

Question Paper Preview**Notations :**

- Options shown in green color and with ✓ icon are correct.
- Options shown in red color and with ✗ icon are incorrect.

Question Paper Name:	Instrumentation Engineering 28th May 2018 Shift1
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Ruler Required?:	No
Eraser Required?:	No
Scratch Pad Required?:	No
Rough Sketch/Notepad Required?:	No
Protractor Required?:	No

Display Number Panel:

Yes

Group All Questions:

No

Question Number : 1 Question Id : 5113463601 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The Eigen values of the matrix $A = \begin{bmatrix} 2 & 3 \\ 3 & 2 \end{bmatrix}$ are

Options :

- ✗ 2, 3
- ✗ -5, 1
- ✓ -1, 5
- ✗ -3, 2

Question Number : 2 Question Id : 5113463602 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The value of $I = \int_0^{\frac{\pi}{2}} \frac{\cos \theta}{(1 + \sin \theta)(2 + \sin \theta)} d\theta$ is

Options :

1. ✗ $\log \frac{2}{3}$

2. ✓ $\log \frac{4}{3}$

3. ✗ $\log \frac{3}{4}$

4. ✗ $\log \frac{3}{2}$

Question Number : 3 Question Id : 5113463603 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

If $u = x^2 \tan^{-1} \frac{y}{x}$, then $\frac{\partial u}{\partial y} =$ --

Options :

1. ✓ $\frac{x^3}{x^2 + y^2}$

2. ✗ $\frac{x^2}{x^2 + y^2}$

3. ✗ $\frac{x}{x^2 + y^2}$

4. ✗ $\frac{1}{x^2 + y^2}$

Question Number : 4 Question Id : 5113463604 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The greatest value of directional derivative of the function $f = x^2 y z^3$ at $(2, 1, -1)$ is ---

Options :

1. ✗ $\sqrt{11}$

2. ✗ $2\sqrt{11}$

3. ✓ $4\sqrt{11}$

4. ✗ $\frac{1}{\sqrt{11}}$

Question Number : 5 Question Id : 5113463605 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The value of $\int F \cdot dr$ where C is the arc of $y = x^2$ in xy plane from (0, 0) to (1, 1) and $F = x^2i + y^2j$ is

Options :

1. ✗ $\frac{1}{3}$

2. ✗ $\frac{3}{2}$

3. ✓ $\frac{2}{3}$

4. ✗ 1

Question Number : 6 Question Id : 5113463606 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The integrating factor of the equation $(x+y+1) \frac{dy}{dx} = 1$ is

Options :

1. ✗ e^x

2. ✗ e^y

3. ✗ e^{-x}

4. ✓ e^{-y}

Question Number : 7 Question Id : 5113463607 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The solution of the differential equation $(D^3 + 2D^2 + D)y = 0$ is

Options :

1. ✓ $y = c_1 + (c_2 + xc_3)e^{-x}$
2. ✗ $y = c_1 + (c_2 - xc_3)e^{-x}$
3. ✗ $y = c_1 + (c_2x + x^2c_3)e^{-x}$
4. ✗ $y = c_1x + (c_2x + c_3x^2)e^{-x}$

Question Number : 8 Question Id : 5113463608 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The fixed points (i.e. invariant points) of the transformation $\omega = \frac{1+z}{1-z}$ where z is a complex number are --

Options :

1. ✗ $-1, 1$
2. ✓ $-i, i$
3. ✗ $0, 1$
4. ✗ $1, i$

Question Number : 9 Question Id : 5113463609 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

If C denotes the square $x = \pm 2, y = \pm 2$ where C is described in positive sense then $\int_C \frac{z}{2z+1} dz$ over C is

Options :

1. ✓ $\frac{-\pi i}{2}$

2. ✖ $\frac{\pi i}{2}$

3. ✖ $2\pi i$

4. ✖ $-2\pi i$

Question Number : 10 Question Id : 5113463610 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

If the probability of a defective bolt is $\frac{1}{10}$, then the variance of the distribution of defective bolts has a total of 400 bolts is ---

Options :

1. ✔ 36

2. ✖ 40

3. ✖ 60

4. ✖ 90

Display Number Panel:

Yes

Group All Questions:

No

Question Number : 11 Question Id : 5113463611 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Consider the sequence $x[n] = a^n u[n] + b^n u[n]$, where $u[n]$ denotes the unit step sequence and $0 < |a| < |b| < 1$. The region of convergence is

Options :

1. ✔ $|z| > |b|$

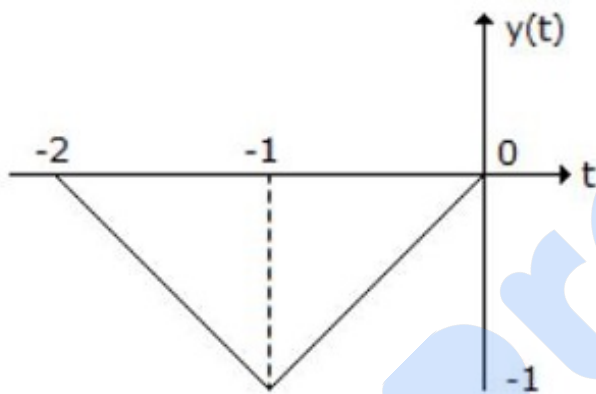
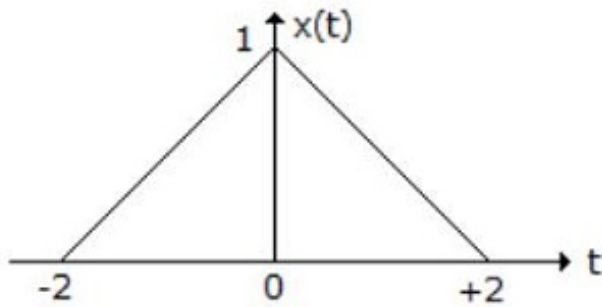
2. ✖ $|z| > |a|$

3. ✖ $|a| > |z| > |b|$

4. ✖ $|z| < |b|$

Question Number : 12 Question Id : 5113463612 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Let $x(t)$ and $y(t)$ with F.T. $x(f)$ and $y(f)$ respectively be related as shown in figure



Options :

1. ✖ $-\frac{1}{2}X\left(\frac{f}{2}\right)e^{-j2\pi f}$

2. ✔ $-\frac{1}{2}X\left(\frac{f}{2}\right)e^{j2\pi f}$

3. ✖ $-X\left(\frac{f}{2}\right)e^{j2\pi f}$

4. ✖ $-X\left(\frac{f}{2}\right)e^{-j2\pi f}$

Question Number : 13 Question Id : 5113463613 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

If the analog signal $x(t)$ is given as $x(t) = 3 \sin 500 \pi t + 9 \cos 300 \pi t + \sin 700 \pi t$, the Nyquist sampling rate will be

Options :

1. ✗ $1/500$
2. ✗ $1/300$
3. ✓ $1/700$
4. ✗ $1/350$

Question Number : 14 Question Id : 5113463614 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Fourier transform of $e^{-\pi t^2}$ is

Options :

1. ✗ $e^{-(\pi f^2)/4}$
2. ✗ $e^{-2\pi f^2}$
3. ✗ $e^{-(\pi f^2)/2}$
4. ✓ $e^{-\pi f^2}$

Question Number : 15 Question Id : 5113463615 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

FM signal with a modulation index m_f is passed through a frequency tripler. The wave in the output of the tripler will have a modulation index of

Options :

1. ✗ m_f
2. ✗ $m_f/3$

3. ✓ $3m_f$
4. ✗ $m_f/9$

Question Number : 16 Question Id : 5113463616 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The impulse response of a causal LTI system and the input signal to the system is shown in figure (a) and (b) respectively. The output of the system at $t = 2$ sec is equal to

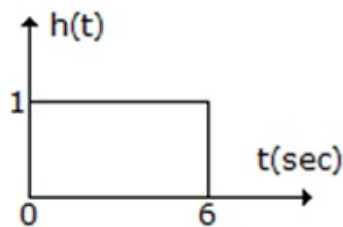


Figure (a)

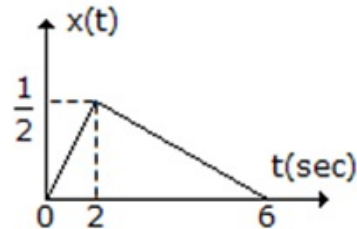


Figure (b)

Options :

1. ✗ 0
2. ✗ 3
3. ✗ $3/2$
4. ✓ $1/2$

Question Number : 17 Question Id : 5113463617 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

In binary data transmission DPSK is preferred to PSK because

Options :

1. ✓ a coherent carrier is not required to be generated at the receiver
2. ✗ for a given energy per bit, the probability of error is less
3. ✗ the 180° phase shifts of the carrier are unimportant
4. ✗ more protection is provided against impulse noise

Question Number : 18 Question Id : 5113463618 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

A 5-point sequence $x[n]$ is given as $x[-2] = -1$, $x[-1] = 2$, $x[0] = 6$, $x[1] = 3$, $x[2] = 2$.

Let $X(e^{j\omega})$ denote the discrete-time Fourier Transform of $x[n]$. The value of $\int_{-\pi}^{\pi} X(e^{j\omega}) d\omega$

Options :

1. ✗ 6
2. ✓ 12π
3. ✗ -6
4. ✗ -12π

Question Number : 19 Question Id : 5113463619 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The Dirac delta function is defined as

Options :

1. ✗ $\delta(t) = \begin{cases} 1 & t = 0 \\ 0 & \text{otherwise} \end{cases}$
2. ✗ $\delta(t) = \begin{cases} \infty & t = 0 \\ 0 & \text{otherwise} \end{cases}$
3. ✗ $\delta(t) = \begin{cases} 1 & t = 0 \\ 0 & \text{otherwise} \end{cases} \text{ and } \int_{-\infty}^{\infty} \delta(t) dt = 1$
4. ✓ $\delta(t) = \begin{cases} \infty & t = 0 \\ 0 & \text{otherwise} \end{cases} \text{ and } \int_{-\infty}^{\infty} \delta(t) dt = 1$

Question Number : 20 Question Id : 5113463620 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Which of the following analog modulation scheme requires both minimum transmitted power and bandwidth?

Options :

1. ✖ AM
2. ✖ DSB-SC
3. ✖ SSB-SC
4. ✔ VSB-SC

Question Number : 21 Question Id : 5113463621 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

If the number of bits in a PCM system is increased from n to $n+1$, the improvement of signal to quantization noise ratio will be

Options :

1. ✖ 3 dB
2. ✔ 6 dB
3. ✖ $2n$ dB
4. ✖ $6n$ dB

Question Number : 22 Question Id : 5113463622 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

If $y[n] = n^2 x[n^2]$ then the system is

Options :

1. ✖ time invariant and stable
2. ✖ time variant and unstable
3. ✔ time invariant and unstable
4. ✖ time variant and stable

Question Number : 23 Question Id : 5113463623 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

An LTI system with impulse response $h(t) = \frac{1}{\sqrt{2+t}} u(t+2)$ then the system is

Options :

1. ✗ causal and stable
2. ✓ non-causal and unstable
3. ✗ causal and unstable
4. ✗ non-causal and stable

Question Number : 24 Question Id : 5113463624 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The auto correlation of $x(t)$ can be done using convolution as

Options :

1. ✓ $R_X(\tau) = x(t) * x(-t)$
2. ✗ $R_X(\tau) = x(-t) * x(-t)$
3. ✗ $R_X(\tau) = x(t) * x(t)$
4. ✗ $R_X(\tau) = x(-t) * x(-t+1)$

Question Number : 25 Question Id : 5113463625 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

If $h_1(n)$ is an impulse response of a typical low pass filter, then $h_2(n) = (-1)^n h_1(n)$ is an impulse response of a

Options :

1. ✗ Low pass filter
2. ✓ High pass filter
3. ✗ Band pass filter

4. ✖ Band stop filter

Question Number : 26 Question Id : 5113463626 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

If $X[k] = [1 + 2j, 1 - 2j, -1 + 2j, -1 - 2j]$ is 4-point DFT of the sequence $x(n)$,

then $\sum_{n=0}^3 x(n) =$

Options :

1. ✖ 4
2. ✖ 0
3. ✔ $1 + 2j$
4. ✖ $4(1 + 2j)$

Question Number : 27 Question Id : 5113463627 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The respectively phase delay and group delay incurred by the causal FIR filter $h[n] = [1, 2, 3, 4, 3, 2, 1]$ are

Options :

1. ✖ 7 samples, 3 samples
2. ✖ 3 samples, 7 samples
3. ✔ 3 samples, 3 samples
4. ✖ 7 samples, 7 samples

Question Number : 28 Question Id : 5113463628 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Consider the signal filter $s(t) = m(t)\cos(2\pi f_c t) + \hat{m}(t)\cos(2\pi f_c t)$. $\hat{m}(t)$ is the Hilbert transform of $m(t)$ and $m(t)$ is a low pass signal with a very small bandwidth compared to f_c , then $s(t)$ is

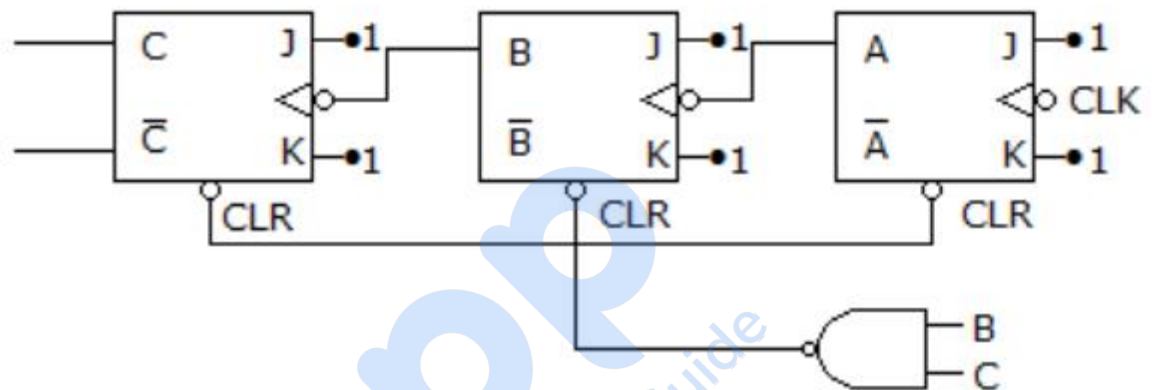
Options :

1. ✔ Low pass signal

2. ✖ High pass signal
3. ✖ Band pass signal
4. ✖ DSB-SC signal

Question Number : 29 Question Id : 5113463629 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The following ripple counter is



Options :

1. ✖ Mod 7
2. ✖ Mod 3
3. ✔ Mod 6
4. ✖ Mod 5

Question Number : 30 Question Id : 5113463630 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

A memory system of size 64 k bytes is to be designed using memory chips which have 14 address lines and 4 data lines each. The number of such chips required to design the memory system is

Options :

1. ✖ 2
2. ✖ 4

3. ✓ 8

4. ✗ 16

Question Number : 31 Question Id : 5113463631 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The range of signed decimal number that can be represented by 8 bit in 2's complement number is

Options :

1. ✗ -256 to +255

2. ✗ -255 to +255

3. ✗ -127 to +127

4. ✓ -128 to +127

Question Number : 32 Question Id : 5113463632 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

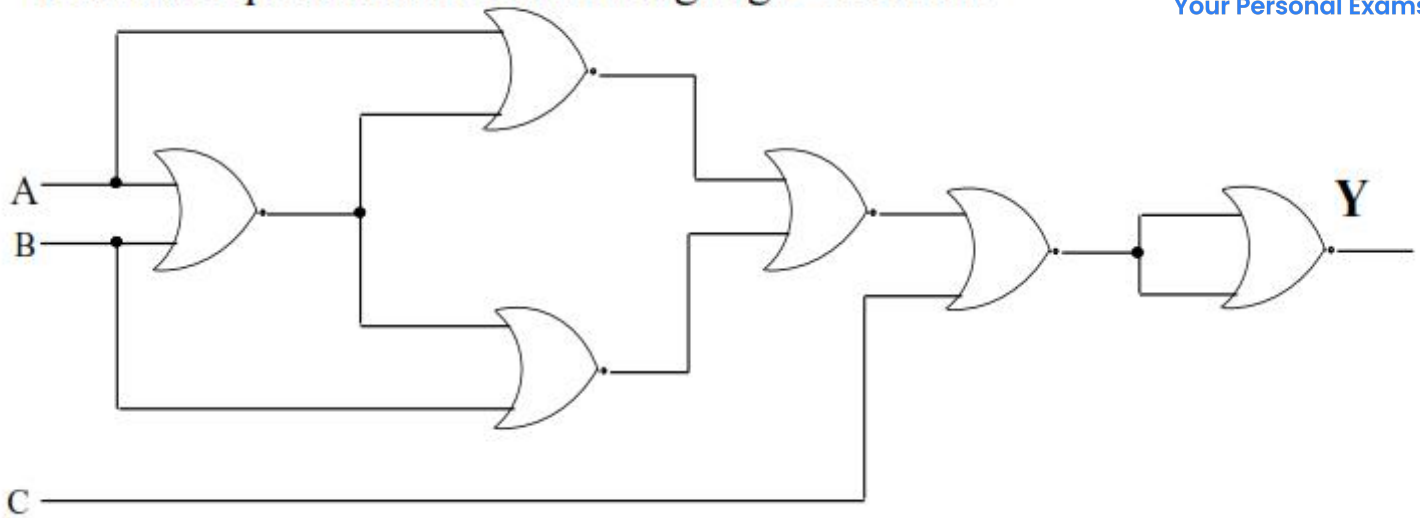
A counter type A/D converter contains a 8 bit binary ladder and a counter driven by a 32 MHz clock. Then conversion time is

Options :

1. ✓ 8 μ sec2. ✗ 10 μ sec3. ✗ 2 μ sec4. ✗ 5 μ sec

Question Number : 33 Question Id : 5113463633 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Boolean equation of the following logic circuit is

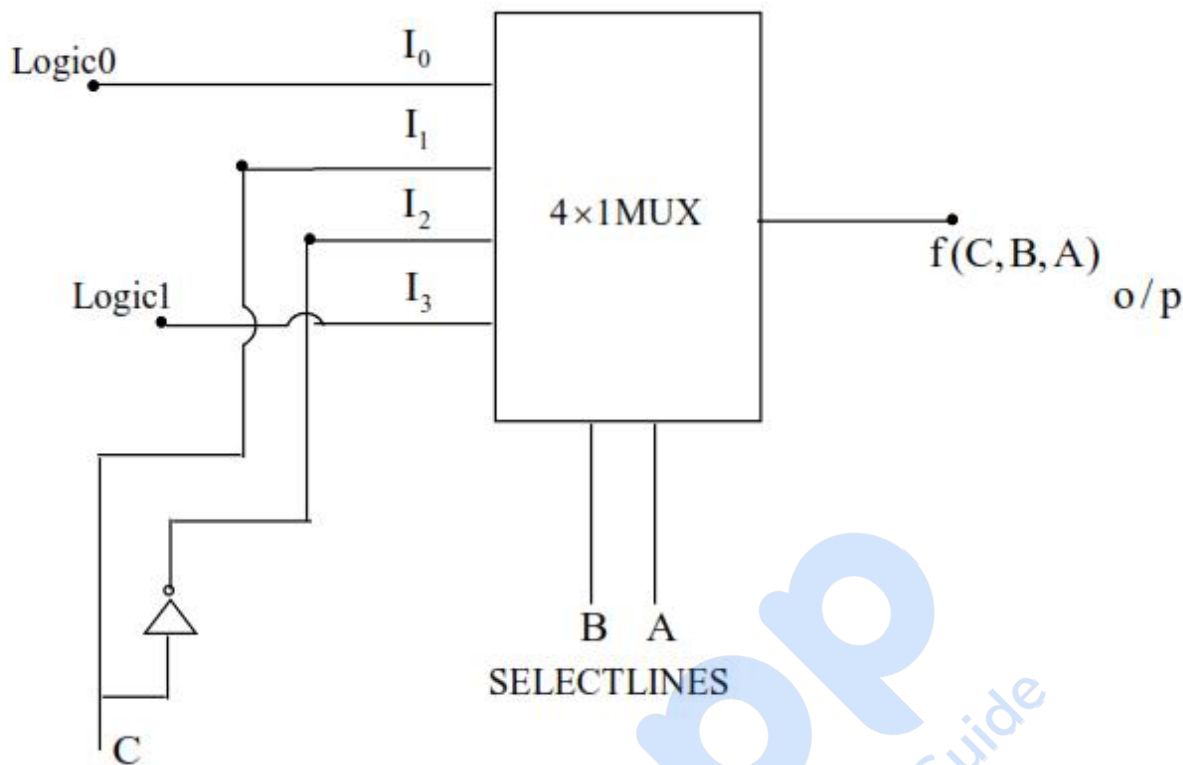


Options :

1. ✓ $AB + A'B' + C$
2. ✗ $A'B + AB' + C'$
3. ✗ $AB + A'B' + C'$
4. ✗ $A'B + AB' + C$

Question Number : 34 Question Id : 5113463634 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Boolean equation of the following multiplexer circuit is



Options :

1. ✗ $B'AC + BA'C' + B'A'$
2. ✗ $B'AC' + BA'C' + BA$
3. ✓ $B'AC + BA'C' + BA$
4. ✗ $B'AC + BAC + B'A'$

Question Number : 35 Question Id : 5113463635 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The output of 10 bit counter after counting 2060 clock cycles is

Options :

1. ✗ 10 0000 1011
2. ✗ 00 0000 1010
3. ✗ 10 0000 1001

4. ✓ 00 0000 1011

Question Number : 36 Question Id : 5113463636 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The percentage resolution of a 8 bit DAC is

Options :

1. ✗ 0.390

2. ✗ 1.563

3. ✓ 0.781

4. ✗ 0.195

Question Number : 37 Question Id : 5113463637 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Among the the digital IC families ECL, TTL and CMOS

Options :

1. ✓ ECL has least propogation delay

2. ✗ TTL has largest fan out

3. ✗ CMOS has biggest noise margin

4. ✗ TTL has lowest power dissipation

Question Number : 38 Question Id : 5113463638 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

How many times the loop will be executed for 8085 microprocessor

Loop : MVI C, 0Ah

DEC C

JNZ Loop

Options :

1. ✗ 10 times
2. ✗ 11 times
3. ✗ 9 times
4. ✓ ∞ times

Question Number : 39 Question Id : 5113463639 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

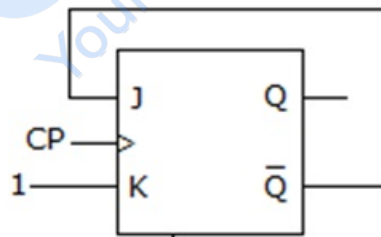
The number of comparators in 8 bit flash ADC is

Options :

1. ✗ 8
2. ✗ 16
3. ✗ 256
4. ✓ 255

Question Number : 40 Question Id : 5113463640 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

In a J-K FF, assuming the FF was initially cleared and then clocked for 6 pulses, the sequence at the Q output will be



Options :

1. ✗ 010000
2. ✗ 011001
3. ✗ 010010
4. ✓ 010101

Question Number : 41 Question Id : 5113463641 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

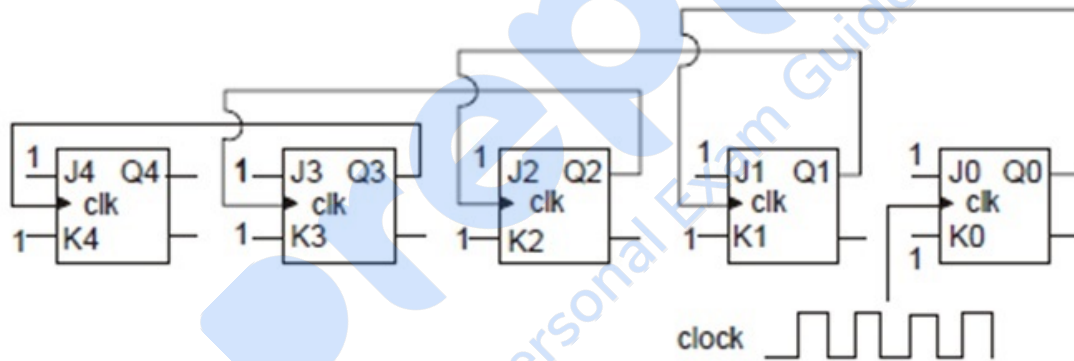
The Boolean expression $(X + Y)(X + Y')(XY' + X)'$ simplifies to

Options :

1. ✓ ☒ X
2. ✗ ☐ Y
3. ✗ ☐ XY
4. ✗ ☐ X+Y

Question Number : 42 Question Id : 5113463642 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Five JK flip flops are cascaded as shown in figure. If a clock pulse of 1024 kHz is applied, the frequency at Q3 is



Options :

1. ✗ ☐ 256 kHz
2. ✗ ☐ 128 kHz
3. ✗ ☐ 512 kHz
4. ✓ ☒ 64 kHz

Question Number : 43 Question Id : 5113463643 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Identify the essential prime implicant pairs

AB/CD	00	01	11	10
00				1
01			1	1
11		1	1	
10		1		
		Q1	Q2	Q3

Options :

1. ✗ Q1 and Q2 only
2. ✗ Q1 and Q3 only
3. ✓ Q2 and Q3 only
4. ✗ Q1, Q2 and Q3

Question Number : 44 Question Id : 5113463644 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

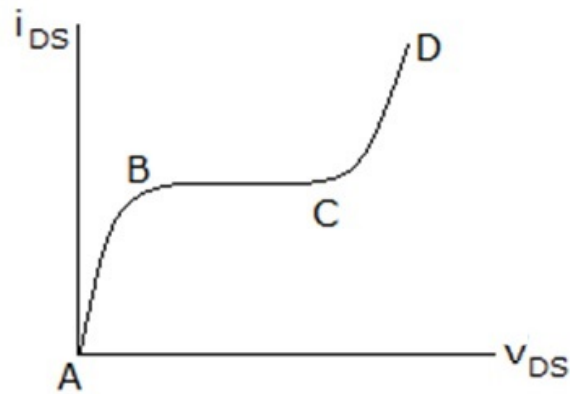
The clock frequency of 8085 microprocessor is 4 MHz. If the time required to execute an instruction is 1.5 μ s, then the number of T states required to execute an instruction is

Options :

1. ✗ 8
2. ✗ 9
3. ✗ 7
4. ✓ 6

Question Number : 45 Question Id : 5113463645 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The v - i characteristics of a FET is shown in figure. In which region is the device biased for small signal amplification

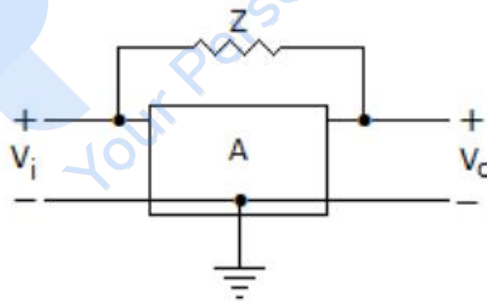


Options :

1. ✗ AB
2. ✓ BC
3. ✗ CD
4. ✗ BD

Question Number : 46 Question Id : 5113463646 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Gain of the amplifier is 'A'. Then the I/P impedance and O/P impedance of the closed loop amplifier shown below would be



Options :

$$Z_i = \frac{Z A}{1 - A}, Z_o = \frac{Z A}{A + 1/A}$$

1. ✗

$$Z_i = \frac{Z}{1 - A}, Z_o = \frac{Z A}{A - 1}$$

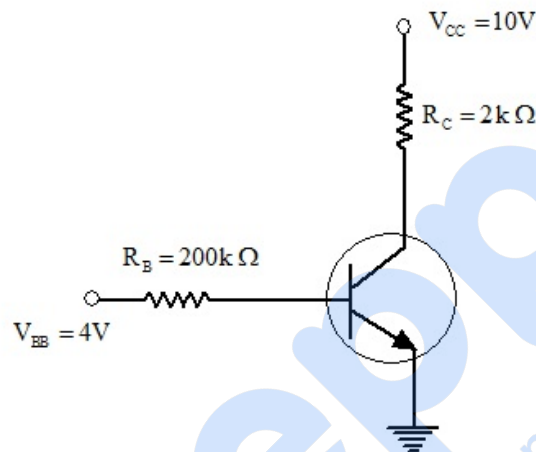
2. ✓

3. ✖ $Z_i = \frac{Z A}{1 - A}, Z_o = \frac{Z A}{A - 1}$

4. ✖ $Z_i = \frac{Z}{1 - A}, Z_o = \frac{Z A}{A + 1}$

Question Number : 47 Question Id : 5113463647 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Obtain the base & collector currents and V_{CE} for a CE circuit is shown in below figure.
 $V_{BE} (ON) = 0.7 \text{ V}$, $\beta = 200$ respectively. Transistor is in active region.



Options :

1. ✖ $16.5 \mu\text{A}, 3.3 \text{ mA}, 4.4 \text{ V}$

2. ✖ $16.5 \mu\text{A}, 4.3 \text{ mA}, 4.5 \text{ V}$

3. ✔ $16.5 \mu\text{A}, 3.3 \text{ mA}, 3.4 \text{ V}$

4. ✖ $18.5 \mu\text{A}, 3.6 \text{ mA}, 3.7 \text{ V}$

Question Number : 48 Question Id : 5113463648 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The input impedance of the emitter follower circuit is ----- for the parameters. $h_{ie} = 1 \text{ k}\Omega$, $h_{fe} = 99$; $R_E = 1 \text{ k}\Omega$, no other resistors are there in the circuit

Options :

1. ✖ $100 \text{ k}\Omega$

2. ✖ $99 \text{ k}\Omega$

3. ✓ 101 kΩ

4. ✗ 98 kΩ

Question Number : 49 Question Id : 5113463649 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

An amplifier without feedback has a voltage gain of 50, input resistance of 1 kΩ and output resistance of 2.5 kΩ. The input resistance and output resistance of the current shunt -ve feedback amplifier using the above amplifier with a feedback factor of 0.2 respectively are

Options :

1. ✗ (1/5) kΩ and 27.5 kΩ

2. ✗ 11 kΩ and (2.5/11) kΩ

3. ✗ 5 kΩ and (2.5/11) kΩ

4. ✓ (1/11) kΩ and 27.5 kΩ

Question Number : 50 Question Id : 5113463650 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Nature of feedback present in FET source follower circuit is

Options :

1. ✗ Current series feedback

2. ✓ Voltage series feedback

3. ✗ Current shunt feedback

4. ✗ Voltage shunt feedback

Question Number : 51 Question Id : 5113463651 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

If fixed positive charges are present in the gate oxide of an n-channel enhancement type MOSFET, it will lead to

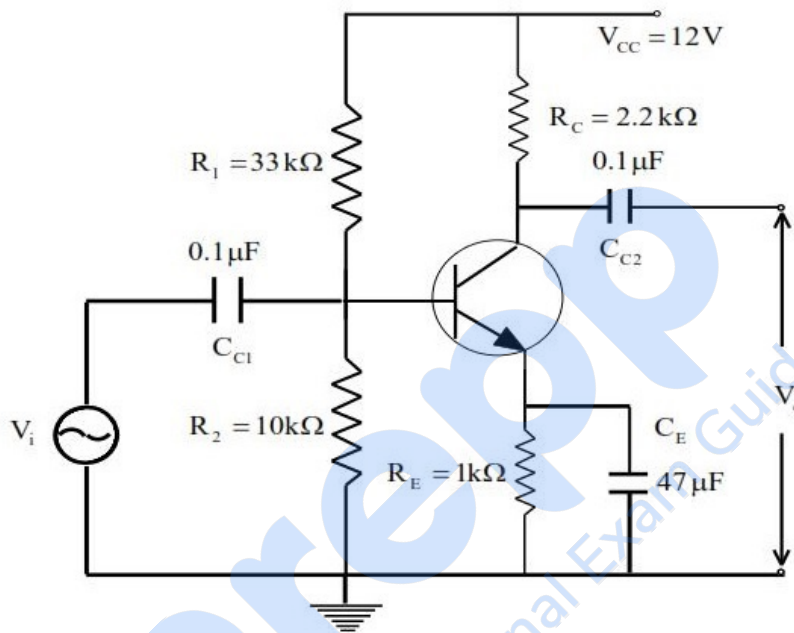
Options :

1. ✓ a decrease in the threshold voltage

2. ✗ channel length modulation
3. ✗ an increase in substrate leakage current
4. ✗ an increase in accumulation capacitance

Question Number : 52 Question Id : 5113463652 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Find the mid band voltage gain of the following circuit, $h_{ie}=1.2\text{ k}\Omega$, $h_{fe}=125$, h_{re} and h_{oe} have negligible values, The source is ideal and there is a bypass capacitance.



Options :

1. ✓ 229
2. ✗ 2.2
3. ✗ 100
4. ✗ 101

Question Number : 53 Question Id : 5113463653 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

In a MOSFET, the polarity of inversion layer is same as that of the

Options :

1. ✗ Charge on the gate-EC-electrode

2. ✖ Minority carriers in the drain
3. ✖ Majority carriers in the substrate
4. ✔ Majority carriers in the source

Question Number : 54 Question Id : 5113463654 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

If the differential gain and common mode gain of a differential amplifier are 70 dB and 8 dB respectively, then its CMRR is

Options :

1. ✖ 52 dB
2. ✔ 62 dB
3. ✖ 78 dB
4. ✖ 560 dB

Question Number : 55 Question Id : 5113463655 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

An ideal op-amp is an ideal

Options :

1. ✔ Voltage amplifier
2. ✖ Current amplifier
3. ✖ Trans resistance amplifier
4. ✖ Trans conductance amplifier

Question Number : 56 Question Id : 5113463656 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The presence of harmonic distortion in power amplifiers is because of

Options :

1. ✗ Linear characteristics of active device
2. ✓ Non Linear characteristics of active device
3. ✗ Ideal characteristics of active device
4. ✗ Time varying characteristics of active device

Question Number : 57 Question Id : 5113463657 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

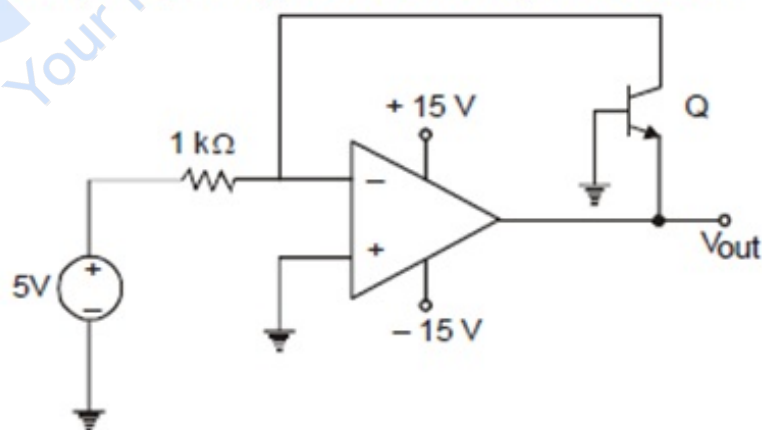
The practical bipolar junction transistor is characterized as a system

Options :

1. ✗ Linear Time Invariant
2. ✗ Linear Time Variant
3. ✓ Non Linear Time Invariant
4. ✗ Non Linear Time Variant

Question Number : 58 Question Id : 5113463658 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

In the following circuit diagram, if op-amp is ideal one, find V_{out} .



Options :

1. ✗ +15 V
2. ✗ -15 V

3. ✗ 0.7 V

4. ✓ -0.7 V

Question Number : 59 Question Id : 5113463659 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

If a MOSFET operates in the saturation region, the channel length modulation effect causes

Options :

1. ✗ an increase in the gate-source capacitance

2. ✗ a decrease in the trans conductance

3. ✗ a decrease in the unity-gain cutoff frequency

4. ✓ a decrease in the output resistance

Question Number : 60 Question Id : 5113463660 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Three identical amplifiers with each one having a voltage gain of 10, input resistance of 1 k Ω and output resistance of 250 Ω are cascaded. The open circuit voltage gain of the combined amplifier is

Options :

1. ✓ 1000

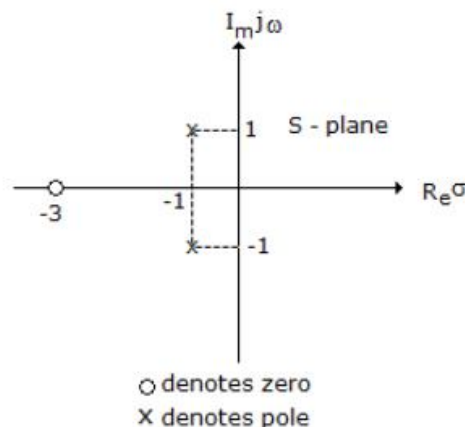
2. ✗ 100

3. ✗ 300

4. ✗ 3000

Question Number : 61 Question Id : 5113463661 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The driving-point impedance $Z(s)$ of a network has a pole-zero locations as shown in the figure. If $Z(0) = 3$, then $Z(s)$ is



Options :

1. ✖ $Z = \frac{s(s+3)}{s^2 + 2s + 3}$

2. ✔ $Z = \frac{2(s+3)}{s^2 + 2s + 2}$

3. ✖ $Z = \frac{2(s-3)}{s^2 - 2s - 2}$

4. ✖ $Z = \frac{2(s-3)}{s^2 - 2s - 3}$

Question Number : 62 Question Id : 5113463662 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

A series RC circuit has $R = 5 \Omega$ and $C = 10 \mu\text{F}$. The current in the circuit is $5 \sin 20000t$. The applied voltage is

Options :

1. ✔ $25\sqrt{2} \sin(20000t - 45^\circ)$

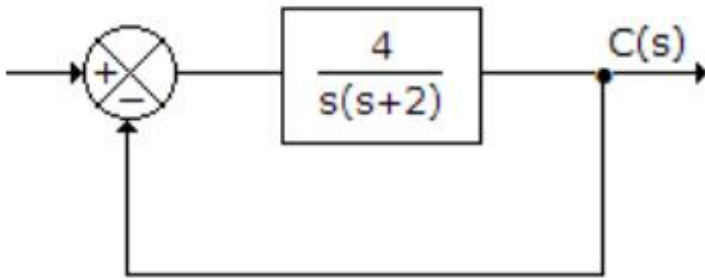
2. ✖ $25\sqrt{2} \sin(20000t + 45^\circ)$

3. ✖ $25\sqrt{2} \sin(20000t - 90^\circ)$

4. ✖ $25\sqrt{2} \sin(20000t + 90^\circ)$

Question Number : 63 Question Id : 5113463663 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

For the system of the given figure, the damping ratio of closed loop poles is



Options :

1. ✗ 1.5
2. ✗ 1
3. ✓ 0.5
4. ✗ 0.25

Question Number : 64 Question Id : 5113463664 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

In the given figure the input is $x(t) = A \sin \omega t$. The steady state output $y(t) =$

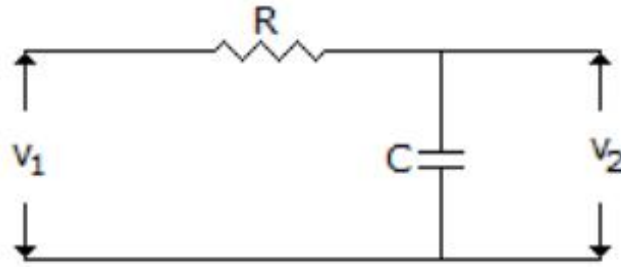


Options :

1. ✗ $A \sin(\omega_0 t + \varphi); \varphi = \tan^{-1} |G(j\omega)|$
2. ✓ $|G(j\omega)| \sin(\omega_0 t + \angle G(j\omega))$
3. ✗ $|G(j\omega)| \sin(2\omega_0 t + \angle G(j\omega))$
4. ✗ $A \sin(\omega_0 t + \angle G(j\omega))$

Question Number : 65 Question Id : 5113463665 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

For the circuit in the given figure, $V_2(s)/V_1(s) =$



Options :

1. ✗ $\frac{s}{1+sRC}$

2. ✓ $\frac{1}{1+sRC}$

3. ✗ $\frac{s^2}{1+sRC}$

4. ✗ $\frac{1}{1+s^2RC}$

Question Number : 66 Question Id : 5113463666 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

For a stable system

Options :

1. ✗ both phase and gain margin are negative

2. ✓ both phase and gain margin are positive

3. ✗ phase margin is positive but gain margin is negative

4. ✗ gain margin is positive but phase margin is negative

Question Number : 67 Question Id : 5113463667 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

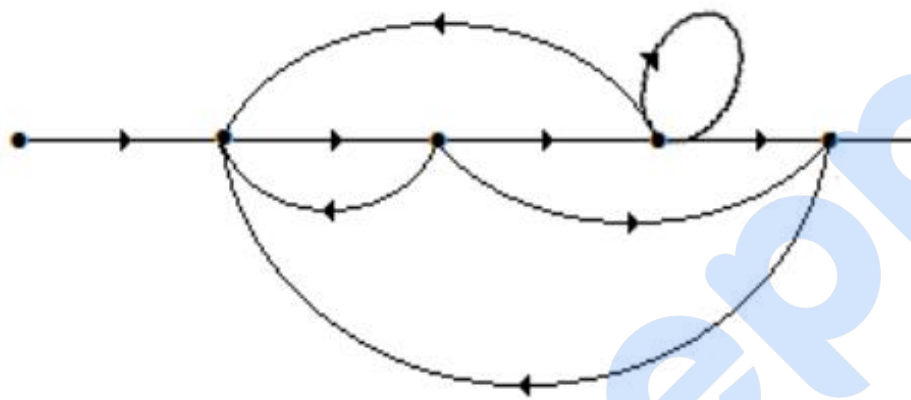
An integral control is used to

Options :

1. ✖ Improve its transient response
2. ✖ Reduce the offset
3. ✔ Eliminate the offset
4. ✖ Reduce the settling time

Question Number : 68 Question Id : 5113463668 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

In the given figure, the combinations of two non-touching loops is



Options :

1. ✖ 1
2. ✔ 2
3. ✖ 3
4. ✖ 4

Question Number : 69 Question Id : 5113463669 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

If $I(s) = \frac{(s+1)}{(s+4)(s+3)}$, then $i(t)$ is

Options :

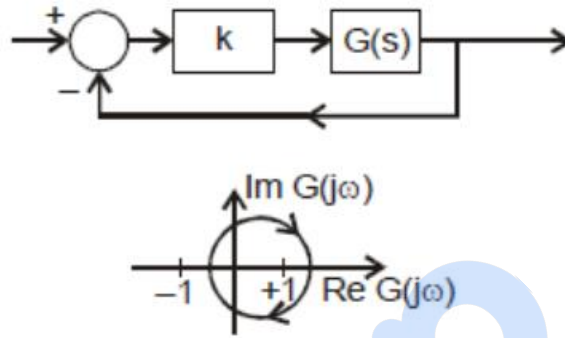
1. ✖ $3e^{-4t} - e^{-5t}$
2. ✔ $3e^{-4t} - 2e^{-3t}$

3. ✖ $2e^{-4t} - 5e^{-2t}$

4. ✖ $3e^{-4t} - e^{-t}$

Question Number : 70 Question Id : 5113463670 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Consider the feedback system shown in the figure. The Nyquist plot of $G(s)$ is also shown. Which one of the following conclusions is correct?



Options :

1. ✖ $G(s)$ is an all-pass filter

2. ✖ $G(s)$ is a strictly proper transfer function

3. ✖ $G(s)$ is a stable and minimum-phase transfer function

4. ✔ The closed-loop system is unstable for sufficiently large and positive k

Question Number : 71 Question Id : 5113463671 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

A source $v_s(t) = V \cos 100\pi t$ has an internal impedance of $(4 + j3) \Omega$. If a purely resistive load connected to this source has to extract the maximum power out of the source, then its value should be

Options :

1. ✖ 4Ω

2. ✖ 3Ω

3. ✔ 5Ω

4. ✖ 7Ω

Question Number : 72 Question Id : 5113463672 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Time domain expressions for the voltages $v_1(t)$ and $v_2(t)$ are given as

$$v_1(t) = V_m \sin(10t - 130^\circ)$$

$$v_2(t) = V_m \cos(10t + 10^\circ)$$

Which of the following statement is true?

Options :

1. ✓ $v_1(t)$ leads $v_2(t)$ by 230°
2. ✗ $v_1(t)$ lags $v_2(t)$ by 230°
3. ✗ $v_1(t)$ lags $v_2(t)$ by -230°
4. ✗ $v_1(t)$ leads $v_2(t)$ by -230°

Question Number : 73 Question Id : 5113463673 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

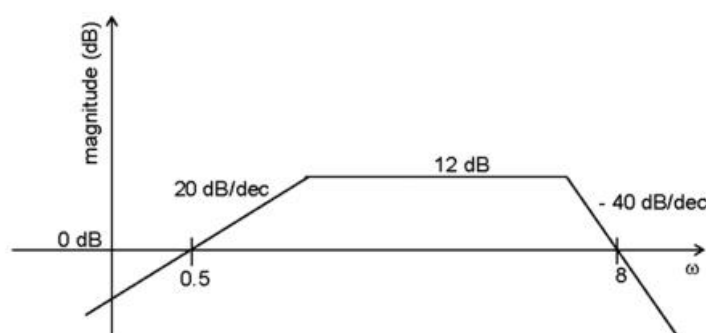
The phase crossover frequency of the transfer function $G(s) = \frac{100}{(s+1)^3}$ in rad/s is

Options :

1. ✓ $\sqrt{3}$
2. ✗ $1/\sqrt{3}$
3. ✗ 3
4. ✗ $3\sqrt{3}$

Question Number : 74 Question Id : 5113463674 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Which one of the following transfer function is best represented by the below bode magnitude plot.



1. ✓ $\frac{2s}{(1+0.5s)(1+0.25s)^2}$

2. ✗ $\frac{4(1+0.5s)}{s(1+0.25s)}$

3. ✗ $\frac{2s}{(1+2s)(1+4s)}$

4. ✗ $\frac{2s}{(1+2s)(1+4s)^2}$

Question Number : 75 Question Id : 5113463675 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Loop transfer function of a feedback system is: $G(s)H(s) = \frac{(s+3)}{s^2(s-3)}$. Take the Nyquist contour in the clockwise direction. Then the Nyquist plot of $G(s)$ encircles $-1 + j0$

Options :

1. ✓ Once in clockwise direction

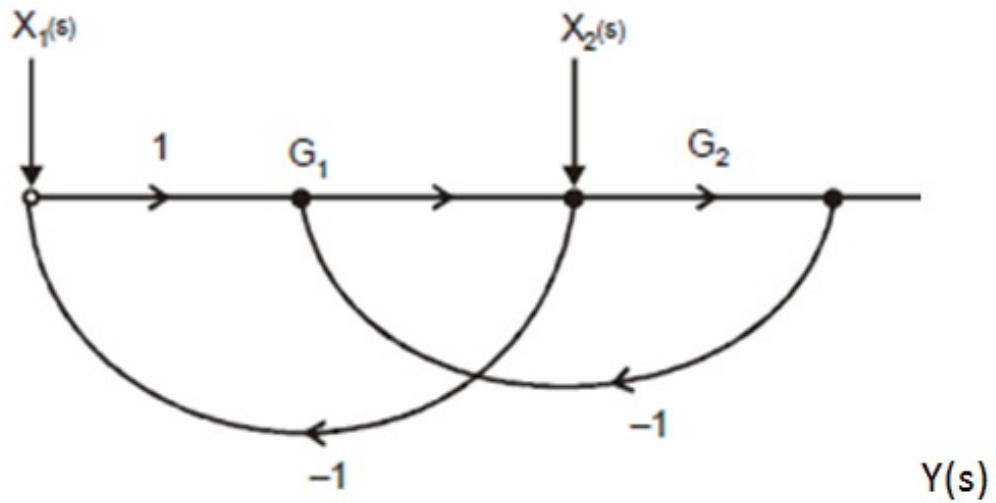
2. ✗ Twice in clockwise direction

3. ✗ Once in anticlockwise direction

4. ✗ Twice in anticlockwise direction

Question Number : 76 Question Id : 5113463676 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

For the signal flow graph shown in the figure, $\frac{Y(s)}{X_2(s)}$ when $X_1(s) = 0$ is



Options :

1. ✖ $\frac{G_1}{1 + G_2(1 + G_1)}$

2. ✔ $\frac{G_2}{1 + G_1(1 + G_2)}$

3. ✖ $\frac{G_1}{1 + G_2 G_1}$

4. ✖ $\frac{G_2}{1 + G_2 G_1}$

Question Number : 77 Question Id : 5113463677 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The D'Arsonval- movement can be converted into audio frequency ac ammeter by adding a

Options :

1. ✖ Thermocouple

2. ✖ Transducer

3. ✖ Chopper

4. ✔ Rectifier

Question Number : 78 Question Id : 5113463678 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

A 0-200 V voltmeter has an accuracy of 0.75% of full scale reading. If voltage measured is 100 V, the error is

Options :

1. ✖ 3 %

2. ✖ 2 %

3. ✔ 1.5 %

4. ✖ 0.75 %

Question Number : 79 Question Id : 5113463679 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

A meter coil has a resistance of $100\ \Omega$ and a full scale deflection current of 10 mA. To convert it into a voltmeter of 0-200 V range, the series resistance should be

Options :

1. ✖ 20 k Ω 2. ✔ 19.9 k Ω 3. ✖ 1.9 k Ω 4. ✖ 20.1 k Ω

Question Number : 80 Question Id : 5113463680 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

A moving coil instrument has a resistance of $0.5\ \Omega$ and a full scale deflection of 0.1 A. To convert it into an ammeter of 0-10 A the shunt resistance should be

Options :

1. ✖ 0.004 Ω

2. ✓ 0.005Ω 3. ✗ 0.05Ω 4. ✗ 0.1Ω

Question Number : 81 Question Id : 5113463681 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

An electromechanical device which actuates a train of step angular movements in response to a train of input pulses on one to one basis is

Options :

1. ✗ synchro control transformer

2. ✗ LVDT

3. ✓ stepper motor

4. ✗ tacho generator

Question Number : 82 Question Id : 5113463682 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

A unit ratio quarter bridge strain measuring circuit produces an output of 1mV for a strain of 500 microstrain when bridge excitation is 4 volts. The gauge factor of the element is

Options :

1. ✗ 1

2. ✓ 2

3. ✗ 3

4. ✗ 4

Question Number : 83 Question Id : 5113463683 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The least suitable transducer for static pressure measurement is

Options :

1. ✗ Semiconductor strain guage

- 2. ✖ Variable capacitor transducer
- 3. ✖ Metal wire strain guage
- 4. ✔ Piezoelectric transducer

Question Number : 84 Question Id : 5113463684 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

A Pirani guage which measures vaccum pressure works on the principle of

Options :

- 1. ✖ Change in ionizing potential
- 2. ✔ Change in thermal conductivity
- 3. ✖ Deformation of elastic body
- 4. ✖ Change in self inductance

Question Number : 85 Question Id : 5113463685 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

With the stroboscope, synchronism has been obtained at the flashing rates of 25 and 20 pulses per second. The speed of rotation is

Options :

- 1. ✖ 0.6 rev/min
- 2. ✖ 50 rev/min
- 3. ✖ 100 rev/min
- 4. ✔ 6000 rev/min

Question Number : 86 Question Id : 5113463686 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

A seismic type of transducer has a damping constant of 10. The transducer is designed to measure

Options :

1. ✓ Acceleration
2. ✗ Velocity
3. ✗ Displacement
4. ✗ Force

Question Number : 87 Question Id : 5113463687 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

A $3\frac{1}{2}$ digit digital multi meter can display

Options :

1. ✗ 999.5
2. ✗ 5.999
3. ✗ 555.5
4. ✓ 1.999

Question Number : 88 Question Id : 5113463688 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The bridge method commonly used for finding mutual inductance is

Options :

1. ✓ Heavyside Campbell bridge
2. ✗ Schering bridge
3. ✗ Desauty bridge
4. ✗ Wein bridge

Question Number : 89 Question Id : 5113463689 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Kelvins double bridge is best suited for the measurement of

Options :

1. ✓ Resistance of very low value
2. ✗ Low value capacitance
3. ✗ Resistance of high value
4. ✗ High value capacitance

Question Number : 90 Question Id : 5113463690 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Deflection sensitivity of a cathode ray tube is

Options :

1. ✗ Directly proportional to the deflection voltage
2. ✗ Directly proportional to the square of deflection voltage
3. ✗ Inversely proportional to the deflection voltage
4. ✓ Independent the deflection voltage

Question Number : 91 Question Id : 5113463691 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

In a single beam single trace analog oscilloscope, a delay line is inserted between

Options :

1. ✗ X-input and X-plates
2. ✓ Y-input and Y-plates
3. ✗ X-input and trigger circuit
4. ✗ Y-input and trigger circuit

Question Number : 92 Question Id : 5113463692 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The term precision used in instrumentation means

Options :

1. ✖ Gradual departure of the measured value from calibrated value
2. ✖ Smallest increment in the measurand that can be detected by the instrument
3. ✖ Maximum distance or angle through which any part of mechanical system may be moved in one direction without causing motion of the next part
4. ✔ The ability of the instrument to give output readings close to each other when the input is constant

Question Number : 93 Question Id : 5113463693 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

IR spectroscopy

Options :

1. ✖ Has a useful range of radiation from 2.5 to 15 microns
2. ✖ Is unsuitable for analysis of mixture of metals
3. ✖ is unsuitable for analysis of organic gases
4. ✔ uses bolometer as one of the detectors

Question Number : 94 Question Id : 5113463694 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The bandwidth of electrocardiogram (ECG) amplifier is

Options :

1. ✖ dc to 0.01 Hz
2. ✔ 0.05 to 500 Hz
3. ✖ 550 to 1500 Hz
4. ✖ 2000 to 10000 Hz

Question Number : 95 Question Id : 5113463695 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

A standard three lead frontal plane ECG is taken of a person with a normal heart. The peak amplitude of the R-wave is

Options :

1. ✗ Greatest in lead I
2. ✓ Greatest in lead II
3. ✗ Greatest in lead III
4. ✗ Equal in all leads

Question Number : 96 Question Id : 5113463696 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The following method is widely accepted to determine oxides of nitrogen in an automobile emission

Options :

1. ✓ Orsat analysis
2. ✗ Gas-chromatography
3. ✗ Chemi-luminescence
4. ✗ Flame ionization detection

Question Number : 97 Question Id : 5113463697 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The conversion time of an 8 bit successive approximation converter with a 1MHz clock is nearly

Options :

1. ✗ 512 μ s
2. ✗ 256 μ s
3. ✗ 128 μ s

4. ✓ $8 \mu s$

Question Number : 98 Question Id : 5113463698 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The advantage of dual slope converter ADC over successive approximation converter is

Options :

1. ✗ is faster
2. ✗ eliminates error due to drift
3. ✓ can reduce errors due to power supply
4. ✗ does not require a stable voltage source

Question Number : 99 Question Id : 5113463699 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Which of the following photo detector does not provide gain?

Options :

1. ✗ Phototransistor
2. ✗ Photoconductor
3. ✗ Avalanche photo diode
4. ✓ PIN diode

Question Number : 100 Question Id : 5113463700 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

A first order process has a gain of 1, a time constant of 1 second and transport delay of 0.1 s.
Its process transfer function is

Options :

1. ✗ $\frac{e^{-s}}{1+0.1s}$

2. ✖ $\frac{e^{-10s}}{1+s}$

3. ✔ $\frac{e^{-0.1s}}{1+s}$

4. ✖ $\frac{e^{-0.1s}}{1+0.1s}$

Question Number : 101 Question Id : 5113463701 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The following controller is also known as position controller

Options :

1. ✖ PID controller
2. ✖ Derivative controller
3. ✖ Integral controller
4. ✔ ON-OFF controller

Question Number : 102 Question Id : 5113463702 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Which of the following process is a fast reacting process?

Options :

1. ✔ Pressure process
2. ✖ Level process
3. ✖ Temperature process
4. ✖ Interacting process

Question Number : 103 Question Id : 5113463703 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Which of the following control configuration is anticipatory control configuration?

Options :

1. ✖ Cascade control
2. ✖ Split range control
3. ✔ Feed forward control
4. ✖ Derivative control

Question Number : 104 Question Id : 5113463704 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

For a stable system, range of gain margin is

Options :

1. ✖ Less than 1.7
2. ✔ 1.7 – 3.0
3. ✖ 3.5 – 5.0
4. ✖ Greater than 5.0

Question Number : 105 Question Id : 5113463705 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Quick Opening control valve will have

Options :

1. ✖ Linear characteristics
2. ✖ Sluggish characteristics
3. ✖ Random characteristics
4. ✔ Fast response characteristics

Question Number : 106 Question Id : 5113463706 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Standard control pressure signal range is

Options :

1. ✖ 0-20 psi
2. ✔ 3-15 psi
3. ✖ 0-15 psi
4. ✖ 3-20 psi

Question Number : 107 Question Id : 5113463707 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

E/P device means

Options :

1. ✖ Electrical pressure controller
2. ✖ Electronic pressure converter
3. ✔ Electro pneumatic converter
4. ✖ Electro pneumatic controller

Question Number : 108 Question Id : 5113463708 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Cascade control configuration is used for integrating

Options :

1. ✖ Pressure and Flow processes
2. ✖ Non-interacting tank processes
3. ✖ Interacting tank processes
4. ✔ Level and Flow processes

Question Number : 109 Question Id : 5113463709 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

In biomedical terminology, CT means

Options :

1. ✗ Clinical technology
2. ✗ Clinical therapy
3. ✓ Computer tomography
4. ✗ Computer therapy

Question Number : 110 Question Id : 5113463710 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

EEG is used to record

Options :

1. ✗ Blood flow activity
2. ✗ Muscle activity
3. ✗ Heart activity
4. ✓ Brain activity

Question Number : 111 Question Id : 5113463711 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The process response of following level tank system is more sluggish in nature in

Options :

1. ✗ Single tank system
2. ✗ Two tank non-interacting system
3. ✓ Two tank interacting system
4. ✗ Constant outlet pump system

Question Number : 112 Question Id : 5113463712 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The typical R-wave amplitude of ECG wave is

Options :

1. ✓ 1.1 milli volts
2. ✗ 1.1 micro volts
3. ✗ 10 milli volts
4. ✗ 10 micro volts

Question Number : 113 Question Id : 5113463713 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Stabilized controlled output performance is possible with _____ controller

Options :

1. ✗ Proportional
2. ✗ PI
3. ✓ PID
4. ✗ ON-OFF

Question Number : 114 Question Id : 5113463714 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Control valve characteristics are drawn between the variables

Options :

1. ✗ Flow rate and pressure variation
2. ✓ Flow rate and stem position
3. ✗ Pressure and flow rate
4. ✗ Pressure and stem position

Question Number : 115 Question Id : 5113463715 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Most of the industrial processes utilize the following method for controller tuning

Options :

1. ✗ SPC
2. ✓ Z-N
3. ✗ CC
4. ✗ TIPC

Question Number : 116 Question Id : 5113463716 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The correct pair of active transducers is

Options :

1. ✗ Thermocouple and Thermistor
2. ✗ Thermistor and Solar cell
3. ✗ Solar cell and LVDT
4. ✓ Thermocouple and Solar cell

Question Number : 117 Question Id : 5113463717 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

LVDT windings are wound on

Options :

1. ✗ Copper
2. ✓ Ferrite
3. ✗ Aluminum
4. ✗ Steel sheets (laminated)

Question Number : 118 Question Id : 5113463718 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The sensitivity factor of metallic strain gauge is normally of the order of

Options :

1. ✖ 1 to 1.5
2. ✔ 1.5 to 2.0
3. ✖ 0.5 to 1.0
4. ✖ 5 to 10

Question Number : 119 Question Id : 5113463719 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

FETs are used in the amplifier to get

Options :

1. ✖ High output impedance
2. ✔ High input impedance
3. ✖ Low output impedance
4. ✖ Low input impedance

Question Number : 120 Question Id : 5113463720 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Calibration of Wattmeter can be carried out by using

Options :

1. ✖ Ammeter
2. ✖ Voltmeter
3. ✔ Potentiometer
4. ✖ Function generator