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 13th Aug 2021 Shift 1
Subject Name :	Chemical Engineering
Creation Date :	2021-08-13 15:04:30
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

Chemical Engineering

Group Number :	1
Group Id :	63643126
Group Maximum Duration :	0
Group Minimum Duration :	120
Show Attended Group? :	No

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Edit Attended Group? :	No
Break time :	0
Group Marks :	120
Is this Group for Examiner? :	No

Mathematics

Section Id :	63643148
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
Sub-Section Number :	1
Sub-Section Id :	63643148
Question Shuffling Allowed :	Yes

Question Number : 1 Question Id : 6364313001 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Consider the system of equations $Ax = b$, the vector x is to be found b is a known vector, A is known coefficient matrix of order m x n, if rank (A) = k, then

Options :

1. ✖ Dim (row space of A) = n – k

2. ✖ Dim (column space A) = N – k

3. ✔ Nullity (A) = n – k

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4. ✖ $\text{Dim}\,(A) = n - k$

Question Number : 2 Question Id : 6364313002 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

$A = \begin{bmatrix} 5 & -3 \\ 4 & -2 \end{bmatrix}$ and $B = \begin{bmatrix} 4 & -1 \\ x & 1 \end{bmatrix}$ have a common Eigen value. Then x =

Options :

1. ✖ 1

2. ✔ 2

3. ✖ 3

4. ✖ -2

Question Number : 3 Question Id : 6364313003 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

$$\lim_{x \to 0} \frac{\left(\cos x - 1 + \frac{x^2}{2}\right)}{x^4} =$$

Options :

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1. ✖ $\frac{1}{6}$

2. ✖ $\frac{1}{12}$

3. ✖ $\frac{1}{18}$

4. ✔ $\frac{1}{24}$

Question Number : 4 Question Id : 6364313004 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

$$\int_0^{\infty} \frac{\sin(2021x)}{x} dx =$$

Options :

1. ✔ $\frac{\pi}{2}$

2. ✖ $\frac{\pi}{3}$

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3. ✖ $\frac{\pi}{4}$

4. ✖ $\frac{\sqrt{\pi}}{2}$

Question Number : 5 Question Id : 6364313005 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

If $z = f\left(\frac{x}{y}\right) + \frac{x^2}{y^2} g\left(\frac{y}{x}\right)$, then $x^2 \frac{\partial^2 z}{\partial x^2} + 2xy \frac{\partial^2 z}{\partial x \partial y} + y^2 \frac{\partial^2 z}{\partial y^2} =$

Options :

1. ✖ z

2. ✖ $-z$

3. ✔ 0

4. ✖ $-2z$

Question Number : 6 Question Id : 6364313006 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

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The solution of the differential equation $\frac{d^3y}{dx^3}+4\frac{d^2y}{dx^2}+5\frac{dy}{dx}+2y=0$ is

Options :

1. ✖ $c_1e^x+c_2e^{-x}+c_3e^{2x}$

2. ✖ $c_1e^x+c_2e^{2x}+c_3e^{2x}$

3. ✖ $(c_1+c_2x)e^x+c_3e^{-x}$

4. ✔ $(c_1+c_2x)e^{-x}+c_3e^{2x}$

Question Number : 7 Question Id : 6364313007 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

$$\int_{|z|=1}\frac{\sin z}{z}dz =$$

Options :

1. ✔ 0

2. ✖ 1

3. ✖ πi

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4. ✖ $2\pi i$

Question Number : 8 Question Id : 6364313008 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

If A and B are two events such that P(A) = 0.3, P(B) = 0.4 and $P(A \cap B) = 0.1$, then $P\left(\frac{\overline{A}}{\overline{B}}\right) =$

Options :

1. ✖ $\frac{1}{2}$

2. ✔ $\frac{2}{3}$

3. ✖ $\frac{3}{4}$

4. ✖ $\frac{4}{5}$

Question Number : 9 Question Id : 6364313009 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

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Correct Marks : 1 Wrong Marks : 0

A die is tossed thrice. Getting 3 or 5 on a toss is considered as a success. Then the variance of the number of successes is

Options :

1. ✖ $\frac{4}{5}$

2. ✖ $\frac{3}{4}$

3. ✔ $\frac{2}{3}$

4. ✖ $\frac{1}{2}$

Question Number : 10 Question Id : 6364313010 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

For the data

x	0	1	2	3	4
f(x)	–2	–1	0	1	2

The value of $\int_0^4 f(x)dx$ by Simpson's $\frac{1}{3}$ rule is

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Options :

1. ✖ 0

2. ✖ 2

3. ✖ 3

4. ✔ 4

Chemical Engineering

Section Id :	63643149
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
Sub-Section Number :	1
Sub-Section Id :	63643149
Question Shuffling Allowed :	Yes

Question Number : 11 Question Id : 6364313011 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

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A 1-kg block of ice at 0°C is placed into a perfectly insulated, sealed container that has 2 kg of water also at 0°C. The water and ice completely fill the container, but the container is flexible. After sometime this happens

Options :

1. ✔ The ice will melt so that the mass of the ice will decrease

2. ✖ The water will freeze so that the mass of the ice will increase

3. ✖ Both the amount of water and the amount of ice will decrease.

4. ✖ Both the amount of water and the amount of ice will remain constant.

Question Number : 12 Question Id : 6364313012 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

For which of the following process, the entropy change is zero'

Options :

1. ✖ Isobaric

2. ✖ Isothermal

3. ✔ Adiabatic

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4. ✖ Constant volume

Question Number : 13 Question Id : 6364313013 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

If the temperature of the sink is decreased, the efficiency of a Carnot engine

Options :

1. ✖ Decreases

2. ✔ Increases

3. ✖ Remains the same

4. ✖ First increases and then decreases

Question Number : 14 Question Id : 6364313014 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Heat cannot flow by itself from a colder body to hotter body is a statement of

Options :

1. ✖ Conservation of momentum

2. ✖ Conservation of mass

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3. ✖ First law of thermodynamics

4. ✔ Second law of thermodynamics

Question Number : 15 Question Id : 6364313015 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The temperature at which the vapour just start to condense at a specified pressure is

Options :

1. ✖ Critical temperature

2. ✖ Boiling point

3. ✔ Dew point

4. ✖ Triple point

Question Number : 16 Question Id : 6364313016 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Consider a non-reactive equilibrium system consisting of two partially miscible liquid phases and a vapour phase in equilibrium with them at a constant pressure. What will be the exact number of available degrees of freedom in the given system

Options :

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1. ✔ 0

2. ✖ 1

3. ✖ 2

4. ✖ 3

Question Number : 17 Question Id : 6364313017 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Suppose the pressure of a gas is approaching zero. What will be the value of fugacity coefficient for the respective gas

Options :

1. ✖ Zero

2. ✔ Unity

3. ✖ Infinity

4. ✖ Equal to fugacity

Question Number : 18 Question Id : 6364313018 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is

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Question Mandatory : No Option Orientation : Vertical
Correct Marks : 1 Wrong Marks : 0

The necessary and sufficient condition for equilibrium between two phases is

Options :

1. ✖ The concentration of each component should be same in the two phases

2. ✖ The temperature of each phase should be same

3. ✖ The pressure should be same in the two phases

4. ✔ The chemical potential of each component should be same in the two phases

Question Number : 19 Question Id : 6364313019 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical
Correct Marks : 1 Wrong Marks : 0

A balloon filled with 5g of hydrogen contains

Options :

1. ✔ 2.48 moles of H_2

2. ✖ 3.48 moles of H_2

3. ✖ 4.48 moles of H_2

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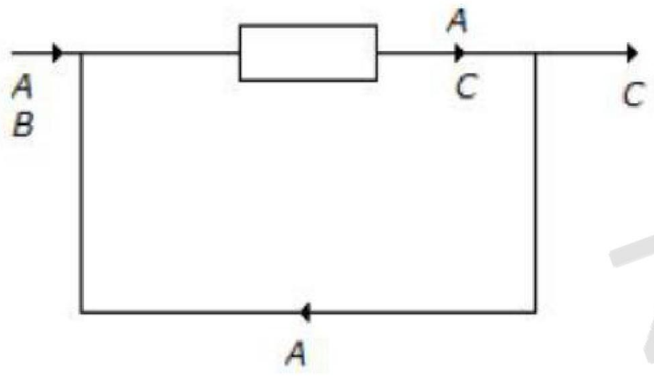
4. ✖ 5 moles of H_2

Question Number : 20 Question Id : 6364313020 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The reaction A + B → C has been conducted in a reactor as shown below. The number of boundaries around which material balance can be written, are



Options :

1. ✖ 1

2. ✖ 3

3. ✖ 6

4. ✔ 4

Question Number : 21 Question Id : 6364313021 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

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According to Raoult's law, "The vapor pressure exerted by component in a solution is proportional to the mole fraction of that component." Raoult's law is not applicable under the following assumption/condition.

Options :

1. ✖ No component is concentrated at the surface of the solution

2. ✖ The component molecules are non-polar and are of almost equal size

3. ✔ In the formation of solution, chemical combination/molecular association between unlike molecules takes place

4. ✖ The attractive forces between like and unlike molecules are almost equal

Question Number : 22 Question Id : 6364313022 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical
Correct Marks : 1 Wrong Marks : 0

Which of the following is the correct expression for "Recycle Ratio" in a recycling operation?

Options :

1. ✖ Fresh feed stream / Recycle feed stream

2. ✔ Recycle feed stream / Fresh feed stream

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3. ✖ Gross product stream / Recycle feed stream

4. ✖ Combined feed stream / Recycle feed stream

Question Number : 23 Question Id : 6364313023 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Air (79 mole % nitrogen and 21 mole % oxygen) is passed over a catalyst at high temperature. Oxygen completely reacts with nitrogen as shown below.

$0.5N_{2(g)} + 0.5O_{2\,(g)} \longrightarrow NO_{(g)}$

$0.5N_{2(g)} + O_{2(g)} \longrightarrow NO_{2(g)}$

The molar ratio of NO to NO_2 in the product stream is 2:1. The fractional conversion of nitrogen is

Options :

1. ✖ 0.13

2. ✔ 0.20

3. ✖ 0.27

4. ✖ 0.40

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Question Number : 24 Question Id : 6364313024 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Epoxy resins come under the category of

Options :

1. ✖ Thermoplastic

2. ✔ Thermosetting

3. ✖ Oil soluble or oil modified

4. ✖ Protein substances

Question Number : 25 Question Id : 6364313025 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

A centrifugal pump has the following specifications: Power = 4 H.P.; Speed = 800 rpm, Head = 8 meters, Flow = 1000 litres/minutes. If its speed is halved, then the new head will be _____ meters

Options :

1. ✔ 2

2. ✖ 4

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3. ✖ 8

4. ✖ 5.5

Question Number : 26 Question Id : 6364313026 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Where does the maximum stress occur in case of laminar flow of incompressible fluid in a closed conduit of diameter 'd'

Options :

1. ✖ At the center

2. ✖ At d/4 from the wall

3. ✔ At the wall

4. ✖ At d/8 from the wall

Question Number : 27 Question Id : 6364313027 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

A sand mixture was screened through a standard 10-mesh screen. The mass fraction of the oversize material in feed, overflow and underflow were found to be 0.38, 0.79 and 0.22 respectively. The screen effectiveness based on the oversize is

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Options :

1. ✔ 0.50

2. ✖ 0.58

3. ✖ 0.68

4. ✖ 0.62

Question Number : 28 Question Id : 6364313028 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 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 of the fluid viscosity

3. ✖ Inverse square of the diameter

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

Question Number : 29 Question Id : 6364313029 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

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What is the value of Fanning friction factor 'f' for smooth pipe at Re = 10^6 approximately

Options :

1. ✔ 0.003

2. ✖ 0.01

3. ✖ 0.1

4. ✖ 0.3

Question Number : 30 Question Id : 6364313030 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

A bio-degradable detergent is one which

Options :

1. ✖ Is manufactured using bio-technology

2. ✖ Contains straight chain alkyl benzenes

3. ✖ Contains branch chain alkyl benzenes

4. ✔ Is easily decomposed by micro-organisms

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Question Number : 31 Question Id : 6364313031 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Traces of solids are removed from, liquid in a

Options :

1. ✖ Classifier

2. ✔ Clarifier

3. ✖ Sparkler filter

4. ✖ Rotary vacuum filter

Question Number : 32 Question Id : 6364313032 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

In case of a plate and frame filter press, filtrate flow through the cake follows _____ flow

Options :

1. ✖ Plug

2. ✖ Turbulent

3. ✔ Laminar

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4. ✖ Intermittent

Question Number : 33 Question Id : 6364313033 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Screen capacity is not a function of

Options :

1. ✖ Its openings size

2. ✖ Screening mechanism

3. ✖ Screening surface

4. ✔ Atmospheric humidity

Question Number : 34 Question Id : 6364313034 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

In froth floatation, chemical agent added to cause air adherence is called

Options :

1. ✔ Collector

2. ✖ Frother

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3. ✖ Modifier

4. ✖ Activator

Question Number : 35 Question Id : 6364313035 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

In constant pressure filtration

Options :

1. ✖ Resistance decreases with time

2. ✖ Rate of filtration is constant

3. ✖ Rate of filtration increases with time

4. ✔ Rate of filtration decreases with time

Question Number : 36 Question Id : 6364313036 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

_____ mixer is used for devulcanisation of rubber scrap & making water dispersion & rubber solution

Options :

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1. ✖ Tumbler

2. ✔ Banbery

3. ✖ Muller

4. ✖ Rubbon blende

Question Number : 37 Question Id : 6364313037 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Size reduction does not occur due to compression in case of

Options :

1. ✔ Rod mills

2. ✖ Gyratory crushers

3. ✖ Jaw crushers

4. ✖ Smooth roll crushers

Question Number : 38 Question Id : 6364313038 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

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Mixing mechanism employed in a pan mixer is by

Options :

1. ✔ Mulling

2. ✖ Kneading

3. ✖ Dispersion

4. ✖ Diffusive

Question Number : 39 Question Id : 6364313039 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical
Correct Marks : 1 Wrong Marks : 0

A fluid which has a linear relationship between the magnitude of applied shear-stress and the resulting rate of deformation is called a/an _____ fluid

Options :

1. ✔ Newtonion

2. ✖ Non-Newtonion

3. ✖ Ideal

4. ✖ Incompressible

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Question Number : 40 Question Id : 6364313040 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Pressure drop (Δp) for a fluid flowing in turbulent flow through a pipe is a function of velocity (V) as

Options :

1. ✖ $V^{1.8}$

2. ✖ $V^{-0.2}$

3. ✖ $V^{2.7}$

4. ✔ V^{2}

Question Number : 41 Question Id : 6364313041 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Heat transfer by conduction is described to

Options :

1. ✔ Fourier's law

2. ✖ Newton's law of cooling

3. ✖ Stefan Boltzmann law

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4. ✖ Fick's law

Question Number : 42 Question Id : 6364313042 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The Prandtl number is

Options :

1. ✔ The ratio of kinematic viscosity to thermal diffusivity

2. ✖ The ratio of thermal diffusivity to kinematic viscosity

3. ✖ The product of thermal diffusivity and kinematic viscosity

4. ✖ The ratio of absolute viscosity to thermal conductivity

Question Number : 43 Question Id : 6364313043 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

According to Stefan-Baltzmann law the radiant heat transfer is proportional to

Options :

1. ✖ The absolute temperature

2. ✖ The second power of the absolute temperature

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3. ✖ Third power of the absolute temperature

4. ✔ The fourth power of the absolute temperature

Question Number : 44 Question Id : 6364313044 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The advantage of backward feed multiple effect evaporators over forward feed units is that

Options :

1. ✖ The heat sensitive material can be used

2. ✖ There is no additional cost of pumping

3. ✔ Most concentrated liquid is at highest temperature

4. ✖ Equal heat transfer coefficients exist in various effects.

Question Number : 45 Question Id : 6364313045 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

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The thermal radiative flux from a surface of emissivity = 0.4 is 22.68 kW/m². The approximate surface temperature (K) is (Stefan-Boltzman constant = 5.67x10^{-8} W/m².K^4)

Options :

1. ✔ 1000

2. ✖ 727

3. ✖ 800

4. ✖ 1200

Question Number : 46 Question Id : 6364313046 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

A perfect black body is one which

Options :

1. ✖ Is black in color

2. ✖ Reflects all heat

3. ✖ Transmits all heat radiations

4. ✔ Absorbs heat radiations of all wave lengths falling on it

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Question Number : 47 Question Id : 6364313047 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The film co-efficient between condensing vapour and metal wall increases with

Options :

1. ✔ Increasing temperature of the vapour

2. ✖ Decreasing temperature of the vapour

3. ✖ Increasing viscosity of the film of condensate

4. ✖ Increasing temperature drop

Question Number : 48 Question Id : 6364313048 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Heat flux increases with temperature drop beyond the Leidenfrost point in the plot of heat flux vs. temperature drop for a boiling liquid, because

Options :

1. ✖ Convection becomes important

2. ✖ Conduction becomes important

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3. ✔ Radiation becomes important

4. ✖ Sub-cooled boiling occurs

Question Number : 49 Question Id : 6364313049 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which of the following is concerned with both heat and mass transfer

Options :

1. ✔ Lewis relationship

2. ✖ Nusselt number

3. ✖ Kutateladze number

4. ✖ Froude number

Question Number : 50 Question Id : 6364313050 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

$(N_{Gr} \times N_{Pr})$ is called the _____ number

Options :

1. ✖ Graetz

2. ✔ Reyleigh

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3. ✖ Nusselt

4. ✖ Stanton

Question Number : 51 Question Id : 6364313051 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Tube pitch is the _____ of tube diameters and the clearances

Options :

1. ✔ Sum

2. ✖ Difference

3. ✖ Ratio

4. ✖ Product

Question Number : 52 Question Id : 6364313052 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

When the ratio of the Grashoff number and to the square of Reynolds number is one , the dominant mechanism of heat transfer is

Options :

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1. ✖ Entry length problem in laminar forced conduction (developing thermal boundary layer)

2. ✔ Mixed convection (both free and forced)

3. ✖ Free Convection

4. ✖ Forced convection

Question Number : 53 Question Id : 6364313053 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Overall heat transfer coefficient largely depends on

Options :

1. ✖ The fluid whose individual coefficient is high

2. ✔ The fluid whose individual coefficient is low

3. ✖ Independent of the individual hear transfer coefficient

4. ✖ Other external factors

Question Number : 54 Question Id : 6364313054 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

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Liquid entraines in evaporators are caused due to

Options :

1. ✖ High rate of evaporation

2. ✖ High rate of heat transfer

3. ✔ Foaming of the solution

4. ✖ Low pressure in the evaporator

Question Number : 55 Question Id : 6364313055 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical
Correct Marks : 1 Wrong Marks : 0

The organic acid manomer in Nylon 66 is

Options :

1. ✖ Sebacic acid

2. ✔ Terephthallic acid

3. ✖ Adipic acid

4. ✖ Benzoic acid

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Question Number : 56 Question Id : 6364313056 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Find the diffusivity through slab if N flux of A 4 mol/sq.m sec, concentration difference is 2mol/cu.m and distance is 3 m

Options :

1. ✖ 2 sq.m/s

2. ✖ 4 sq.m/s

3. ✔ 6 sq.m/s

4. ✖ 8 sq.m/s

Question Number : 57 Question Id : 6364313057 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

If the gas phase composition of a component A is 0.65 and its relative volatility is

2. Find the liquid phase composition

Options :

1. ✔ 0.48

2. ✖ 0.58

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3. ✖ 0.68

4. ✖ 0.78

Question Number : 58 Question Id : 6364313058 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

For a binary mixture distillation process, the degree of freedom is 2. However, if the pressure is fixed in this process, the number of independent variables in this process will be

Options :

1. ✔ 1

2. ✖ 0

3. ✖ 2

4. ✖ 3

Question Number : 59 Question Id : 6364313059 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

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Find the pure solvent rate if the feed (F=100 kmol/hr) composition is 0.65 and mixture solute composition is 0.5.

Options :

1. ✖ 10 kmol/hr

2. ✖ 20 kmol/hr

3. ✔ 30 kmol/hr

4. ✖ 40 kmol/hr

Question Number : 60 Question Id : 6364313060 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

HETP (Height Equivalent to Theoretical Plate) and NTU(Number of Theoretical Plates) can be assumed to be

Options :

1. ✖ Measure of difficulty of separation of both

2. ✖ Measure of departure of ideality and measure of difficulty of separation respectively

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Performance concept of equipment and measure of departure from ideality respectively

3. ✖

Performance concept of equipment and measure of difficulty of separation respectively

4. ✔

Question Number : 61 Question Id : 6364313061 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

In distillation where **q** is defined as the moles of liquid flow in the stripping section per mole of feed introduced, for saturated liquid feed

Options :

1. ✖ $q > 1$

2. ✖ $q < 1$

3. ✔ $q = 1$

4. ✖ $q = 0$

Question Number : 62 Question Id : 6364313062 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

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Steady state temperature reached by a small amount of liquid evaporating into a large amount of unsaturated vapour-gas mixture is called the_____ temperature

Options :

1. ✖ Dry-bulb

2. ✔ Wet-bulb

3. ✖ Dew point

4. ✖ Adiabatic saturation

Question Number : 63 Question Id : 6364313063 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

In steam distillation, the

Options :

1. ✖ Temperature is 100°C.

2. ✖ Temperature is more than 100°C.

3. ✔ Product must be immiscible with water.

4. ✖ Temperature is higher than the boiling point of either component

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Question Number : 64 Question Id : 6364313064 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

To get high tray efficiency

Options :

1. ✔ Interfacial surface between liquid and gas phase should be large.

2. ✖ Time of contact between the two phases should be less.

3. ✖ Gas velocity should be very low

4. ✖ Liquid entrainment should be severe

Question Number : 65 Question Id : 6364313065 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which of the following operations does not involve leaching

Options :

1. ✖ Dissolving gold from ores.

2. ✖ Dissolving pharmaceutical products from bark or roots.

3. ✖ Dissolving sugar from the cells of the beet.

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4. ✔ Removing nicotine from its water solution by kerosene

Question Number : 66 Question Id : 6364313066 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Experiments were conducted to determine the flux of a species A in a stagnant medium across a gas-liquid interface. The overall mass transfer co-efficient based on the liquid side for dilute systems for the above was estimated to be 4×10^{-3} kg mole/m^2s. The equilibrium data for the system is given as $y = 2x$. The flux across the interface (in kg mole/m^2s) for bulk concentrations of A in gas phase and liquid phase as $y = 0.4$ and $x = 0.01$ respectively is

Options :

1. ✖ 5.6×10^{-4}

2. ✔ 8.5×10^{-4}

3. ✖ 5.6×10^{-3}

4. ✖ 8.5×10^{-3}

Question Number : 67 Question Id : 6364313067 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

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According to the Fenske equation, what will be the minimum number of plates required in a distillation column to separate an equimolar binary mixture of components A and B into an overhead fraction containing 99 mol% A and a bottom fraction containing 98 mol% B? Assume that relative volatility ($\alpha AB = 2$) does not change appreciably in the column.

Options :

1. ✖ 5

2. ✖ 9

3. ✔ 12

4. ✖ 28

Question Number : 68 Question Id : 6364313068 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Swenson-Walker crystalliser is a_____ unit

Options :

1. ✔ continuous

2. ✖ batch

3. ✖ semi-batch

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4. ✖ cooling (adiabatic)-cum-evaporation

Question Number : 69 Question Id : 6364313069 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical
Correct Marks : 1 Wrong Marks : 0

H_2S is being absorbed in a gas absorber unit. The height of the transfer unit based on the overall mass transfer coefficient on the gas side is 0.4 m. The equilibrium data is given by, $y = 1.5\ x$. The bulk concentration of H_2S has to be reduced from 0.05 to 0.001 mole fraction in the gas side. The height of the tower (in meters) corresponding to an operating line given by, $y = 5x + 0.001$ is

Options :

1. ✔ 2.0

2. ✖ 1.56

3. ✖ 1.0

4. ✖ 0.56

Question Number : 70 Question Id : 6364313070 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical
Correct Marks : 1 Wrong Marks : 0

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In a single stage extraction process, 10 kg of pure solvent S (containing no solute A) is mixed with 30 kg of feed F containing A at a mass fraction xf = 0.2. The mixture splits into an extract phase E and a raffinate phase R containing A at xB = 0.5 and xR = 0.05 respectively. The total mass of the extract phase is (in kg)

Options :

1. ✖ 6.89

2. ✔ 8.89

3. ✖ 10

4. ✖ 8.25

Question Number : 71 Question Id : 6364313071 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Variables affecting the rate of homogeneous reactions are

Options :

1. ✖ Pressure and temperature only

2. ✖ Temperature and composition only

3. ✖ Pressure and composition only

4. ✔ Pressure, temperature and composition

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Question Number : 72 Question Id : 6364313072 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Time required for 50% decomposition of a liquid in an isothermal batch reactor following first order kinetics is 2 minutes. The time required for 75% decomposition will be about _____ minutes.

Options :

1. ✖ 3

2. ✔ 4

3. ✖ 6

4. ✖ 10

Question Number : 73 Question Id : 6364313073 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The reaction rate almost gets doubled for 10°C rise in temperature. This is due to the fact that the

Options :

1. ✖ Collision frequency increases

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2. ✔ Fraction of molecules having threshold energy increases

3. ✖ Increased temperature reduces the activation energy

4. ✖ Value of threshold energy decreases

Question Number : 74 Question Id : 6364313074 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Styrene-Butadiene rubber is commercially manufactured

Options :

1. ✖ Bulkpolymerisation

2. ✖ Suspension polymerisation

3. ✖ Solution polymerisation

4. ✔ Emulsion polymerization

Question Number : 75 Question Id : 6364313075 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

In autocatalytic reactions

Options :

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1. ✖ One of the reactants acts as a catalyst

2. ✔ One of the products acts as a catalyst

3. ✖ Catalysts have very high selectivity

4. ✖ No catalyst is used

Question Number : 76 Question Id : 6364313076 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The dispersion model accounts for _____

Options :

1. ✔ Deviation from ideal PFR

2. ✖ Modelling ideal CSTR

3. ✖ Combining batch and CSTR

4. ✖ CSTRs connected in parallel

Question Number : 77 Question Id : 6364313077 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

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A liquid phase reaction occurring in adiabatic PFR has a heat of reaction -120000 J/molK. Specific heat of the stream is 10000 J/molK. The temperature difference for complete conversion to be achieved is _____

Options :

1. ✖ 560K

2. ✖ 8.33K

3. ✔ 12K

4. ✖ 83.33K

Question Number : 78 Question Id : 6364313078 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which of the following represents heterogeneous catalytic reaction

Options :

1. ✖ Burning of coal

2. ✖ Roasting of ores

3. ✔ Ammonia synthesis

4. ✖ Reduction of iron ore

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Question Number : 79 Question Id : 6364313079 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Stimulus-response techniques are commonly used to characterize the extent of non-ideal flow in vessels. Tracer input signal is used as stimulus. Any material can be used

Options :

1. ✖ As tracer if it can disturb the flow pattern in the vessel

2. ✖ As tracer if it does not disturb the flow pattern in the vessel and it can be detected

3. ✔ As tracer if it follows ideal flow patterns

4. ✖ As tracer

Question Number : 80 Question Id : 6364313080 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The response curve for a step input signal from a reactor is called C-curve. The variance of C-curve in a 'tanks in series model' comprising of 'm' tanks is equal to

Options :

1. ✖ m

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2. ✔ $1/m$

3. ✖ $\sqrt{m}$

4. ✖ m^2

Question Number : 81 Question Id : 6364313081 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

What is the dispersion number for a plug flow reactor

Options :

1. ✔ 0

2. ✖ 2

3. ✖ 1

4. ✖ -1

Question Number : 82 Question Id : 6364313082 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

For a packed bed reactor; the presence of a long tail in the residence time distribution curve is an indication of

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Options :

1. ✔ Dead zone

2. ✖ Chanelling

3. ✖ Bypass

4. ✖ Ideal plug flow

Question Number : 83 Question Id : 6364313083 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

A first order reaction requires two equal sized CSTR. The conversion is

Options :

1. ✖ More when they are connected in parallel

2. ✖ Less when they are connected in series

3. ✖ Same whether they are connected in series or in parallel

4. ✔ More when they are connected in series

Question Number : 84 Question Id : 6364313084 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

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In solid catalysed reactions the diffusional effects are more likely to affect the overall rate of reaction for

Options :

1. ✖ Fast reactions in catalyst of small pore diameter

2. ✖ Fast reaction in catalyst of large pore diameter

3. ✔ Slow reactions in catalyst of small pore diameter

4. ✖ Slow reactions in catalyst of large pore diameter

Question Number : 85 Question Id : 6364313085 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

When the reaction is dominated by in-traparticle diffusion, the apparent order of reaction (n_D) as measured is related to the true order (n) as

Options :

1. ✔ $n_D = (n + 1)/2$

2. ✖ $n = (n_D\text{-}1)$

3. ✖ $n = n_D + 1$

4. ✖ $(n\text{-}1)\ /2$

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Question Number : 86 Question Id : 6364313086 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The local velocity of a fluid along a streamline can be measured by

Options :

1. ✔ Pitot tube

2. ✖ Venturi meter

3. ✖ Rotameter

4. ✖ Orifice meter

Question Number : 87 Question Id : 6364313087 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

An LVDT (Linear Variable Differential Transformer) is a transducer used for converting

Options :

1. ✔ Displacement to voltage

2. ✖ Voltage to displacement

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3. ✖ Resistance to voltage

4. ✖ Voltage to current

Question Number : 88 Question Id : 6364313088 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Working principle of mercury in glass thermometer is based on the _____ of mercury with increase in temperature

Options :

1. ✖ Increase of pressure

2. ✖ Increase of thermal conductivity

3. ✔ Volumetric expansion

4. ✖ Differential linear expansion

Question Number : 89 Question Id : 6364313089 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

For a feedback control system to be stable, the

Options :

1. ✖ Roots of the characteristic equation should be real

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2. ✔ Poles of the closed loop transfer function should lie in the left half of the complex plane

3. ✖ Bode plots of the corresponding open loop transfer function should monotonically decrease

4. ✖ Poles of the closed loop transfer function should lie in the right half of the complex plane

Question Number : 90 Question Id : 6364313090 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical
Correct Marks : 1 Wrong Marks : 0

The purpose of feed forward control is to

Options :

1. ✖ Eliminate the need for feedback control in a process

2. ✔ Reduce the effect of load variation on the process variable

3. ✖ Save energy

4. ✖ Reduce the effect of process variable noise on stability

Question Number : 91 Question Id : 6364313091 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is

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Question Mandatory : No Option Orientation : Vertical
Correct Marks : 1 Wrong Marks : 0

For NH_3 reactors the material of construction is

Options :

1. ✔ Carbon

2. ✖ 5 Cr 1/2 Mo Steel

3. ✖ Cast steel

4. ✖ Stainless steel

Question Number : 92 Question Id : 6364313092 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical
Correct Marks : 1 Wrong Marks : 0

Bode diagram is a plot of

Options :

1. ✔ log (AR) vs. log (f) and (φ) vs. log (f)

2. ✖ log (AR) vs. f and log φ vs. f

3. ✖ AR vs. log (f) and φ vs. log (f)

4. ✖ AR vs Log (f) and log φ vs log (f)

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Question Number : 93 Question Id : 6364313093 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

A typical example of an exothermic reaction conducted at high pressures in industry is

Options :

1. ✖ Dehydration of ethanol

2. ✖ Methanol synthesis

3. ✖ Reformation of methane

4. ✔ Polymerization of ethylene

Question Number : 94 Question Id : 6364313094 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

If response of a control system is to be free of offset and oscillation, the most suitable controller is

Options :

1. ✖ Proportional controller

2. ✖ Proportional-derivative (PD) controller

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3. ✖ Proportional-integral (PI) controller

4. ✔ Proportional integral-derivative (PID) controller

Question Number : 95 Question Id : 6364313095 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

In second order underdamped system

Options :

1. ✖ Decay ratio = overshoot

2. ✔ Decay ratio = $(\text{overshoot})^2$

3. ✖ Overshoot increases for increasing damping co-efficient

4. ✖ Large damping co-efficient means smaller damping

Question Number : 96 Question Id : 6364313096 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Bode diagram are generated from output response of the system subjected to which of the following input

Options :

1. ✖ Impulse

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2. ✖ Step

3. ✖ Ramp

4. ✔ Sinusoidal

Question Number : 97 Question Id : 6364313097 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The principle of operation of a variable resistance transducer is

Options :

1. ✔ Displacement of a contact slider on a resistance

2. ✖ Movement of the magnetic field produces variation in resistance of a material

3. ✖ Deformation leads to a change in resistance

4. ✖ Coupling of two coils changes with displacement

Question Number : 98 Question Id : 6364313098 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

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A thermocouple senses temperature based on the

Options :

1. ✖ Nernst Effect

2. ✖ Maxwell Effect

3. ✔ Seebeck Effect

4. ✖ Peltier Effect

Question Number : 99 Question Id : 6364313099 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical
Correct Marks : 1 Wrong Marks : 0

A thermometer initially at 100°C is dipped at t=0 into an oil bath, maintained at 1500°C. If the recorded temperature is 130°C after 1 minute then the time constant of the thermometer in minute is_____

Options :

1. ✔ 1.09

2. ✖ 1.35

3. ✖ 1.98

4. ✖ 1.26

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Question Number : 100 Question Id : 6364313100 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which polymers occur naturally

Options :

1. ✖ Starch and Nylon

2. ✔ Starch and Cellulose

3. ✖ Proteins and Nylon

4. ✖ Proteins and PVC

Question Number : 101 Question Id : 6364313101 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which of the following is the lowest cost plastic commercially available

Options :

1. ✔ Polythene

2. ✖ Teflon

3. ✖ Bakelite

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4. ✖ PVC

Question Number : 102 Question Id : 6364313102 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which of the following is a byproduct in the manufacture of sodium hydroxide using brine.

Options :

1. ✖ Sodium bicarbonate

2. ✖ Chlorine

3. ✔ Sodium Carbonate

4. ✖ Graphite

Question Number : 103 Question Id : 6364313103 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

'Six-tenth factor' rule is used for estimating the

Options :

1. ✖ Equipment installation cost

2. ✔ Equipment cost by scaling

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3. ✖ Cost of piping

4. ✖ Utilities cost

Question Number : 104 Question Id : 6364313104 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

What characteristic best describes the cost baseline'

Options :

1. ✖ Total budget for the project

2. ✔ Time phased budget for the project

3. ✖ Total budget for the project including the contingency budget

4. ✖ Total budget for the project including the contingency budget and the management reserve.

Question Number : 105 Question Id : 6364313105 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

In a manufacturing industry, break-even point occurs when

Options :

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1. ✖ The annual rate of production equals the assigned value

2. ✔ The total annual product cost equals the total annual sales

3. ✖ The annual profit equals the expected value

4. ✖ The annual sales equals the fixed costs

Question Number : 106 Question Id : 6364313106 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The total capital investment for a chemical plant is Rs.1,000,000 and the working capital is Rs.100,000. If a turnover ratio is 1, the gross annual sales will be

Options :

1. ✖ Rs.800,000

2. ✔ Rs.900,000

3. ✖ Rs.1,000,000

4. ✖ Rs.1,100,000

Question Number : 107 Question Id : 6364313107 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

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Correct Marks : 1 Wrong Marks : 0

For a cylindrical vessel of moderate height, the weld joint efficiency for joints parallel to the cylinder axis is given as 1.0 while for joints along the girth (circumference) it is given as 0.8. In calculating the shell wall thickness using code formula, for an internally pressurized cylindrical vessel, what value of weld joint efficiency should be used

Options :

1. ✔ 0.8

2. ✖ 0.9

3. ✖ 1.0

4. ✖ 0.2

Question Number : 108 Question Id : 6364313108 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

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

Options :

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

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

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

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

Question Number : 109 Question Id : 6364313109 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Promoter in Ammonia synthesis catalyst is

Options :

1. ✔ K_2O

2. ✖ V_2O_4

3. ✖ U_2O_5

4. ✖ $Si\ O_2$

Question Number : 110 Question Id : 6364313110 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Construction expenses are roughly _____ percent of the total direct cost of the plant.

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Options :

1. ✖ 2

2. ✔ 10

3. ✖ 30

4. ✖ 50

Question Number : 111 Question Id : 6364313111 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

An annuity is a series of equal payments occuring at equal time intervals, and this amount includes the sum of all payments plus interest, if allowed to accumulate at a definite rate of interest from the time of initial payment to the end of annuity term. Ordinary annuity is used in the calculation of the

Options :

1. ✖ Manufacturing cost

2. ✔ Depreciation by sinking fund method

3. ✖ Discrete compound interest

4. ✖ Cash ratio

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Question Number : 112 Question Id : 6364313112 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 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 coefficients

4. ✖ Non- Corrosive condensers

Question Number : 113 Question Id : 6364313113 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Long tube vertical evaporators have excellent performance for

Options :

1. ✖ Viscous liquids

2. ✖ Scaling liquids

3. ✖ Salting liquids

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4. ✔ Foaming liquids

Question Number : 114 Question Id : 6364313114 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Stripping is provided on the Trays to

Options :

1. ✖ Decrease pressure drop

2. ✖ Increase residence time

3. ✖ Improve flow conditions

4. ✔ Handle large flow of liquids

Question Number : 115 Question Id : 6364313115 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

For continuous drying of large solids of special forms and shapes the recommended dryer is

Options :

1. ✖ Drum dryer

2. ✖ Rotary dryer

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3. ✖ Vacuum Shelf dryer

4. ✔ Tunnel dryer

Question Number : 116 Question Id : 6364313116 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Pulp suitable for producing high strength paper is obtained by

Options :

1. ✔ Chemical pulping process

2. ✖ Ground wood process

3. ✖ Semi-chemical process

4. ✖ Fiber suspension

Question Number : 117 Question Id : 6364313117 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Liquid or gas polymers having short chains and low molecular weights are known as _____

Options :

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1. ✖ High-polymers

2. ✖ Homopolymers

3. ✖ Copolymers

4. ✔ Oligo-polymers

Question Number : 118 Question Id : 6364313118 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Nylon-6 as compared to Nylon 66 has lower

Options :

1. ✔ Abrasion resistance

2. ✖ Thermal stability

3. ✖ Adhesion to rubber

4. ✖ Hardness

Question Number : 119 Question Id : 6364313119 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

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India has no elemental sulphur deposits that can be economically exploited. In India, which one of the following industries produces elemental sulphur as a by-product

Options :

1. ✖ Coal carbonisation plants

2. ✔ Petroleum refineries

3. ✖ Paper and pulp industries

4. ✖ Iron and steel making plants

Question Number : 120 Question Id : 6364313120 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The DCDA (Double Contact Double Absorption) process is used for the manufacture of

Options :

1. ✖ Urea

2. ✔ Sulphuric acid

3. ✖ Nitic acid

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4. ✖ Ammonia

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