reaction regime

3. ✖ Kinetic regime

4. ✖ Intermediate regime

Question Number : 56 Question Id : 3330086296 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

A reaction is of zero order when the rate of reaction is

Options :

1. ✖ Directly proportional to the concentration of reactant

2. ✖ Inversely proportional to the concentration of reactant

3. ✔ Independent of the concentration of reactant

4. ✖ Independent of temperature and pressure

Question Number : 57 Question Id : 3330086297 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The most suitable reactor to carry out an auto-thermal reaction is a

Options :

1. ✔ Back mix reactor

2. ✖ Plug-flow reactor

3. ✖ Batch reactor

4. ✖ Semi-batch reactor

Question Number : 58 Question Id : 3330086298 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

For a steady- state mixed reactor the space- time is equivalent to the holding time for

Options :

1. ✔ Constant fluid density systems

2. ✖ Variable fluid density systems

3. ✖ Non- isothermal gas reactions

4. ✖ Gas reactions with changing number of moles

Question Number : 59 Question Id : 3330086299 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

For identical feed composition, flow rate, conversion and for all positive reaction orders the ratio of the volume of mixed reactor to the volume of plug flow reactor

Options :

1. ✖ Is independent of the order of reaction

2. ✔ Increases with increase in the order of reaction

3. ✖ Decreases with increase in the order of reaction

4. ✖ Increases with increase in the percentage of conversion

Question Number : 60 Question Id : 3330086300 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

In a semi- batch reactor

Options :

1. ✔ Rate of reaction can be controlled

2. ✖ Maximum conversion can be controlled

3. ✖ Both the reactants flow counter- currently

4. ✖ Residence time is constant

Question Number : 61 Question Id : 3330086301 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The best combination of reactors for an exothermic reaction is

Options :

1. ✖ A CSTR

2. ✖ CSTR in series

3. ✖ A Plug flow reactor followed by CSTR

4. ✔ CSTR followed by a Plug Flow Reactor

Question Number : 62 Question Id : 3330086302 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

If the conversion of a first-order liquid phase reaction occurring in a CSTR is 75%, molar feed rate is 5 mol/min, the rate of the reaction is $5 \frac{mol}{litre.min}$ then the volume of the reactor (in litre) is?

Options :

1. ✖ 0.33

2. ✖ 0.4

3. ✔ 0.75

4. ✖ 0.5

Question Number : 63 Question Id : 3330086303 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

If $\tau = 5$ s, first order rate constant, $k = 0.25\ sec^{-1}$ and the number of tanks, N is 5, then the conversion is

Options :

1. ✖ 87.45%

2. ✖ 33%

3. ✖ 75%

4. ✔ 67.2%

Question Number : 64 Question Id : 3330086304 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Which of the following is true for gas-phase reactions?

Options :

1. ✖ Decrease in moles of the product increases the volume of the reaction mixture

2. ✖ Increase in moles of the product does not affect the volume of the reaction mixture

3. ✔ Increase in moles of the product increases the volume of the reaction mixture

4. ✖ Increase in moles of the product decreases the volume of the reaction mixture

Question Number : 65 Question Id : 3330086305 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Which of the following represents heterogeneous catalytic reaction?

Options :

1. ✖ Reduction of iron ore

2. ✔ Ammonia synthesis

3. ✖ Burning of coal

4. ✖ Roasting of ores

Question Number : 66 Question Id : 3330086306 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

What is the activity of a catalyst when a time t = 0?

Options :

1. ✔ Unity

2. ✖ Infinity

3. ✖ Zero

4. ✖ Negative

Question Number : 67 Question Id : 3330086307 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

If an instrument produces same reading at different times for the same variation in the measured variable, then it is said to

Options :

1. ✖ Have no hysteresis

2. ✖ Have no accuracy

3. ✖ Have no dead zone

4. ✔ Have no drift

Question Number : 68 Question Id : 3330086308 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Which of the following pressure gauge operation depends on the variation of the thermal conductivity of a gas at low pressure,

Options :

1. ✖ Bourdon tube gauge

2. ✖ Hydrostatic gauge

3. ✔ Pirani gauge

4. ✖ McLeod gauge

Question Number : 69 Question Id : 3330086309 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Which of the following measuring device is not suitable for the measurement of the rate of flow of liquids

Options :

1. ✖ Nutating- Disc Meter

2. ✔ Hot-Wire Anemometer

3. ✖ Laser-Doppler Anemometer

4. ✖ Venturi Meter

Question Number : 70 Question Id : 3330086310 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Bourdon gauges are used for measurement of pressures

Options :

1. ✖ Local atmospheric pressures

2. ✖ Local absolute pressures

3. ✖ Low range vacuum pressures

4. ✔ Large range gauge pressures

Question Number : 71 Question Id : 3330086311 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

If initial conditions for a system are inherently zero, what does it physically mean?

Options :

1. ✖ The system is at rest but stores energy

2. ✖ The system is working but does not store energy

3. ✔ The system is at rest or no energy is stored in any of its part

4. ✖ The system is working with zero reference input

Question Number : 72 Question Id : 3330086312 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

If the system is stable, the response is smooth and non-oscillatory (damping coefficient, $\xi > 1$), the response is referred to as

Options :

1. ✔ Overdamped

2. ✖ Critically damped

3. ✖ Underdamped

4. ✖ Undamped

Question Number : 73 Question Id : 3330086313 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Response of a linear control system for a change in set point is called

Options :

1. ✖ Frequency response

2. ✖ Transient response

3. ✔ Servo problem

4. ✖ Regulatory problem

Question Number : 74 Question Id : 3330086314 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Which of the following controllers has more oscillatory behaviour in response?

Options :

1. ✖ P-controller

2. ✔ PI- controller

3. ✖ PD- controller

4. ✖ PID -controller

Question Number : 75 Question Id : 3330086315 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

A servo control loop responds for

Options :

1. ✖ Load changing

2. ✔ Set point changing

3. ✖ Both load and set point changing

4. ✖ Neither load nor set point changing

Question Number : 76 Question Id : 3330086316 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

In Second-order system of under-damped case, the decay ratio and overshoot are related as

Options :

1. ✖ $\text{Overshoot} = (\text{decay ratio})^2$

2. ✔ $\text{Overshoot} = \sqrt{\text{Decay ratio}}$

3. ✖ $\text{Decay ratio} = \text{Overshoot}$

4. ✖ $\text{Decay ratio} = (\text{Overshoot})^3$

Question Number : 77 Question Id : 3330086317 Display Question Number : Yes Is Question

Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Bode diagram is generated from output response of the system subjected to _____input

Options :

1. ✖ Impulse

2. ✖ Step

3. ✖ Ramp

4. ✔ Sinusoidal

Question Number : 78 Question Id : 3330086318 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Routh test

Options :

1. ✖ Criterion provides information about the actual location of roots

2. ✔ Cannot be used to test the stability of a control system containing transportation lag

3. ✖ Criterion is not applicable to systems with polynomial characteristic equation

4. ✖ Cannot determine as to how many roots of the characteristics equation have positive real roots

Question Number : 79 Question Id : 3330086319 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Main function of baffles on the shell side of a heat exchanger is to

Options :

1. ✖ Decrease the pressure drop

2. ✖ Reduce the scale deposit

3. ✔ Hold the tubes in position

4. ✖ Create turbulence

Question Number : 80 Question Id : 3330086320 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

In which of the following type of heat exchanger the heat exchange between the two fluids occur by their complete physical mixing?

Options :

1. ✔ Direct contact heat exchanger

2. ✖ Indirect contact heat exchanger

3. ✖ Recuperator

4. ✖ Regenerator

Question Number : 81 Question Id : 3330086321 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

In a multistage compressor, intercooling is done to

Options :

1. ✖ Cool the air during compression

2. ✖ Cool the air at delivery

3. ✖ Enable compression in two stages

4. ✔ Minimise the work of compression

Question Number : 82 Question Id : 3330086322 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

A specific advantage of using steam as a heating medium in exchangers is its

Options :

1. ✖ Inexpensiveness

2. ✔ High value of latent heat

3. ✖ High film coefficient

4. ✖ Non-corrosive condensate

Question Number : 83 Question Id : 3330086323 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The number of bubble caps to be used per tray is determined from

Options :

1. ✖ The vapour load

2. ✖ The liquid load

3. ✖ Tray diameter

4. ✔ Allowable gas velocity

Question Number : 84 Question Id : 3330086324 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

In the tray distillation column, flooding determines

Options :

1. ✖ Maximum vapor flow allowed

2. ✔ Maximum pressure allowed

3. ✖ Minimum vapor flow

4.

✖ Minimum pressure allowed

Question Number : 85 Question Id : 3330086325 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Liquid remaining in unit volume of bed after bed is drained is called as

Options :

1. ✖ Final holdup

2. ✖ Total holdup

3. ✔ Static holdup

4. ✖ Dynamic holdup

Question Number : 86 Question Id : 3330086326 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Which is the suitable contacting equipment for gas-liquid operations involving liquids with dispersed solid?

Options :

1. ✖ Packed columns

2. ✖ Bubble columns

3. ✔ Plate columns

4. ✖ Spray columns

Question Number : 87 Question Id : 3330086327 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

If an amount R is paid at the end of every year for 'n' years, then the net present value of the annuity at an interest rate of 'i' is

Options :

1. ✖ $R[\{(1+i)^n - 1\}/i]$

2. ✔ $R[\{(1+i)^n - 1\}/i(1+i)^n]$

3. ✖ $R(1+i)^n$

4. ✖ $R/(1+i)^n$

Question Number : 88 Question Id : 3330086328 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Which of the following is a component of working capital investment?

Options :

1. ✖ Utilities plants

2. ✔ Maintenance and repair inventory

3. ✖ Process equipment

4. ✖ Depreciation

Question Number : 89 Question Id : 3330086329 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Operating profit of a chemical plant is equal to

Options :

1. ✔ Profit before interest and tax

2. ✖ Profit after tax plus depreciation

3. ✖ Net profit and tax

4. ✖ Profit after tax

Question Number : 90 Question Id : 3330086330 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Which of the following methods of depreciation calculations results in book values greater than those obtained with straight line method?

Options :

1. ✖ Multiple straight-line method

2. ✔ Sinking fund method

3. ✖ Declining balance method

4. ✖ Sum of the years digit method

Question Number : 91 Question Id : 3330086331 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Thermal diffusivity of a material (α)is defined as

Options :

1. ✔ $\alpha = \frac{k}{\rho C_p}$

2. ✖ $\alpha = \frac{k}{C_p}$

3. ✖ $\alpha = \frac{kC_p}{\rho}$

4. ✖ $\alpha = \frac{k}{\rho}$

Question Number : 92 Question Id : 3330086332 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The catalyst used in the low-pressure Ziegler process for polyethylene manufacture_____

Options :

1. ✖ Is Nickel

2. ✔ Consists of aluminium triethyl combined with titanium tetrachloride

3. ✖ Consists of aluminium chloride combine with titanium dioxide

4. ✖ Is vanadium pentoxide

Question Number : 93 Question Id : 3330086333 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The major chemical recovered from the block liquor in Kraft Pulp Process is

Options :

1. ✖ Sodium sulphate

2. ✔ Sodium carbonate

3. ✖ Sodium hydroxide

4. ✖ Sodium bicarbonate

Question Number : 94 Question Id : 3330086334 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Each term of the Bernoulli's equation written in the form $\frac{p}{\rho}+\frac{g}{g_c}(Z)+\frac{v^2}{2g_c}=Constant,$ represents the total energy per unit

Options :

1. ✔ Mass

2. ✖ Volume

3. ✖ Specific weight

4. ✖ Specific volume

Question Number : 95 Question Id : 3330086335 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

What is the disadvantage of Solvay process?

Options :

1. ✔ Higher salt consumption

2. ✖ No co-products to dispose

3. ✖ Use of low-grade brine

4. ✖ Less electric power

Question Number : 96 Question Id : 3330086336 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

What is undesirable in urea production?

Options :

1. ✖ Ammonium carbamate formation

2. ✔ Biuret formation

3. ✖ Dehydration of ammonium carbamate

4. ✖ Liquid NH_3

Question Number : 97 Question Id : 3330086337 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Washing soda is

Options :

1. ✖ Na_2CO_3

2. ✖ $Na_2CO_3.H_2O$

3. ✔ $Na_2CO_3.10H_2O$

4. ✖ $NaHCO_3$

Question Number : 98 Question Id : 3330086338 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Tetrafluoroethylene is known as

Options :

1. ✖ Perspex

2. ✖ Nylon-66

3. ✖ Polyester

4. ✔ Teflon

Question Number : 99 Question Id : 3330086339 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Oils and fats are

Options :

1. ✖ Higher alcohols

2. ✔ Esters of higher acids

3. ✖ Alkaloids

4. ✖ Carbohydrates

Question Number : 100 Question Id : 3330086340 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The monometallic catalyst used in the catalytic reforming of naphtha is

Options :

1. ✔ Platinum

2. ✖ Nickel

3. ✖ Molybdenum

4. ✖ Cobalt

Question Number : 101 Question Id : 3330086341 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

What happens in a reversible adiabatic expansion process?

Options :

1. ✖ Heating takes place

2. ✔ Cooling takes place

3. ✖ Pressure remains constant

4. ✖ Temperature remains constant

Question Number : 102 Question Id : 3330086342 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Economy of a multiple effect evaporator is not influenced much by the

Options :

1. ✔ Boiling point elevations

2. ✖ Temperature of the feed

3. ✖ Rate of heat transfer

4. ✖ Ratio of the weight of thin liquor to thick liquor

Question Number : 103 Question Id : 3330086343 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The terminal velocity of a small sphere settling in a viscous fluid varies as the

Options :

1. ✖ First power of its diameter

2. ✖ Inverse square of its diameter

3. ✔ Inverse of the fluid viscosity

4. ✖ Square of the difference in specific weights of solid and fluid

Question Number : 104 Question Id : 3330086344 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Water hammer is caused in steam carrying pipelines, because of

Options :

1. ✔ Partial condensation of steam

2. ✖ Vibration of pipeline

3. ✖ High degree of super heat of steam

4. ✖ Its exposure to torrential rain

Question Number : 105 Question Id : 3330086345 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Floating head heat exchangers are used for the

Options :

1. ✖ Heat transfer between corrosive fluids

2. ✔ Cases where temperature difference between the shell and the tubes is more (>50˚C)

3. ✖ Co-current heat transfer systems

4. ✖ Counter-current heat transfer systems

Question Number : 106 Question Id : 3330086346 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Rate of a chemical reaction is not influenced by the

Options :

1. ✖ Catalyst

2. ✖ Temperature

3. ✖ Reactants concentration

4. ✔ Number of molecules of reactants taking part in a reaction

Question Number : 107 Question Id : 3330086347 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

A batch of material is dried under constant drying conditions. When drying is taking place from all the surfaces, the rate of drying during the constant rate period is

Options :

1. ✖ Directly proportional to the solid thickness

2. ✖ Inversely proportional to the solid thickness

3. ✔ Independent of solid thickness

4. ✖ Directly proportional to the square of solid thickness

Question Number : 108 Question Id : 3330086348 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The hydrodynamic and thermal boundary layers will merge when

Options :

1. ✔ Prandtl number is one

2. ✖ Schmidt number tends to infinity

3. ✖ Nusselt number tends to infinity

4. ✖ Archimedes number is greater than 10,000

Question Number : 109 Question Id : 3330086349 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Find x, y, z and w given that $3\begin{bmatrix} x & y \\ z & w \end{bmatrix} = \begin{bmatrix} x & 5 \\ -1 & 2w \end{bmatrix} + \begin{bmatrix} 6 & x+y \\ z+w & 5 \end{bmatrix}$

Options :

1. ✖ $x = 3, \quad y = 4, \quad z = 3, \quad w = 5$

2. ✖ $x = 3, \quad y = 4, \quad z = 5, \quad w = 2$

3. ✖ $x = 2, \quad y = 4, \quad z = 2, \quad w = 5$

4. ✔ $x = 3, \quad y = 4, \quad z = 2, \quad w = 5$

Question Number : 110 Question Id : 3330086350 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Find the largest eigenvalue of the matrix $\begin{bmatrix} 5 & 4 \\ 1 & 2 \end{bmatrix}$

Options :

1. ✖ 1

2. ✔ 6

3. ✖ 2

4. ✖ 3

Question Number : 111 Question Id : 3330086351 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

$\lim_{x\to 0}(x-\sin x)\left(\frac{1}{x}\right)=$

Options :

1. ✔ 0

2. ✖ 1

3. ✖ 2

4. ✖ 3

Question Number : 112 Question Id : 3330086352 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The mean of a binomial distribution is 5, then its variance is

Options :

1. ✖ > 5

2. ✖ 5

3. ✔ < 5

4. ✖ 25

Question Number : 113 Question Id : 3330086353 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

General solution of $(D^2 - 5D + 6)y = 0$ is $y(x) =$ _____

Options :

1. ✖ $c_1e^{-3x} + c_2e^{2x}$

2. ✖ $c_1e^{3x} + c_2e^{-2x}$

3. ✔ $c_1e^{3x} + c_2e^{2x}$

4. ✖ $c_1e^{-3x} + c_2e^{-2x}$

Question Number : 114 Question Id : 3330086354 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Integrating factor of the Linear Differential Equation $\frac{dy}{dx} + \frac{2y}{x} = x\log x$ is

Options :

1. ✖ x

2.

✔ x^2

3. ✖ x^3

4. ✖ x^4

Question Number : 115 Question Id : 3330086355 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

In the Taylor series expansion of e^x about x = 2, the coefficient of $(x-2)^4$ is

Options :

1. ✖ $\frac{1}{4!}$

2. ✖ $\frac{2^4}{4!}$

3. ✔ $\frac{e^2}{4!}$

4. ✖ $\frac{e^4}{4!}$

Question Number : 116 Question Id : 3330086356 Display Question Number : Yes Is Question

Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The Laurent series of $f(z) = \frac{z}{(z^2+1)(z^2+4)}$, $|z| < 1$

Options :

1. ✔ $\frac{1}{4}z - \frac{5}{16}z^3 + \frac{21}{64}z^5 + \ldots.$

2. ✖ $\frac{1}{2} - \frac{1}{4}z^2 + \frac{5}{16}z^4 + \frac{21}{64}z^6 + \ldots.$

3. ✖ $\frac{1}{2}z - \frac{3}{4}z^3 + \frac{15}{8}z^5 + \ldots.$

4. ✖ $\frac{1}{2} + \frac{1}{2}z^2 + \frac{3}{4}z^4 + \frac{15}{8}z^6 + \ldots.$

Question Number : 117 Question Id : 3330086357 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Let E and F be the events of a sample space S of an experiment, if $P\left(\frac{S}{F}\right) = P\left(\frac{F}{F}\right)$, then P(S/F) is equal to

Options :

1. ✖ 0

2.

✖ -1

3. ✔ 1

4. ✖ 2

Question Number : 118 Question Id : 3330086358 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

If $p = \frac{1}{8}$; $n = 640$; $q = \frac{7}{8}$; then variance Binomial Distribution

Options :

1. ✖ 0.07

2. ✖ 0.7

3. ✖ 7.0

4. ✔ 70.0

Question Number : 119 Question Id : 3330086359 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The function $f(x,y) = x^2 + y^2 - xy - x - y + 5$ has

Options :

1. ✖ Maximum at (1,1)

2. ✖ Saddle point at (1,1)

3. ✔ Minimum at (1,1)

4. ✖ Minimum at (1,2)

Question Number : 120 Question Id : 3330086360 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

From the given data value of $\int_1^2 \frac{1}{x} dx$ using Simpson's $1/3^{rd}$ rule is____

x	1	1.25	1.5	1.75	2.0
f(x)	1	1.25	1.75	1.5	0.5

Options :

1. ✖ 0.06932

2. ✔ 0.6932

3. ✖ 6.932

4. ✖ 0.006932