Telangana State Council 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 4th Aug 2022 Shift 1
Subject Name :	Chemical Engineering
Creation Date :	2022-08-04 14:16:30
Duration :	120
Total Marks :	120
Display Marks:	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

Chemical Engineering

Group Number :	1
Group Id :	34058050
Group Maximum Duration :	0
Group Minimum Duration :	120
Show Attended Group? :	No
Edit Attended Group? :	No
Break time :	0
Group Marks :	120
Is this Group for Examiner? :	No
Examiner permission :	Cant View
Show Progress Bar? :	No

Mathematics

Section Id :	34058092
Section Number :	1
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	10
Number of Questions to be attempted :	10
Section Marks :	10
Enable Mark as Answered Mark for Review and Clear Response :	Yes
Maximum Instruction Time :	0
Sub-Section Number :	1
Sub-Section Id :	34058092
Question Shuffling Allowed :	Yes

Question Number : 1 Question Id : 3405805881 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The vector (–1, –5, 5), (4, 7, k), (–2, 3, 1) are linearly dependent for k =

Options :

34058023521. ✖ 10

34058023522. ✔ 11

34058023523. ✖ -10

34058023524. ✖ -11

Question Number : 2 Question Id : 3405805882 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The number of solutions of the system $x + y - z = -3$, $2x - y + z = 0$, $x - 2y + 2z = 3$ is

Options :

34058023525. ✖ 1

34058023526. ✖ 2

34058023527. ✖ 3

34058023528. ✔ ∞

Question Number : 3 Question Id : 3405805883 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

$$\frac{1}{2\pi i}\int_{|z|=2} \text{cosec } z\, dz =$$

Options :

34058023529. ✔ 1

34058023530. ✖ 2

34058023531. ✖ 3

34058023532. ✖ 4

Question Number : 4 Question Id : 3405805884 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The particular integral of $y'' + y = \cos 2x$ is

Options :

34058023533. ✖ $\frac{1}{3}\cos 2x$

34058023534. ✖ $-\frac{1}{3}\sin 2x$

34058023535. ✔ $-\frac{1}{3}\cos 2x$

34058023536. ✖

$\frac{1}{3}\sin 2x$

Question Number : 5 Question Id : 3405805885 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The solution curve of $y'' - y = 0, y(0) = -1, y'(0) = 1$ passing through the point $(0, 1)$ is

Options :

34058023537. ✖ $y = e^{x}$

34058023538. ✖ $y = -e^{-2x}$

34058023539. ✖ $y = e^{-2x}$

34058023540. ✔ $y = -e^{-x}$

Question Number : 6 Question Id : 3405805886 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

If $\text{div}(x + ye^{x}, x\cos y^{2})$ is $axy\sin(y^{2}) + e^{x}y + 1$ then $a =$

Options :

34058023541. ✖ 2

34058023542. ✔ -2

34058023543. ✖ -1

34058023544. ✖ 0

Question Number : 7 Question Id : 3405805887 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

If $\int_1^2\int_1^2 (y\cos x + xy)\, dy\, dx = k\,(2\sin(2) - 2\sin(1) + 3)$ then $k =$

Options :

34058023545. ✖ 1

34058023546. ✖ $\frac{1}{2}$

34058023547. ✔ $\frac{3}{4}$

34058023548. ✖ $-\frac{1}{2}$

Question Number : 8 Question Id : 3405805888 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

If a random variable X has the following probability distribution, then its mean is

x	1	4	9	16
P(X=x)	c	2c	3c	4c

Options :

34058023549. ✖ 5

34058023550. ✔ 10

34058023551. ✖ 15

34058023552. ✖ 20

Question Number : 9 Question Id : 3405805889 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Two numbers are chosen at random from the set {1, 2, 3, 4, 5, 6}. Then the probability that the numbers result in consecutive integers, is

Options :

34058023553. ✔ $\frac{5}{36}$

34058023554. ✖ $\frac{10}{36}$

34058023555. ✖ $\frac{15}{36}$

34058023556. ✖ $\frac{16}{36}$

Question Number : 10 Question Id : 3405805890 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Solving the equation $x^4 - 2 = 0$ using the secant method, then from the iteration formula we have

$(x_n - x_{n-1})\left(x_{n-1}^4 - x_{n-2}^4\right) = (x_{n-2} - x_{n-1})k_n$, where $k_n =$

Options :

34058023557. ✔ $x_{n-1}^4 - 2$

34058023558. ✖ $2 - x_{n-1}^4$

34058023559. ✖ $x_{n-2}^4 - 2$

34058023560. ✖ $2 - x_{n-2}^4$

Chemical Engineering

Section Id :	34058093
Section Number :	2
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	110
Number of Questions to be attempted :	110
Section Marks :	110

Enable Mark as Answered Mark for Review and Clear Response :	Yes
Maximum Instruction Time :	0
Sub-Section Number :	1
Sub-Section Id :	34058093
Question Shuffling Allowed :	Yes

Question Number : 11 Question Id : 3405805891 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which of the following remains constant in the steady state system

Options :

34058023561. ✔ Mass

34058023562. ✖ Energy

34058023563. ✖ Momentum

34058023564. ✖ Density

Question Number : 12 Question Id : 3405805892 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

In a 2-stage process $Q_1 = 5$ J, $Q_2 = 10$ J, if the change in internal energy in first stage is 10 J and the total change in internal energy is 20 J, what is the work to be done in second stage

Options :

34058023565. ✔ 0

34058023566. ✖ 5J

34058023567. ✖ 10J

34058023568. ✖ -5J

Question Number : 13 Question Id : 3405805893 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

In a chemical process of two reactants A (200 kg) and B (200 kg) is used as reactants. If conversion is 50% and A and B reacts in equal proportion then calculate the weight of the product formed

Options :

34058023569. ✖ 150 kg

34058023570. ✔ 200 kg

34058023571. ✖ 250 kg

34058023572. ✖ 400 kg

Question Number : 14 Question Id : 3405805894 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which of the following can change if only the catalyst is changed for a reaction system

Options :

34058023573. ✖ Enthalpy of reaction

34058023574. ✔ Activation energy

34058023575. ✖ Free energy of the reaction

34058023576. ✖ Equilibrium constant

Question Number : 15 Question Id : 3405805895 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The largest unit of Energy is

Options :

34058023577. ✖ Electron volt

34058023578. ✖ Joule

34058023579. ✔ Calorie

34058023580. ✖ Erg

Question Number : 16 Question Id : 3405805896 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The Vander Waals equation of state is $(p+\frac{a}{v2})$ (v−b) =RT, where p is pressure, v is specific volume, T is temperature and R is characteristic gas constant. The SI unit of a is

Options :

34058023581. ✖ J/kg. K

34058023582. ✖ m^3/kg

34058023583. ✔ m^5/kgs^2

34058023584. ✖ Pa/kg

Question Number : 17 Question Id : 3405805897 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

For an ideal gas with constant properties undergoing a quasi-static process, which one of the following represents the change of entropy (Δs) from state 1 to 2

Options :

34058023585. ✔ $\Delta s = C_P \ln\left(\frac{T2}{T1}\right) - R \ln\left(\frac{P2}{P1}\right)$

34058023586. ✖ $\Delta s = C_V \ln\left(\frac{T2}{T1}\right) - Cp \ln\left(\frac{V2}{V1}\right)$

34058023587. ✖ $\Delta s = C_P \ln\left(\frac{T2}{T1}\right) - C_V \ln\left(\frac{P2}{P1}\right)$

34058023588. ✖ $\Delta s = C_V \ln\left(\frac{T2}{T1}\right) + R \ln\left(\frac{V1}{V2}\right)$

Question Number : 18 Question Id : 3405805898 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which combination of the following statements is correct

P: A gas cools upon expansion only when its Joule-Thomson coefficient is positive in the temperature range of expansion.

Q: For a system undergoing a process, its entropy remains constant only when the process is reversible.

R: The work done by a closed system in an adiabatic process is a point function.

S: A liquid expands upon freezing when the slope of its fusion curve on Pressure-Temperature diagram is negative.

Options :

34058023589. ✔ P, R and S

34058023590. ✖ P and Q

34058023591. ✖ Q, R and S

34058023592. ✖ P, Q, and R

Question Number : 19 Question Id : 3405805899 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time

: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

A balloon containing an ideal gas is initially kept in an evacuated and insulated room. The balloon ruptures and the gas fill up the entire room. Which one of the following statements is TRUE at the end of above process

Options :

34058023593. ✖ The internal energy of the gas decreases from its initial value, but the enthalpy remains constant

34058023594. ✖ The internal energy of the gas increases from its initial value, but the enthalpy remains constant

34058023595. ✖ Both internal energy and enthalpy of the gas increase

34058023596. ✔ Both internal energy and enthalpy of the gas remain constant

Question Number : 20 Question Id : 3405805900 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The number of degrees of freedom for a mixture of ice and water (liquid) are

Options :

34058023597. ✔ 2

34058023598. ✖ 3

34058023599. ✖ 1

34058023600. ✖ 0

Question Number : 21 Question Id : 3405805901 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Ideal gas law is applicable at

Options :

34058023601. ✖ Low T, low P

34058023602. ✖ High T, high P

34058023603. ✖ Low T, high P

34058023604. ✔ High T, low P

Question Number : 22 Question Id : 3405805902 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

At equilibrium the total Gibb's free energy for all phases is

Options :

34058023605. ✔ Minimum

34058023606. ✖ Maximum

34058023607. ✖ Infinity

34058023608. ✖ Zero

Question Number : 23 Question Id : 3405805903 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

What is the equilibrium constant for a reaction that has a value of $\Delta G^{o} = -41.8$ kJ at 100°C

Options :

34058023609. ✖ 1.01

34058023610. ✔ 7.1×10^{5}

34058023611. ✖ -5.87

34058023612. ✖ 1.4×10^{-6}

Question Number : 24 Question Id : 3405805904 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Rain drops are spherical because of

Options :

34058023613. ✖ Viscosity

34058023614. ✖ Air resistance

34058023615. ✔ Surface tension forces

34058023616. ✖ Atmospheric pressure

Question Number : 25 Question Id : 3405805905 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

In a stream line steady flow, two points A and B on a stream line are 1 m apart and the flow velocity varies uniformly from 2 m/s to 5 m/s. The acceleration of fluid at B is

Options :

34058023617. ✖ $3\ m/s^2$

34058023618. ✖ $6\ m/s^2$

34058023619. ✖ $9\ m/s^2$

34058023620. ✔ $15\ m/s^2$

Question Number : 26 Question Id : 3405805906 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which of the following is a shear-thinning fluid

Options :

34058023621. ✖ Bingham plastic

34058023622. ✖ Rheopectic

34058023623. ✖ Dilatant

34058023624. ✔ Pseudoplastic

Question Number : 27 Question Id : 3405805907 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which one of the dimensionless numbers identifies the compressibility of effect of fluid

Options :

34058023625. ✖ Euler number

34058023626. ✖ Froude number

34058023627. ✔ Mach number

34058023628. ✖ Weber number

Question Number : 28 Question Id : 3405805908 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

If the velocity of pressure wave generated is 2 m/s, the value of critical time is

Options :

34058023629. ✖ 2s

34058023630. ✖ 4s

34058023631. ✔ 1s

34058023632. ✖ 0.5s

Question Number : 29 Question Id : 3405805909 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Two pipe lines of equal length and diameters of 10 cm and 40 cm are connected in parallel between two reservoirs. If friction factor f is same for both the pipes, the ratio of the discharges in the larger to the smaller pipe is

Options :

34058023633. ✖ 4

34058023634. ✖ 16

34058023635. ✔ 32

34058023636. ✖ 64

Question Number : 30 Question Id : 3405805910 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The boundary layer is formed as the flowing fluid comes in contact with the solid surface, because of the action of

Options :

34058023637. ✖ Surface tension

34058023638. ✖ Forces of adhesion

34058023639. ✖ Force of gravity acting on the fluid

34058023640. ✔ Viscosity of the fluid

Question Number : 31 Question Id : 3405805911 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The pressure drop in fluidized bed on fluidization _____ with increasing flow rate

Options :

34058023641. ✔ Remains same

34058023642. ✖ Linearly increases

34058023643. ✖ Linearly decreases

34058023644. ✖ Remains zero

Question Number : 32 Question Id : 3405805912 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

In _____ method, size separation is based on low density of fine particles and high density of the coarse particles

Options :

34058023645. ✖ Air separator

34058023646. ✖ Seiving

34058023647. ✖ Cyclone separator

34058023648. ✔ Elutriation

Question Number : 33 Question Id : 3405805913 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

"Number of sieves" indicates

Options :

34058023649. ✖ Distance between the wires

34058023650. ✖ Specific diameter of the wire

34058023651. ✔ Number of meshes

34058023652. ✖ Area of the meshes

Question Number : 34 Question Id : 3405805914 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which method cannot be used to determine the particle size

Options :

34058023653. ✔ Sieve analysis

34058023654. ✖ Optical microscopy

34058023655. ✖ SEM

34058023656. ✖ TEM

Question Number : 35 Question Id : 3405805915 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The particle size distribution curves are extremely useful for the classification of

Options :

34058023657. ✖ Fine grained soils

34058023658. ✔ Coarse grained soils

34058023659. ✖ Both coarse grained and fine grained soils

34058023660. ✖ Silts and clays

Question Number : 36 Question Id : 3405805916 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

In which type of settling, settling of particles takes place by the contact of impurities with each other present in wastewater

Options :

34058023661. ✖ Flocculent settling

34058023662. ✖ Hindered settling

34058023663. ✔ Compression settling

34058023664. ✖ Discrete settling

Question Number : 37 Question Id : 3405805917 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Pick out the correct statement

Options :

34058023665. ✖ Human blood is a Newtonian fluid

34058023666. ✔ A Newtonian fluid obeys Newton's law of cooling

34058023667. ✖ For a non-Newtonian fluid, a straight line passes through the origin in a plot between shear stress and shear gradient

34058023668. ✖ Thin lubricating oil is an example of a non-Newtonian fluid

Question Number : 38 Question Id : 3405805918 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time

: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Operating principle of cyclone separator is based on the action of _____ dust particles

Options :

34058023669. ✖ Diffusion of

34058023670. ✔ Centrifugal force on

34058023671. ✖ Gravitational force on

34058023672. ✖ Electrostatic force on

Question Number : 39 Question Id : 3405805919 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Power consumption of agitators is a function of

Options :

34058023673. ✖ Impeller used

34058023674. ✖ Volumetric flow rate

34058023675. ✔ Volumetric flow rate and Kinetic Energy

34058023676. ✖ Kinetic energy

Question Number : 40 Question Id : 3405805920 Question Type : MCQ Option Shuffling : Yes

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

Correct Marks : 1 Wrong Marks : 0

The principle of mixing is _____

Options :

34058023677. ✔ Shear force

34058023678. ✖ Perpendicular force

34058023679. ✖ Gravitational force

34058023680. ✖ Centrifugal force

Question Number : 41 Question Id : 3405805921 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which of the following is not categorized as a "mechanical operation"

Options :

34058023681. ✖ Agitation

34058023682. ✖ Filtration

34058023683. ✖ Size enlargement

34058023684. ✔ Humidification

Question Number : 42 Question Id : 3405805922 Question Type : MCQ Option Shuffling : Yes

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

Correct Marks : 1 Wrong Marks : 0

For grinding of cereals, grains, spices, pigments, saw dust, cork etc., the most extensively used size reduction equipment is a

Options :

34058023685. ✔ Buhrstone mill

34058023686. ✖ Ball mill

34058023687. ✖ Crushing rolls

34058023688. ✖ Hammer mill

Question Number : 43 Question Id : 3405805923 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Diamond is an example of _____

Options :

34058023689. ✖ Solid with hydrogen bonding

34058023690. ✖ Electrovalent solid

34058023691. ✔ Covalent solid

34058023692. ✖ Glass

Question Number : 44 Question Id : 3405805924 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Solid carbon dioxide is an example of_____

Options :

34058023693. ✖ Metallic crystal

34058023694. ✖ Covalent crystal

34058023695. ✖ Ionic crystal

34058023696. ✔ Molecular crystal

Question Number : 45 Question Id : 3405805925 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

With the increase in temperature, the total emissivity of conductors

Options :

34058023697. ✔ Increases

34058023698. ✖ Decreases

34058023699. ✖ Remains same

34058023700. ✖ Decreases linearly

Question Number : 46 Question Id : 3405805926 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Heat transfer by conduction in the turbulent core of a fluid flowing through a heated pipe is negligible, if the value of Prandtl number is

Options :

34058023701. ✖ 0.2

34058023702. ✖ 0.4

34058023703. ✔ 0.6

34058023704. ✖ 0.8

Question Number : 47 Question Id : 3405805927 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

In natural convection heat transfer, the correlating parameter is the

Options :

34058023705. ✖ Graetz number

34058023706. ✖ Eckert number

34058023707. ✔ Grashoff number

34058023708. ✖ Bond number

Question Number : 48 Question Id : 3405805928 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

In Fourier's law, the proportionality constant is called the

Options :

34058023709. ✖ Heat transfer co-efficient

34058023710. ✖ Thermal diffusivity

34058023711. ✔ Thermal conductivity

34058023712. ✖ Stefan-Boltzman constant

Question Number : 49 Question Id : 3405805929 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which of the following has maximum thermal conductivity

Options :

34058023713. ✔ Iron

34058023714. ✖ Coal

34058023715. ✖ Nitrogen

34058023716. ✖ Tar

Question Number : 50 Question Id : 3405805930 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

In a heat exchanger, it is observed that $\Delta T_1 = \Delta T_2$ where ΔT_1 is the temperature difference between the two single phase fluid streams at one end and ΔT_2 is the temperature difference at the other end. This heat exchanger is

Options :

34058023717. ✖ A condenser

34058023718. ✖ An evaporator

34058023719. ✔ A counter flow heat exchanger

34058023720. ✖ A parallel flow heat exchanger

Question Number : 51 Question Id : 3405805931 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Grashof number signifies the ratio of

Options :

34058023721. ✖ Inertia force to viscous force

34058023722. ✔ Buoyancy force to viscous force

34058023723. ✖ Buoyancy force to inertia force

34058023724. ✖ Inertia force to surface tension force

Question Number : 52 Question Id : 3405805932 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Ratio of inertial to viscous forces is known as_____

Options :

34058023725. ✖ Stanton number

34058023726. ✖ Prandtl number

34058023727. ✖ Rayleigh umber

34058023728. ✔ Reynolds number

Question Number : 53 Question Id : 3405805933 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Heat transfer takes place according to which law

Options :

34058023729. ✖ Newton's law of cooling

34058023730. ✔ Second law of thermodynamics

34058023731. ✖ Newton's second law of motion

34058023732. ✖ First law of thermodynamics

Question Number : 54 Question Id : 3405805934 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

If the Reynold's number is 24000 and the Prandtl number is 4.70. Then what is the value of Nusselt number

Options :

34058023733. ✔ 164.8

34058023734. ✖ 164.0

34058023735. ✖ 163.8

34058023736. ✖ 165.2

Question Number : 55 Question Id : 3405805935 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The modes of heat transfer in evaporators are_____

Options :

34058023737. ✔ Conduction and convection

34058023738. ✖ Conduction and radiation

34058023739. ✖ Radiation and convection

34058023740. ✖ Conduction, convection and radiation

Question Number : 56 Question Id : 3405805936 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

What are the factors to be considered for designing a heat exchanger

Options :

34058023741. ✖ Thermal analysis

34058023742. ✖ Hydraulic calculations

34058023743. ✖ Pressure calculations

34058023744. ✔ Thermal analysis and hydraulic calculations

Question Number : 57 Question Id : 3405805937 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Two balls of same material and finish have their diameters in the ratio of 2: 1 and both are heated to same temperature and allowed to cool by radiation. Rate of cooling by big ball as compared to smaller one will be in the ratio of

Options :

34058023745. ✖ 1:1

34058023746. ✖ 2:1

34058023747. ✔ 1:2

34058023748. ✖ 4:1

Question Number : 58 Question Id : 3405805938 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

According to Stefan-Boltzman law, the total radiation from a black body per second per unit area is directly proportional to the

Options :

34058023749. ✖ Absolute temperature

34058023750. ✖ Square of the absolute temperature

34058023751. ✖ Cube of the absolute temperature

34058023752. ✔ Fourth power of the absolute temperature

Question Number : 59 Question Id : 3405805939 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

For what kind of mixtures $D_{AB} = D_{BA}$ holds

Options :

34058023753. ✔ Ideal

34058023754. ✖ Real

34058023755. ✖ For both real and ideal

34058023756. ✖ This relation is never true

Question Number : 60 Question Id : 3405805940 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Fick's law is given by the formula

Options :

34058023757. ✔ $N_b = -D_{bc} d C_b/d x$

34058023758. ✖ $N_b = -2 D_{bc} d C_b/d x$

34058023759. ✖ $N_b = -3 D_{bc} d C_b/d x$

34058023760. ✖ $N_b = -4 D_{bc} d C_b/d x$

Question Number : 61 Question Id : 3405805941 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The dimension of diffusion coefficient is given by

Options :

34058023761. ✖ $M L T^{-2}$

34058023762. ✔ $L^2 T^{-1}$

34058023763. ✖ $L T^{-1}$

34058023764. ✖ $M L^{-2} T$

Question Number : 62 Question Id : 3405805942 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

In industries titanium is hardened through diffusion of carbon. The concentration of carbon at 1mm into the surface of the titanium slab is 0.25kg/m^3 and at 3mm the concentration is 0.68kg/m^3. The rate at which the carbon is entering into its surface is 1.27×10^{-9} kg/m^2.s. Calculate the value of diffusion coefficient of carbon

Options :

34058023765. ✔ 5.91×10^{-12}

34058023766. ✖ 5.91×10^{-10}

34058023767. ✖ 5.91×10^{-11}

34058023768. ✖ 5.91×10^{-13}

Question Number : 63 Question Id : 3405805943 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The moisture inside the substance is known as _____

Options :

34058023769. ✔ Bound moisture

34058023770. ✖ Unbound moisture

34058023771. ✖ Equilibrium moisture

34058023772. ✖ Free moisture

Question Number : 64 Question Id : 3405805944 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Langmuir equation is associated with

Options :

34058023773. ✖ Leaching

34058023774. ✔ Adsorption

34058023775. ✖ Steam distillation

34058023776. ✖ Multicomponent absorption

Question Number : 65 Question Id : 3405805945 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

How will you separate o-Xylene and m-Xylene products of the same compounds

Options :

34058023777. ✔ Crystallization

34058023778. ✖ Distillation

34058023779. ✖ Polymer membrane

34058023780. ✖ Electrophoresis

Question Number : 66 Question Id : 3405805946 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

A removal of one log unit corresponds with

Options :

34058023781. ✖ 10%

34058023782. ✖ 50%

34058023783. ✔ 90%

34058023784. ✖ 99%

Question Number : 67 Question Id : 3405805947 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Membrane filtration can be divided into two categories based on

Options :

34058023785. ✖ The length of the membrane

34058023786. ✖ The diameter of the membrane

34058023787. ✖ The amount of membranes

34058023788. ✔ The pore sizes in the membrane

Question Number : 68 Question Id : 3405805948 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The minimum energy required by the reactants to affect the product formation is termed as

Options :

34058023789. ✖ Threshold energy

34058023790. ✖ Potential energy

34058023791. ✔ Activation energy

34058023792. ✖ Kinetic energy

Question Number : 69 Question Id : 3405805949 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The decomposition of phosphine (PH_3) on tungsten at low pressure is a first order reaction. It is because the

Options :

34058023793. ✖ Rate is proportional to the surface coverage

34058023794. ✖ Rate is inversely proportional to the surface coverage

34058023795. ✔ Rate is independent of the surface coverage

34058023796. ✖ Rate of decomposition is slow

Question Number : 70 Question Id : 3405805950 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The addition of a catalyst during a chemical reaction alters which of the following quantities

Options :

34058023797. ✖ Enthalpy

34058023798. ✔ Activation energy

34058023799. ✖ Entropy

34058023800. ✖ Internal energy

Question Number : 71 Question Id : 3405805951 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The rate constant of a reaction is 5.8×10^{-2} s^{-1}. The order of the reaction is

Options :

34058023801. ✔ First order

34058023802. ✖ Zero order

34058023803. ✖ Second order

34058023804. ✖ Third order

Question Number : 72 Question Id : 3405805952 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Pick out the correct statement

Options :

34058023805. ✖ A chemical reaction accompanied by absorption of heat is called an exothermic reaction

34058023806. ✖ A chemical reaction accompanied by an evolution of heat is called an endothermic reaction

34058023807. ✔ The rate constant for a first order reaction does not change on changing the concentration units

34058023808. ✖ Chemical equilibrium state is dynamic in nature

Question Number : 73 Question Id : 3405805953 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which of the following statements regarding the use of catalysts is false

Options :

34058023809. ✖ Catalysts lower the activation energy for a reaction

34058023810. ✖ Catalysts increase the proportion of molecules that possess sufficient energy to clear the activation energy barrier

34058023811. ✔ Catalysts increase the number of reactions that can happen spontaneously

34058023812. ✖ Catalysts provide an alternative reaction pathway from reactant to product

Question Number : 74 Question Id : 3405805954 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The activity of a catalyst at a time t = 0 is ____

Options :

34058023813. ✖ Negative

34058023814. ✖ Zero

34058023815. ✔ Unity

34058023816. ✖ Infinity

Question Number : 75 Question Id : 3405805955 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

A reaction of first order takes 10 minutes to achieve 50% conversion. The conversion achieved after 20 minutes is ____

Options :

34058023817. ✖ 0.5

34058023818. ✔ 0.75

34058023819. ✖ 0.87

34058023820. ✖ 0.9

Question Number : 76 Question Id : 3405805956 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The rate of a homogeneous reaction is a function of

Options :

34058023821. ✔ Temperature, pressure, and composition

34058023822. ✖ Temperature and composition only

34058023823. ✖ Temperature and pressure only

34058023824. ✖ Pressure and composition only

Question Number : 77 Question Id : 3405805957 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Half-life period of decomposition of a liquid '*A*' by irreversible first-order reaction is 12 minutes. The time required for 75% conversion of '*A*' is _____ minutes

Options :

34058023825. ✖ 12

34058023826. ✖ 6

34058023827. ✖ 18

34058023828. ✔ 24

Question Number : 78 Question Id : 3405805958 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The standard for long-distance analog signal transmission in process control industry is

Options :

34058023829. ✖ 4-20 mV

34058023830. ✖ 0-20 mA

34058023831. ✔ 4-20 mA

34058023832. ✖ 0-5 V

Question Number : 79 Question Id : 3405805959 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Smallest change which a sensor can detect is _____

Options :

34058023833. ✔ Resolution

34058023834. ✖ Accuracy

34058023835. ✖ Precision

34058023836. ✖ Scale

Question Number : 80 Question Id : 3405805960 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which transducer is known as a 'self-generating transducer'

Options :

34058023837. ✔ Active transducer

34058023838. ✖ Passive transducer

34058023839. ✖ Secondary transducer

34058023840. ✖ Analog transducer

Question Number : 81 Question Id : 3405805961 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

A system has the transfer function $\frac{1-s}{1+s}$. It is a

Options :

34058023841. ✔ Non-minimum phase system

34058023842. ✖ Minimum phase system

34058023843. ✖ Low pass system

34058023844. ✖ Second order system

Question Number : 82 Question Id : 3405805962 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The transfer function does NOT contain which of the following types of terms

Options :

34058023845. ✔ Simple conjugate poles

34058023846. ✖ Real poles

34058023847. ✖ Complex conjugate zeros

34058023848. ✖ Poles or zeros at origin

Question Number : 83 Question Id : 3405805963 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

What will be the controller output for PD controller at t = 2s, if the error begins to change from 0 at the rate of 1.2% /s? The given parameters are Po = 50%, $K_p = 4$, and $K_D = 0.4$

Options :

34058023849. ✖ 51.52%

34058023850. ✖ 51.92%

34058023851. ✔ 61.52%

34058023852. ✖ 61.92%

Question Number : 84 Question Id : 3405805964 Question Type : MCQ Option Shuffling : Yes

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

Correct Marks : 1 Wrong Marks : 0

PID controllers are tuned on the frequency response of the closed - loop system by

Options :

34058023853. ✔ Using the open-loop gain corresponding to marginal stability

34058023854. ✖ Using the maximum amplitude of response

34058023855. ✖ Using maximum value of phase

34058023856. ✖ Using minimum value of phase

Question Number : 85 Question Id : 3405805965 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Lag-lead compensation is a

Options :

34058023857. ✖ Increases bandwidth

34058023858. ✖ Attenuation

34058023859. ✖ Increases damping factor

34058023860. ✔ Second order

Question Number : 86 Question Id : 3405805966 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The Bode diagram describes

Options :

34058023861. ✔ Gain and phase shift through the usable frequency range

34058023862. ✖ The system's linearity

34058023863. ✖ The reaction to a step change

34058023864. ✖ The recovery curve that will result from a load change

Question Number : 87 Question Id : 3405805967 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

If a closed-loop control system is adjusted to produce a 0.25 damping ratio when subjected to a step change, the system gain is

Options :

34058023865. ✖ 0.1

34058023866. ✖ 0.25

34058023867. ✔ 0.5

34058023868. ✖ 1.0

Question Number : 88 Question Id : 3405805968 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The most dramatic application of feed forward techniques has occurred in their application to

Options :

34058023869. ✖ Heat exchangers

34058023870. ✖ Level processes

34058023871. ✖ Flow processes

34058023872. ✔ Distillation columns

Question Number : 89 Question Id : 3405805969 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Pick out the correct statement

Options :

34058023873. ✖ Jet engine can work, where there is no atmosphere

34058023874. ✖ Rocket engines cannot work, where there is no atmosphere

34058023875. ✔ Rocket engines carry oxygen required for the combustion in the form of oxidiser

34058023876. ✖ Jet engines also carry oxidiser

Question Number : 90 Question Id : 3405805970 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

PID controller is also known as

Options :

34058023877. ✔ Three term controller

34058023878. ✖ Proportional controller

34058023879. ✖ Two term controller

34058023880. ✖ Four term controller

Question Number : 91 Question Id : 3405805971 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Proportional band of a controller is expressed as

Options :

34058023881. ✖ Gain

34058023882. ✖ Ratio

34058023883. ✔ Percentage

34058023884. ✖ Range of control variables

Question Number : 92 Question Id : 3405805972 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

A sale contract signed by a chemical manufacture is expected to generate a net cash flow of Rs 4.00,000 per year at the end of each year for a period of three years. The applicable discount rate is 15%. The net present worth of the total cash flow is

Options :

34058023885. ✖ Rs. 106700

34058023886. ✔ Rs. 913290

34058023887. ✖ Rs. 165600

34058023888. ✖ Rs. 903290

Question Number : 93 Question Id : 3405805973 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which of the following is a component of working capital investment

Options :

34058023889. ✖ Utilities plants

34058023890. ✔ Maintenance and repair inventory

34058023891. ✖ Process equipment

34058023892. ✖ Depreciation

Question Number : 94 Question Id : 3405805974 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

For a typical project, the cumulative cash flow is zero at the

Options :

34058023893. ✖ End of the project life

34058023894. ✔ Break-even point

34058023895. ✖ Start-up

34058023896. ✖ End of the design stage

Question Number : 95 Question Id : 3405805975 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

A periodic type heat exchanger is known as _____

Options :

34058023897. ✖ Direct contact heat exchanger

34058023898. ✖ Indirect contact heat exchanger

34058023899. ✖ Recuperator

34058023900. ✔ Regenerator

Question Number : 96 Question Id : 3405805976 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which of the following is not a typical cash flow related to equipment purchase and replacement decisions

Options :

34058023901. ✖ Increased operating costs

34058023902. ✖ Overhaul of equipment

34058023903. ✖ Salvage value of equipment when project is complete

34058023904. ✔ Depreciation expense

Question Number : 97 Question Id : 3405805977 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which of the following is a non-cash expense

Options :

34058023905. ✔ Depreciation

34058023906. ✖ Patent right

34058023907. ✖ Copyright

34058023908. ✖ Royalty

Question Number : 98 Question Id : 3405805978 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which method of depreciation is suggested for coal mines

Options :

34058023909. ✖ Diminishing balance

34058023910. ✖ Fixed instalment method

34058023911. ✖ Sum of year's digit method

34058023912. ✔ Depletion method

Question Number : 99 Question Id : 3405805979 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The cash flows method, utilized by the internal rate of return and net present value method are

Options :

34058023913. ✖ Future cash flows

34058023914. ✖ Lean cash flows

34058023915. ✔ Discounted cash flows

34058023916. ✖ Vertical cash flows

Question Number : 100 Question Id : 3405805980 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The market risk premium is 8% and the risk-free return is 7%, then the market required return would be

Options :

34058023917. ✔ 0.15

34058023918. ✖ 0.01

34058023919. ✖ 56

34058023920. ✖ 0.01142

Question Number : 101 Question Id : 3405805981 Question Type : MCQ Option Shuffling : Yes

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

Correct Marks : 1 Wrong Marks : 0

Which of the following relationship is not correct is case of a chemical process plant

Options :

34058023921. ✖ Manufacturing cost = direct product cost + fixed charges + plant overhead costs

34058023922. ✖ General expenses = administrative expenses + distribution & marketing expenses

34058023923. ✖ Total product cost = manufacturing cost + general expenses

34058023924. ✔ Total product cost = direct production cost + plant overhead cost

Question Number : 102 Question Id : 3405805982 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

A machine has an initial value of Rs. 5000, service life of 5 years and final salvage value of Rs. 1000. The annual depreciation cost by straight line method is Rs.

Options :

34058023925. ✖ 300

34058023926. ✖ 600

34058023927. ✔ 800

34058023928. ✖ 1000

Question Number : 103 Question Id : 3405805983 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The total investment in a project is Rs. 10 lakhs and the annual profit is 1.5 lakhs. If the project life is 10 years, then the simple rate of return on investment is

Options :

34058023929. ✖ 15%

34058023930. ✖ 10%

34058023931. ✔ 1.5%

34058023932. ✖ 150%

Question Number : 104 Question Id : 3405805984 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Effluent treatment cost in a chemical plant is categorised as the _____cost

Options :

34058023933. ✖ Fixed

34058023934. ✔ Utilities

34058023935. ✖ Overhead

34058023936. ✖ Capital

Question Number : 105 Question Id : 3405805985 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

An investment of Rs. 100 lakhs are to be made for construction of a plant, which will take two years to start production. The annual profit from the operation of the plant is Rs. 20 lakhs. What will be the payback time

Options :

34058023937. ✔ 5 years

34058023938. ✖ 7 years

34058023939. ✖ 10 years

34058023940. ✖ 12 years

Question Number : 106 Question Id : 3405805986 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Liquid ammonia is not used as such a fertiliser in tropical countries like India, because

Options :

34058023941. ✖ Its N_2 content is very low

34058023942. ✖ It is very costly.

34058023943. ✔ It will evaporate on spraying

34058023944. ✖ It is not available

Question Number : 107 Question Id : 3405805987 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which of the following can be used as an explosive and a fertilizer

Options :

34058023945. ✖ Ammonium Carbamate

34058023946. ✖ Urea

34058023947. ✖ Ammonium Chloride

34058023948. ✔ Ammonium Nitrate

Question Number : 108 Question Id : 3405805988 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The three major components that are necessary in a fertilizer are

Options :

34058023949. ✖ Na, K, S

34058023950. ✖ N, P, S

34058023951. ✖ N, Cl, K

34058023952. ✔ N, P, K

Question Number : 109 Question Id : 3405805989 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Urea is represented as

Options :

34058023953. ✔ $NH_2.CO.NH_2$

34058023954. ✖ $NH_3.CO.CH_3$

34058023955. ✖ $NH.CO_2.NH$

34058023956. ✖ $NH_3.CO_2.NH_3$

Question Number : 110 Question Id : 3405805990 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which is the economical process for manufacture of phosphoric acid in India

Options :

34058023957. ✖ Wet process by H_2SO_4 leaching

34058023958. ✔ Wet process by HCl leaching

34058023959. ✖ Electric furnace processes

34058023960. ✖ Blast furnace process

Question Number : 111 Question Id : 3405805991 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The basic raw materials needed for manufacture of sulphuric acid are

Options :

34058023961. ✔ Sulphur and pyrites

34058023962. ✖ Oxygen

34058023963. ✖ Hydrogen

34058023964. ✖ Nitrogen

Question Number : 112 Question Id : 3405805992 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

_____ is not a major industrial chemical produced by chloro-alkali industry

Options :

34058023965. ✖ Soda ash

34058023966. ✖ Caustic soda

34058023967. ✖ Chlorine

34058023968. ✔ Ammonium carbonate

Question Number : 113 Question Id : 3405805993 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Double Contact Double Absorption (DCDA) process is the most recent process for the manufacture of

Options :

34058023969. ✖ Nitric acid

34058023970. ✔ Sulphuric acid

34058023971. ✖ Ammonium sulphate

34058023972. ✖ Hydrochloric acid

Question Number : 114 Question Id : 3405805994 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

India has no elemental Sulphur deposits that can be economically exploited. In India, which one of the following industries produces elemental Sulphur as a byproduct

Options :

34058023973. ✖ Coal carbonization plants

34058023974. ✔ Petroleum refineries

34058023975. ✖ Paper and pulp industries

34058023976. ✖ Iron and steel making plants

Question Number : 115 Question Id : 3405805995 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

One of the steps during refining of cane sugar consists of addition of hydrated lime to the sugar syrup followed by carbonation of the resulting solution. The purpose of this step is to

Options :

34058023977. ✔ Adjust the pH of the syrup

34058023978. ✖ Remove the coloring matter from the syrup

34058023979. ✖ Reduce the viscosity of the syrup

34058023980. ✖ Improve the rate of crystallization of sugar

Question Number : 116 Question Id : 3405805996 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which of the following is not employed in the commercial production of linear polyvinyl chloride

Options :

34058023981. ✖ Emulsion polymerization

34058023982. ✖ Suspension polymerization

34058023983. ✔ Addition polymerization

34058023984. ✖ Condensation polymerization

Question Number : 117 Question Id : 3405805997 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The average boiling point of aviation turbine fuel is closest to that of

Options :

34058023985. ✖ Lubricating oils

34058023986. ✖ LPG

34058023987. ✖ Diesel

34058023988. ✔ Kerosene

Question Number : 118 Question Id : 3405805998 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which one of the following sequences is arranged according to increasing calorific value

Options :

34058023989. ✖ Producer gas, Natural gas, Water gas

34058023990. ✖ Natural gas, Producer gas, Water gas

34058023991. ✔ Producer gas, Water gas, Natural gas

34058023992. ✖ Water gas, Natural gas, Producer gas

Question Number : 119 Question Id : 3405805999 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Hydrotreating is used for

Options :

34058023993. ✖ Removal of water from crude oil

34058023994. ✖ Treatment of crude oil with water

34058023995. ✖ Improving octane number of gasoline

34058023996. ✔ Removal of sulphuric and nitrogen from petroleum fractions

Question Number : 120 Question Id : 3405806000 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The molecular formula of the predominant chemical compound in commercial sugar is

Options :

34058023997. ✔ $C_{12}H_{22}O_{11}$

34058023998. ✖ $C_{12}H_{24}O_{12}$

34058023999. ✖ $C_6H_{10}O_5$

34058024000. ✖ $C_6H_{12}O_6$