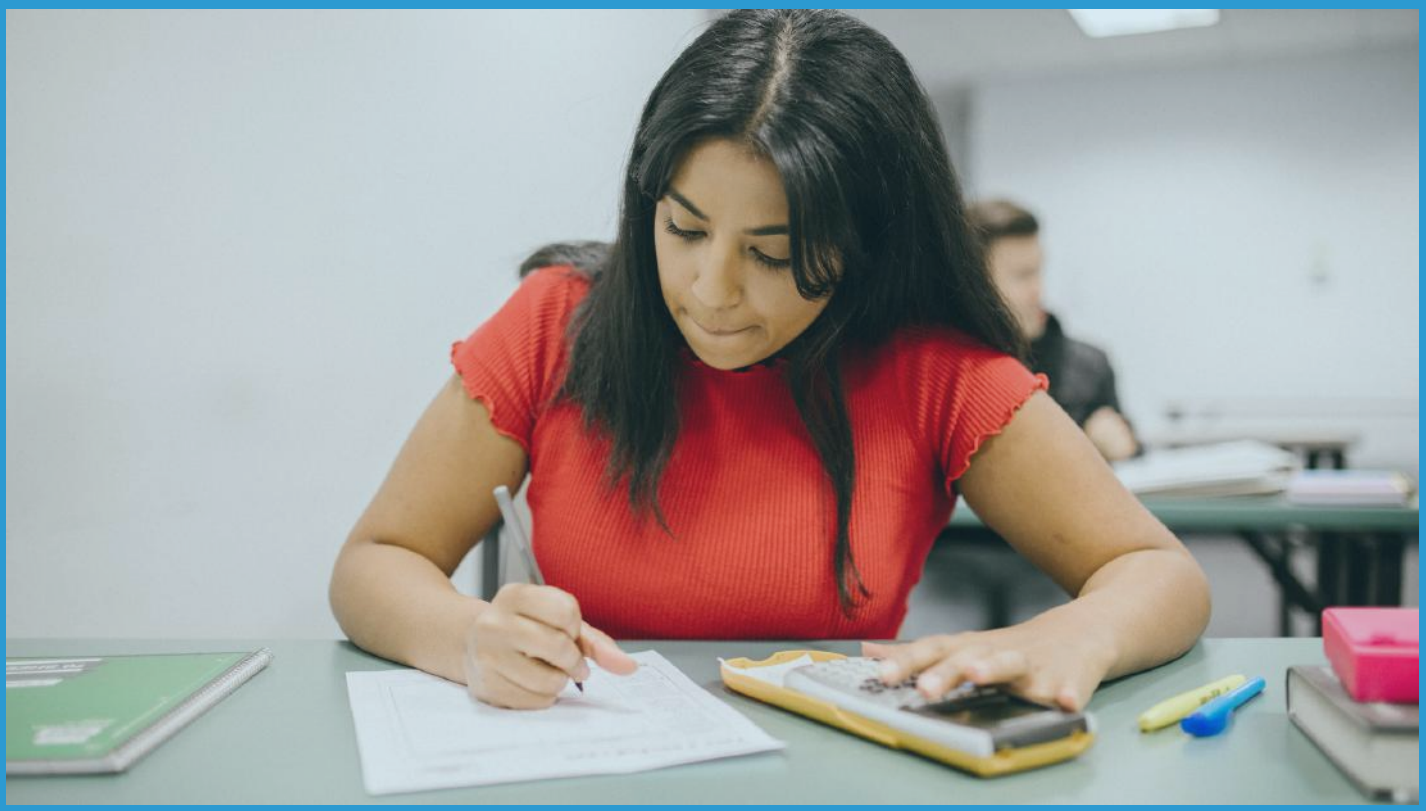
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Notations :

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

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

Question Paper Name :	Instrumentation Engineering 31st May 2023 Shift 1
Subject Name :	Instrumentation Engineering
Creation Date :	2023-05-31 13:36:38
Duration :	120
Total Marks :	120
Display Marks:	No
Share Answer Key With Delivery Engine :	Yes
Actual Answer Key :	Yes
Calculator :	None
Magnifying Glass Required? :	No
Ruler Required? :	No
Eraser Required? :	No
Scratch Pad Required? :	No
Rough Sketch/Notepad Required? :	No
Protractor Required? :	No
Show Watermark on Console? :	Yes
Highlighter :	No
Auto Save on Console?	Yes
Change Font Color :	No
Change Background Color :	No
Change Theme :	No

Help Button :	No
Show Reports :	No
Show Progress Bar :	No

Instrumentation Engineering

Group Number :	1
Group Id :	28393667
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 :	283936184
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 : 283936184

Question Shuffling Allowed : Yes

Is Section Default? : null

Question Number : 1 Question Id : 2839369401 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 of equations $x-y+z=4,\ 2x+y-3z=0$ and $x+y+z=2$ is

Options :

1. ✖ 0

2. ✔ 1

3. ✖ 2

4. ✖ infinite

Question Number : 2 Question Id : 2839369402 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

Let $-1, 1, 2, 1$ be eigenvalues of a matrix of order 4 and let $B = A^3 + 2I$, where I is the identity matrix of order 4. The determinant of B is

Options :

1. ✔ 90

2. ✖ 8

3. ✖ 30

4. ✖ −90

Question Number : 3 Question Id : 2839369403 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 $u=\frac{y+z}{x}$, then $x u_x + y u_y + z u_z =$

Options :

1. ✖ 3

2. ✖ 2

3. ✔ 0

4. ✖ −2

Question Number : 4 Question Id : 2839369404 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

$\int_0^{\pi} \int_0^{\sin\theta} r\, dr\, d\theta =$

Options :

1. ✔ $\frac{\pi}{4}$

2. ✖ 0

3. ✖ $\frac{\pi}{2}$

4. ✖ $\frac{\pi^2}{4}$

Question Number : 5 Question Id : 2839369405 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 $y'' + k^2 y = 0,\ y(0) = y(\pi) = 0, k \neq 0$ is

Options :

1. ✖ 0

2. ✔ 1

3. ✖ 4

4. ✖ infinite

Question Number : 6 Question Id : 2839369406 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 of $u_x - 4u_y = 0$ satisfying $u(0, y) = 8e^{-3y}$ is given by $u(x, y) =$

Options :

1. ✔ $8e^{-12x-3y}$

2. ✖ $8e^{-x-3y}$

3. ✖ $8e^{4x-3y}$

4. ✖ $8e^{-x-4y}$

Question Number : 7 Question Id : 2839369407 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 value of the integral $\int_{|z|=1} \sec z \, dz$ is

Options :

1. ✖ πi

2. ✖ $2\pi i$

3. ✔ 0

4. ✖ 1

Question Number : 8 Question Id : 2839369408 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 continuous random variable 'X' has the p.d.f. $f(x)=\begin{cases}2e^{-2x}, & x>0\\ 0, & x\le 0\end{cases}$.

Then $Var(2X)=$

Options :

1. ✔ 1

2. ✖ $\frac{1}{4}$

3. ✖ $\frac{1}{2}$

4. ✖ $\frac{1}{8}$

Question Number : 9 Question Id : 2839369409 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 $y=ax+4$ and $x=4y+5$ are the two regression lines, then

Options :

1. ✖ $a<0$

2. ✔ $0\le a\le\frac{1}{4}$

3. ✖ $\frac{1}{4} < a \leq 1$

4. ✖ $-1 \leq a < 0$

Question Number : 10 Question Id : 2839369410 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 interval of unit length which contains the largest positive root of $x^3 - 5x + 3 = 0$ is

Options :

1. ✖ $(2, 3)$

2. ✖ $(0, 1)$

3. ✖ $(-1, 0)$

4. ✔ $(1, 2)$

Instrumentation Engineering

Section Id :	283936185
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 :	283936185
Question Shuffling Allowed :	Yes
Is Section Default? :	null

Question Number : 11 Question Id : 2839369411 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 the centre of a circular coil with a diameter of 1 metre and a current of 2 Amperes, the magnetic field intensity (measured in A/m) is

Options :

1. ✖ 8

2. ✖ 4

3. ✔ 2

4. ✖ 3

Question Number : 12 Question Id : 2839369412 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 equation $F \propto \frac{q_1 q_2}{r^2}$, where q_1 and q_2 are the point charges and r is the distance between the charges is known as

Options :

1. ✖ Amperes Law

2. ✖ Biot savart Law

3. ✔ Coulomb's Law

4. ✖ Kirchhoff's Law

Question Number : 13 Question Id : 2839369413 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 electric field intensity (E) and flux density (d) have the following relationships

Options :

1. ✔ $d = \varepsilon E$

2. ✖ $d = \varepsilon / E$

3. ✖ $d = \varepsilon E^2$

4. ✖ $d = \mu E$

Question Number : 14 Question Id : 2839369414 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 unit vector directed from A(4,-5,-3) towards B(16,-5,-8) is

Options :

1. ✔ $\overline{AB} = \frac{12\bar{a}_x - 5\bar{a}_z}{13}$

2. ✖ $\overline{AB} = \frac{12\bar{a}_x - 5\bar{a}_z}{12}$

3. ✖ $\overline{AB} = \frac{12\bar{a}_x - 5\bar{a}_y}{13}$

4. ✖ $\overline{AB} = \frac{12\bar{a}_x - 5\bar{a}_y}{12}$

Question Number : 15 Question Id : 2839369415 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 happens to the motor's speed when a DC series motor is run without any load?

Options :

1. ✖ Does not rotate

2. ✖ Rotate with finite speed

3. ✔ Rotate dangerously with maximum speed

4. ✖ Stuck after some time

Question Number : 16 Question Id : 2839369416 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 100 KVA, 1100/220V, 50Hz single phase transformer with 2000 turns on the high voltage side, the open circuit test results given 220V, 91A, 5kW on low voltage side. The core loss component of current is

Options :

1. ✖ 45.23A

2. ✔ 22.73A

3. ✖ 5.23A

4. ✖ 100.73A

Question Number : 17 Question Id : 2839369417 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 factor in a purely resistive circuit is

Options :

1. ✔ 1

2. ✖ 0

3.

✖ ∞

4. ✖ $-\infty$

Question Number : 18 Question Id : 2839369418 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

Minimal voltage regulation happens when the load's power factor is

Options :

1. ✖ $= 1$

2. ✔ Leading

3. ✖ Lagging

4. ✖ > 1

Question Number : 19 Question Id : 2839369419 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 3-phase, 50Hz, 6-pole induction motor runs at 950 rpm. Calculate the synchronous speed and the slip

Options :

1. ✔ 1000 rpm, 0.05

2. ✖ 2000 rpm, 0.05

3. ✖ 1000 rpm, 0.01

4. ✖ 2000 rpm, 0.01

Question Number : 20 Question Id : 2839369420 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 circuit delivers maximum current to complex load (Z_L) with complex Thevenin's impedance (Z_{th}) if

Options :

1. ✖ $Z_{th} = Z_L$

2. ✖ $Z_{th} > Z_L$

3. ✖ $Z_{th} < Z_L$

4. ✔ $Z_{th} = \text{conjugate}(Z_L)$

Question Number : 21 Question Id : 2839369421 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

Domestic appliances are connected in parallel across AC main due to _____

Options :

1. ✖ Simple arrangement

2. ✔ Operation of each appliance becomes independent of the other

3. ✖ Appliances have same current rating

4. ✖ Occupies less space

Question Number : 22 Question Id : 2839369422 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

When the phasor is multiplied by j, it is rotated through ___ in the counter clockwise direction

Options :

1. ✔ 90°

2. ✖ 180°

3. ✖ 270°

4. ✖ 360°

Question Number : 23 Question Id : 2839369423 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 active and reactive powers of capacitive circuit are 70W and 80 VAR respectively. Then the power factor of the circuit is

Options :

1. ✗ 0.9 Leading

2. ✓ 0.65 leading

3. ✗ 0.9 lagging

4. ✗ 0.65 lagging

Question Number : 24 Question Id : 2839369424 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 supply frequency of a parallel AC circuit is higher than the resonance frequency, then the circuit is

Options :

1. ✗ Inductive

2. ✗ Resistive

3. ✓ Capacitive

4. ✗ Both inductive and capacitive

Question Number : 25 Question Id : 2839369425 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

Identify the false statement of the following:

Options :

1. ✖ Current through inductor does not change instantaneously

2. ✖ Voltage across capacitor does not change instantaneously

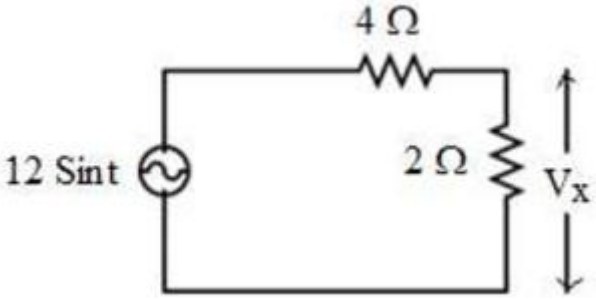
3. ✔ Voltage across inductor does not change instantaneously

4. ✖ Resistor is a linear device

Question Number : 26 Question Id : 2839369426 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 V_x for the circuit shown in Figure is



Options :

1. ✖ 12 Sin t

2. ✔ 4 Sin t

3. ✖ 2 Sin t

4. ✖ 8 Sin t

Question Number : 27 Question Id : 2839369427 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 strain gauge uses a soft wire of small diameter. The gauge factor is +4.2, if we neglect the piezo resistive effect, then its Poisson's ratio becomes

Options :

1. ✖ 2.6

2. ✖ 3.6

3. ✖ 4.6

4. ✔ 1.6

Question Number : 28 Question Id : 2839369428 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 among the following is not a linear transducer?

Options :

1. ✖ RTD

2. ✖ Thermocouple

3. ✖ LVDT

4. ✔ Thermistor

Question Number : 29 Question Id : 2839369429 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 an LVDT, the two secondary windings are connected in differential form to obtain _____

Options :

1. ✗ Higher output voltage

2. ✓ An output voltage which is phase sensitive and to null or get the reference point for calibration purpose

3. ✗ Maximum common mode voltage

4. ✗ Minimum common mode voltage

Question Number : 30 Question Id : 2839369430 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 general, the output impedance of a capacitance transducer is

Options :

1. ✗ Low

2. ✗ Medium

3. ✓ High

4. ✖ Constant

Question Number : 31 Question Id : 2839369431 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 Reynolds number of 500 indicates which flow

Options :

1. ✖ Turbulent flow

2. ✔ Laminar Flow

3. ✖ In between laminar and turbulent flow

4. ✖ No flow

Question Number : 32 Question Id : 2839369432 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 ionization type of vacuum gauge, the pressure P is given by_____
(where I_G = grid current, I_P = plate current and I_K = cathode current)

Options :

1. ✖ $P \propto \frac{I_G}{I_P}$

2. ✖ $P \propto \frac{I_K}{I_P}$

3. ✔ $P \propto \frac{I_P}{I_G}$

4. ✖ $P \propto \frac{I_G}{I_K}$

Question Number : 33 Question Id : 2839369433 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

DHT11 is an

Options :

1. ✔ Humidity Sensor

2. ✖ Touch Sensor

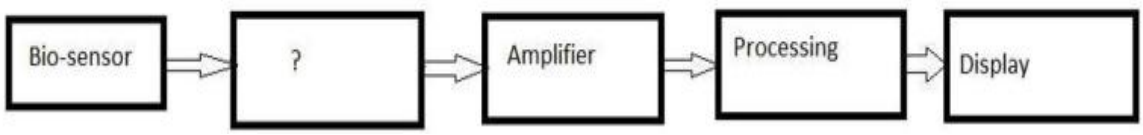
3. ✖ Alcohol detection Sensor

4. ✖ Pressure Sensor

Question Number : 34 Question Id : 2839369434 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

Given below is the diagram of biosensor. Identify the unmarked component.



Options :

1. ✖ Microprocessor

2. ✖ Filter

3. ✔ Transducer

4. ✖ A/D converter

Question Number : 35 Question Id : 2839369435 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 measurement of pH sensor uses which equation to measure ion concentration

Options :

1. ✔ Nernst equation

2. ✖ Polynomial equation

3. ✖ Exponential equation

4. ✖ Trapezoidal Equation

Question Number : 36 Question Id : 2839369436 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 standard input can be used for the analysis of measurement system in frequency domain

Options :

1. ✖ Step

2. ✔ Sine

3. ✖ Impulse

4. ✖ ramp

Question Number : 37 Question Id : 2839369437 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 seismic accelerometer is subjected to input acceleration of $a(t)=40\sin 60t$, then the displacement seismic mass can be given as $x_0(t)=k\sin(\omega t+\Phi)$. The value of ω is ___(rad/sec).

Options :

1. ✖ 50

2. ✖ 40

3. ✔ 60

4. ✖ 100

Question Number : 38 Question Id : 2839369438 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 direct method of level measurement?

Options :

1. ✖ Laser level sensor

2. ✔ Sight Glass system

3. ✖ Ultrasonic level detector

4. ✖ Air Purge sensor

Question Number : 39 Question Id : 2839369439 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 full wave rectifier circuit is used to rectify an AC voltage of 20V (rms). The DC output voltage of the circuit (consider no filter and ideal diodes),

Options :

1. ✖ 20V

2. ✖ 9V

3. ✔ 18V

4. ✖ 10V

Question Number : 40 Question Id : 2839369440 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 breakdown mechanism in a PN junction, which is used for voltage stabilization and it is heavily doped as

Options :

1. ✖ Avalanche breakdown

2. ✖ Diode breakdown

3. ✔ Zener breakdown

4. ✖ PN junction breakdown

Question Number : 41 Question Id : 2839369441 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 amplifier needs proper biasing to

Options :

1. ✖ Reduce offset voltage

2. ✔ Maintain Q-point

3. ✖ Do Amplification

4. ✖ Improve conduction of the device

Question Number : 42 Question Id : 2839369442 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 self-bias CE amplifier circuit having h_{ie}=3.2 KΩ, h_{fe}=100, R_1=40 KΩ, R_2=4.7 KΩ, R_c=4 KΩ and R_E=1.2 KΩ. Then its voltage gain (A_v) is

Options :

1. ✖ 100

2. ✖ -100

3. ✖ 125

4. ✔ -125

Question Number : 43 Question Id : 2839369443 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 high frequency analysis of BJT, the component which is especially considered in the equivalent circuit model for analysis is

Options :

1. ✖ Current limiting resistors

2. ✖ Freewheeling diodes

3. ✔ Small stray capacitances

4. ✖ Coupling capacitors

Question Number : 44 Question Id : 2839369444 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 positive feedback circuit, the input (V_I) and the output (V_0) is related as _____, where A_v is amplifier gain and β is feedback factor

Options :

1. ✖ $\frac{A_v}{1+A_v\beta}$

2. ✖ $\frac{A_v}{1+A_v}$

3. ✔ $\frac{A_v}{1-A_v\beta}$

4. ✖ $\frac{1}{1-A_v\beta}$

Question Number : 45 Question Id : 2839369445 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 gain of amplifier required for a RC phase shift oscillator is____

Options :

1. ✖ 3

2. ✖ 5

3. ✖ 10

4. ✔ 29

Question Number : 46 Question Id : 2839369446 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

Identify the false statement about Multivibrator

Options :

1. ✔ Mono stable Mutivibrator has 2 quasi stable states

2. ✖ Bi-stable Mutivibrator has 2 stable states

3. ✖ Astable Mutivibrator has 2 quasi stable states

4. ✖ Mono stable Mutivibrator has 1 stable state

Question Number : 47 Question Id : 2839369447 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

Astable Multivibrator can be used for _____

Options :

1.

✖ AM modulation

2. ✖ FM modulation

3. ✔ Pulse width modulation

4. ✖ Phase shift operation

Question Number : 48 Question Id : 2839369448 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 cascaded 2 stage voltage amplifier is designed to have a total voltage gain of 1000. If the gain of first stage is 25, then the second amplifier gain must be _____

Options :

1. ✖ 975

2. ✖ 1000

3. ✔ 40

4. ✖ 60

Question Number : 49 Question Id : 2839369449 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 open loop gain of an op-Amp available in the market is _____

Options :

1. ✖ 10^{-1}

2. ✖ 10

3. ✔ 10^{5}

4. ✖ 10^{2}

Question Number : 50 Question Id : 2839369450 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

Hysteresis is desirable in schmitt trigger as____

Options :

1. ✖ It prevents noise from causing false triggering

2. ✔ It provides time for op-Amp for saturation and desaturation

3. ✖ It improves amplification

4. ✖ It gets attenuation factor

Question Number : 51 Question Id : 2839369451 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

When step input is given to an integrator made with op-amp IC , then its output will be

Options :

1. ✔ Ramp

2. ✖ Sinusoidal

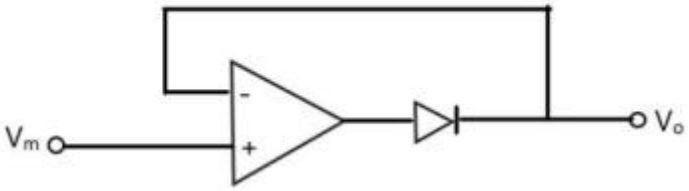
3. ✖ Rectangular

4. ✖ Step

Question Number : 52 Question Id : 2839369452 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 figure given below represents



Options :

1. ✖ Integrator

2. ✖ Differentiator

3. ✔ Precision rectifier

4. ✖ Summing Amplifier

Question Number : 53 Question Id : 2839369453 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 correct characteristics of instrumentation amplifier are

Options :

1. ✔ High input impedance, Low output impedance and High CMRR

2. ✖ Low input impedance, High output impedance and High CMRR

3. ✖ High input impedance, High output impedance and Low CMRR

4. ✖ Low input impedance, Low output impedance and Low CMRR

Question Number : 54 Question Id : 2839369454 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 possible reason for using V-I converter in a loop is_____

Options :

1. ✔ To transmit the data over longer distance

2. ✖ To interface to ADC

3. ✖ To interface to DAC

4. ✖ To interface to display

Question Number : 55 Question Id : 2839369455 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 critical frequency in active filter is defined as____

Options :

1. ✖ -20dB

2. ✔ -3dB

3. ✖ -6dB

4. ✖ -40dB

Question Number : 56 Question Id : 2839369456 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 maximum voltage gain offered by a buffer amplifier is_____

Options :

1. ✖ 10

2. ✔ 1

3. ✖ 100

4. ✖ 20

Question Number : 57 Question Id : 2839369457 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 logic gate can be used to perform comparison operation?

Options :

1. ✖ EX-NOR

2. ✖ NAND

3. ✖ NOR

4. ✔ EX-OR

Question Number : 58 Question Id : 2839369458 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 x, y and z are the digital variables, then the minimum form for the function $f(x,y,z)=\Sigma(0,2,3,7)$ is

Options :

1. ✖ $xz+\overline{y}\overline{z}$

2. ✔ $yz+\overline{x}\overline{z}$

3. ✖ $xy+\overline{y}\overline{z}$

4. ✖ $xz + \overline{x}\,\overline{y}$

Question Number : 59 Question Id : 2839369459 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 a negative number is represented in a digital machine?

Options :

1. ✖ Using BCD

2. ✖ Using demorgan's theorem

3. ✔ Using 2's compliment form

4. ✖ Using k-map

Question Number : 60 Question Id : 2839369460 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 result of the following binary arithmetic equation is____

$(94)_H + (5C)_H = ?$

Options :

1. ✖ $(0F)_H$

2. ✔ $(F0)_H$

3. ✖ $(140)_H$

4. ✖ $(144)_H$

Question Number : 61 Question Id : 2839369461 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 number representation is used for both error detection and error correction operation?

Options :

1. ✖ Parity

2. ✖ ASCII

3. ✔ Hamming

4. ✖ 2 out of 5 code

Question Number : 62 Question Id : 2839369462 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 5-variable karnaugh map has

Options :

1. ✖ 16 cells

2. ✔ 32 cells

3. ✖ 34 cells

4. ✖ 64 cells

Question Number : 63 Question Id : 2839369463 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 popular IC used for timing operation____

Options :

1. ✔ 555

2. ✖ 741

3. ✖ LM371

4. ✖ 7400

Question Number : 64 Question Id : 2839369464 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 CMOS family with the fastest switching speed is___

Options :

1.

✖ AC (Advanced CMOS)

2. ✖ HC CMOS

3. ✖ ACT CMOS

4. ✔ ALVC CMOS

Question Number : 65 Question Id : 2839369465 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 full adder is characterized by

Options :

1. ✔ 2 input and 2 output

2. ✖ 2 input and 1 output

3. ✖ 3 input and 2 output

4. ✖ 3 input and 1 output

Question Number : 66 Question Id : 2839369466 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 74HC85 magnitude comparator has A=1011 and B=1001 on its inputs, then the outputs are_____

Options :

1. ✖ $A > B = 0, A < B = 1$, and $A = B = 0$

2. ✔ $A > B = 1, A < B = 0$, and $A = B = 0$

3. ✖ $A > B = 1, A < B = 1$, and $A = B = 1$

4. ✖ $A > B = 0, A < B = 0$, and $A = B = 0$

Question Number : 67 Question Id : 2839369467 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 purpose of the clock input to a flip flop is to_____

Options :

1. ✖ Clear the device

2. ✖ Set the device

3. ✖ Always cause the output to change states

4. ✔ Cause the output to assume a state dependent on the controlling inputs

Question Number : 68 Question Id : 2839369468 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

Asynchronous counter differs from a synchronous counter in____

Options :

1. ✖ The number of states in its sequence

2. ✔ The method of clocking

3. ✖ The type of flip flop used

4. ✖ The value of the modulus

Question Number : 69 Question Id : 2839369469 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 group of bits 10110101 is serially shifted (right most bit first) into an 8-bit parallel output shift register with an initial state 11100100. After 2 clock pulses the register contains_____

Options :

1. ✖ 0101 1110

2. ✖ 1011 0101

3. ✔ 0111 1001

4. ✖ 0010 1101

Question Number : 70 Question Id : 2839369470 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

Data selectors are basically the same as

Options :

1. ✗ Decoders

2. ✗ Demultiplexers

3. ✓ Multiplexers

4. ✗ Encoders

Question Number : 71 Question Id : 2839369471 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 S/H circuit in a Data acquisition system is used for

Options :

1. ✗ Converting a discrete signal into its binary equivalent

2. ✓ Converting a continuous signal into its discrete equivalent

3. ✗ Converting a discrete signal into its continuous equivalent

4. ✗ Converting a continuous signal into its analog equivalent

Question Number : 72 Question Id : 2839369472 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 8-bit ADC with 0-5V has a resolution of__

Options :

1. ✖ 0.0039V

2. ✔ 0.0196V

3. ✖ 0.0078V

4. ✖ 0.0156V

Question Number : 73 Question Id : 2839369473 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 8-bit microprocessor with 16-bit address bus can have control bus of width____

Options :

1. ✖ 8 bit

2. ✖ 16 bit

3. ✔ 1 bit

4. ✖ 20 bit

Question Number : 74 Question Id : 2839369474 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 interrupt is un-maskable?

Options :

1. ✖ RST 5.5

2. ✖ RST 7.5

3. ✖ INTR1

4. ✔ TRAP

Question Number : 75 Question Id : 2839369475 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 microprocessor system with memory mapped I/O____

Options :

1. ✖ Devices have 8-bit addresses

2. ✖ Devices are accessed using IN and OUT instructions

3. ✖ There can be a maximum of 256 input and 256 output devices

4. ✔ Arithmetic and logical operations can be directly performed with the I/O data

Question Number : 76 Question Id : 2839369476 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

When a program is being executed in an 8- bit microprocessor, its PC contains____

Options :

1. ✖ Number of instructions in the current program that have already been executed

2. ✔ Memory address of the instruction that is to be executed next

3. ✖ Memory address of the instruction that is being currently executed

4. ✖ The total number of instructions in the program being executed

Question Number : 77 Question Id : 2839369477 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 period of the function $2\cos(\pi/4)$ is ___ seconds.

Options :

1. ✖ $\frac{1}{8}$

2. ✔ 8

3. ✖ $\frac{1}{4}$

4. ✖ 4

Question Number : 78 Question Id : 2839369478 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 system is non-linear? [y(t) = output, x(t) = input]

Options :

1. ✖ $y(t) = 2x(t-1) - 3x(t-2) + x(t-3)$

2. ✖ $y(t) = 5x(t)$

3. ✖ $y(t) = 2x(t-1) - 3x(t-2) - x(t-3)$

4. ✔ $y(t) = 2x(t) + 3.6$

Question Number : 79 Question Id : 2839369479 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 Fourier transform of a function f(t) is given by

Options :

1. ✖ $\int_{-\infty}^{\infty} f(t)e^{-st}dt$

2. ✖ $\int_{-\infty}^{\infty} f(t)e^{jwt}dt$

3. ✖ $\int_{0}^{\infty} f(t)e^{-jwt}dt$

4. ✔ $\int_{-\infty}^{\infty} f(t)e^{-jwt}dt$

Question Number : 80 Question Id : 2839369480 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 Fourier transform of $X(jw)=2\pi\delta(w)+\pi\delta(w-4\pi)+\pi\delta(w+4\pi)$ is

Options :

1. ✔ $2\pi(1+\cos 4\pi t)$

2. ✖ $2\pi(1-\cos 4\pi t)$

3. ✖ $\pi(1+\cos 4\pi t)$

4. ✖ $\pi(1-\cos 4\pi t)$

Question Number : 81 Question Id : 2839369481 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 Laplace transform of the function $f(t)=\cos(w_0 t)u(t)$ is

Options :

1. ✖ $\frac{s^2}{s^2+w_0^2}$

2. ✔ $\frac{s}{s^2+w_0^2}$

3. ✖ $\frac{1}{s^2+w_0^2}$

4. ✖ $\frac{s}{s^2-w_0^2}$

Question Number : 82 Question Id : 2839369482 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 inverse Laplace transform of function $F(s)=\frac{e^{-2s}}{s+1}$

Options :

1. ✖ $e^{-(t-2)}u(t-1)$

2. ✖ $-e^{-(t-2)}u(t-1)$

3. ✔ $e^{-(t-2)}u(t-2)$

4. ✖ $-e^{-(t-2)}u(t-2)$

Question Number : 83 Question Id : 2839369483 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 Z-transform of sequence $x[n]=[32^n-43^n]u(n)$ with region of convergence $|Z|>3$

Options :

1. ✔ $\frac{3}{1-2Z^{-1}}-\frac{4}{1-3Z^{-1}}$

2. ✖ $\frac{3}{2Z^{-1}-1}-\frac{4}{1-3Z^{-1}}$

3. ✖ $\frac{3}{2Z^{-1}-1}-\frac{4}{3Z^{-1}-1}$

4. ✖ $\frac{-3}{1-2Z^{-1}}-\frac{4}{1-3Z^{-1}}$

Question Number : 84 Question Id : 2839369484 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 an FM broadcast, the maximum frequency deviation allowed is 75 kHz, and the maximum modulation frequency is 15kHz. The band width is closest to

Options :

1. ✖ 60 kHz

2. ✖ 105 kHz

3. ✔ 180 kHz

4. ✖ 120 kHz

Question Number : 85 Question Id : 2839369485 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 circular convolution of the two sequences $x(n)=\{2,1,2,1\}$ and $h(n)=\{1,2,3,4\}$ is

Options :

1. ✖ $\{14,15,16,14\}$

2. ✔ $\{14,16,14,16\}$

3. ✖ $\{16,14,16,14\}$

4. ✖ $\{13,14,15,16\}$

Question Number : 86 Question Id : 2839369486 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 phase lock loop circuit is generally used in

Options :

1. ✖ AM modulation

2. ✖ Pulse Modulation

3. ✖ Pulse Amplitude Modulation

4. ✔ FM modulation

Question Number : 87 Question Id : 2839369487 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 75% of modulation, an AM transmitter produces 10 kW. Then its carrier power is _____

Options :

1. ✖ 10 kW

2. ✖ 9.8 kW

3. ✖ 8.8 kW

4. ✔ 7.8 kW

Question Number : 88 Question Id : 2839369488 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 signal received at the receiving antenna in wireless communication system gets faded due to

Options :

1. ✖ Short distance

2. ✖ Capacity of data

3. ✖ Speed of transmission

4. ✔ Multipath reflection

Question Number : 89 Question Id : 2839369489 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 digital voltmeter has a read out range from 0 to 9999. If the reading for the full scale is 9.999 V, then this multimeter's resolution in volts is

Options :

1. ✖ 10 mV

2. ✔ 1 mV

3. ✖ 1 μV

4. ✖ 10 μV

Question Number : 90 Question Id : 2839369490 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 indicating instrument without controlling torque results in

Options :

1. ✖ No deflection

2. ✔ Maximum deflection irrespective of the magnitude of current passing through the coil

3. ✖ Minimum deflection irrespective of the magnitude of current passing through the coil

4. ✖ Sustained oscillation at the steady state position

Question Number : 91 Question Id : 2839369491 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 unknown capacitance can be measured with

Options :

1. ✖ Maxwells bridge

2. ✖ Andersons bridge

3. ✔ De Sauty's bridge

4. ✖ Wheatstone bridge

Question Number : 92 Question Id : 2839369492 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 voltage of a circuit is measured by a voltmeter having input impedance comparable with output impedance of the circuit thereby causing error in the measurement. This error can be called as

Options :

1. ✖ Gross error

2. ✖ Random error

3. ✖ Human Error

4. ✔ Loading error

Question Number : 93 Question Id : 2839369493 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 horizontal deflection plates in a CRO are 20 mm long and 5 mm apart. The centre of the plate is 0.25 m from the screen. If the accelerating voltage is 3 kV, then its deflection sensitivity is

Options :

1. ✖ 6 mm/V

2. ✔ 0.6 mm/V

3. ✖ 0.1666 mm/V

4. ✖ 0.4 mm/V

Question Number : 94 Question Id : 2839369494 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 the closed loop transfer function of a control system

$$\frac{C(S)}{R(S)} = \frac{10}{S^2 + 4S + 5}$$

The Natural Frequency in rad/sec is ___

Options :

1. ✖ 1.24

2. ✔ 2.24

3. ✖ 3.24

4. ✖ 5

Question Number : 95 Question Id : 2839369495 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 the closed loop transfer function of a control system

$$\frac{C(S)}{R(S)} = \frac{10}{S^2 + 4S + 5}$$

The Damping Ratio is _____

Options :

1. ✖ 0.8

2. ✔ 0.9

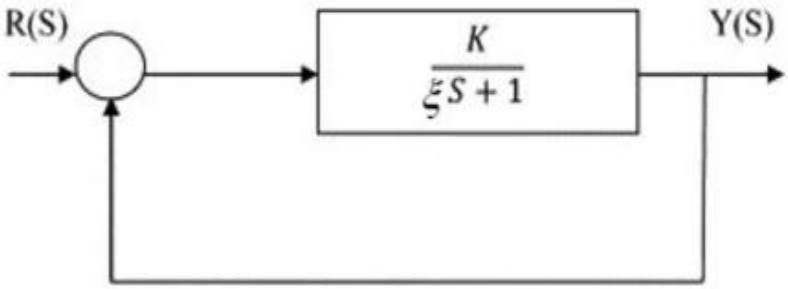
3. ✖ 1

4. ✖ 10

Question Number : 96 Question Id : 2839369496 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 the unity feedback control system shown in Figure, the steady state error when subjected to step input is



Options :

1. ✖ 0

2. ✔ $\frac{1}{1+K}$

3. ✖ $\frac{1}{1+K\xi}$

4. ✖ 1

Question Number : 97 Question Id : 2839369497 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 of a basic PI controller is given by

Options :

1. ✖ $K_p\left(1+sT_I\right)$

2. ✔ $K_p\left(1+\frac{T_I}{s}\right)$

3. ✖ $K_p\left(1+\frac{T_I}{s^2}\right)$

4. ✖ $K_p\left(1+s^2T_I\right)$

Question Number : 98 Question Id : 2839369498 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 LTI system is said to be stable if the system ___

Options :

1. ✖ Obeys the principle of superposition

2. ✔ If excited by finite input, then the number outputs is also finite

3. ✖ Has poles on right hand side of s-plane

4. ✖ Has poles on both right hand and left hand side of s-plane

Question Number : 99 Question Id : 2839369499 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 RH criteria is used for knowing stability of the system with the following constraints

Options :

1. ✖ The characteristic equation should contain only poles

2. ✔ The characteristic equation should not contain any complex or exponential terms

3. ✖ The characteristic equation should contain only zeros

4. ✖ The characteristic equation should contain both zeros and poles

Question Number : 100 Question Id : 2839369500 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 of a typical control system is defined as the Laplace transform of its

Options :

1. ✖ Step response

2. ✖ Sine response

3. ✔ Impulse response

4. ✖ Ramp response

Question Number : 101 Question Id : 2839369501 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 fuzzy logic controller is developed as an improvement of _____

Options :

1. ✖ ON-OFF controller

2. ✖ Two position controller

3. ✖ One position controller

4. ✔ Continuous controller like PID

Question Number : 102 Question Id : 2839369502 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 an electromagnetic transducer commonly used to convert angular position of the shaft into an electric signal?

Options :

1. ✔ Synchro

2. ✖ DC motor

3. ✖ Solenoid value

4. ✖ Limit switch

Question Number : 103 Question Id : 2839369503 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

To establish discontinuous movement of rotating output, the required final control element is

Options :

1. ✖ Solenoid value

2. ✖ Relay

3. ✔ Stepper motor

4. ✖ DC motor

Question Number : 104 Question Id : 2839369504 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 following statement is true for root locus

Options :

1. ✔ It is the locus of roots of characteristic equation when the gain is varied from 0 to ∞

2. ✖ It is the locus of roots of closed loop transfer function when the gain is varied from 0 to ∞

3. ✖ It is the locus of roots of open loop transfer function when the gain is varied from 0 to ∞

4. ✖ It is the locus of roots of closed loop transfer function when the gain is varied from -∞ to ∞

Question Number : 105 Question Id : 2839369505 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 delay element e^{-sT} can be approximated as____

Options :

1. ✖ $-sT$

2. ✔ $1-sT$

3. ✖ $1+sT$

4. ✖ sT

Question Number : 106 Question Id : 2839369506 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 Opto-isolator device consist of the following

Options :

1. ✖ Diodes and resistors

2. ✖ Amplifier and capacitors

3. ✔ LEDs and photo-diodes

4. ✖ Laser diodes and LEDs

Question Number : 107 Question Id : 2839369507 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 electroluminescent doide prepared with $GaAs_{0.6}P_{0.4}$ gives which color.

Options :

1. ✖ Blue

2. ✖ Green

3. ✖ Yellow

4. ✔ Red

Question Number : 108 Question Id : 2839369508 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 type of spectrometry is used for radiocarbon dating?

Options :

1. ✖ Sector mass spectrometer

2. ✖ Quadrupole mass spectrometer

3. ✔ Accelerator mass spectrometry

4. ✖ Hybrid Q-TOF mass spectrometer

Question Number : 109 Question Id : 2839369509 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 wavelength range for UV spectrum of light?

Options :

1. ✖ 400 nm to 700 nm

2. ✖ 700 nm to 1 mm

3. ✖ 0.01 nm to 10 nm

4. ✔ 10 nm to 400 nm

Question Number : 110 Question Id : 2839369510 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 photo-detecting device measure very low light intensities?

Options :

1. ✖ Photo-transistor

2. ✖ Photo-diode

3. ✖ Photo-conductive cell

4. ✔ Photo-multiplier

Question Number : 111 Question Id : 2839369511 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 medium range weather forecasting is done for

Options :

1. ✔ 3 – 10 days

2. ✖ 10 – 15 days

3. ✖ 15 – 20 days

4. ✖ 20 – 30 days

Question Number : 112 Question Id : 2839369512 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

Paper chromatography is an example of

Options :

1. ✔ Partition chromatography

2. ✖ Gas chromatography

3. ✖ Liquid chromatography

4. ✖ Absorption chromatography

Question Number : 113 Question Id : 2839369513 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 prominent EEG wave pattern of an awake, relaxed adult whose eyes are closed is ____rhythm.

Options :

1. ✖ Delta

2. ✖ Beta

3. ✔ Alpha

4. ✖ Theta

Question Number : 114 Question Id : 2839369514 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 ECG the relaxation of ventricles is represented by

Options :

1. ✖ P-wave

2. ✔ T wave

3. ✖ U wave

4. ✖ QRS complex

Question Number : 115 Question Id : 2839369515 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 contraction of the skeletal muscles results in the generation of action potential in the individual muscle fibers. Record of this action potential is called

Options :

1. ✖ ECG

2. ✔ EMG

3. ✖ EEG

4. ✖ EKG

Question Number : 116 Question Id : 2839369516 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 fundamental operating principle of medical ultrasound transducers is_____

Options :

1. ✖ Snell's law

2. ✖ ALARA principle

3. ✔ Piezoelectric effect

4. ✖ Impedance effect

Question Number : 117 Question Id : 2839369517 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 order to visualize the flow of blood in the arteries, what process is done with CT?

Options :

1. ✖ CT angioplasty

2. ✔ CT angiography

3. ✖ Simple CT

4. ✖ CT cardiography

Question Number : 118 Question Id : 2839369518 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 principal ions not present in the body fluids are___

Options :

1. ✖ Sodium

2. ✖ Potassium

3. ✖ Chloride

4. ✔ Radium

Question Number : 119 Question Id : 2839369519 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 volume of blood within the dialyzer is known as _____

Options :

1. ✖ secondary volume

2. ✖ quarterly volume

3. ✔ priming volume

4. ✖ residual volume

Question Number : 120 Question Id : 2839369520 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 pneumatic controllers, which of the following is used for applying the signals from the sensors

Options :

1. ✖ Op-Amps

2. ✖ Gears

3. ✔ Bellows

4. ✖ Piston