Telangana State Council Higher Education

Notations :

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

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

Question Paper Name :	Electronics and Communication Engineering 3rd Aug 2022 Shift 1
Subject Name :	Electronics and Communication Engineering
Creation Date :	2022-08-03 15:05:16
Duration :	120
Total Marks :	120
Display Marks:	Yes
Calculator :	None
Magnifying Glass Required? :	No
Ruler Required? :	No
Eraser Required? :	No
Scratch Pad Required? :	No
Rough Sketch/Notepad Required? :	No
Protractor Required? :	No
Show Watermark on Console? :	Yes
Highlighter :	No
Auto Save on Console?	Yes
Change Font Color :	No
Change Background Color :	No
Change Theme :	No
Help Button :	No
Show Reports :	No

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Show Progress Bar :	No

Electronics and Communication Engineering

Group Number :	1
Group Id :	34058046
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 :	34058084
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 :	34058084

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Question Shuffling Allowed : Yes

Question Number : 1 Question Id : 3405805401 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 $A=\begin{bmatrix}2 & 0 & 1\\ 0 & 1 & 2\\ 1 & 2 & 0\end{bmatrix}$, then $A^3+A^2-3A=kA^4$ where $k=$

Options :

34058021601. ✗ $\frac{1}{4}$

34058021602. ✓ $\frac{1}{3}$

34058021603. ✗ $\frac{1}{2}$

34058021604. ✗ 1

Question Number : 2 Question Id : 3405805402 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

$\nabla X\left(\nabla X\bar{F}\right)+\nabla^2\bar{F}=$

Options :

34058021605. ✗ 0

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34058021606. ✓ $\nabla(\nabla.\vec{F})$

34058021607. ✗ $\nabla(\nabla X\vec{F})$

34058021608. ✗ $\nabla.(\nabla X\vec{F})$

Question Number : 3 Question Id : 3405805403 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 γ is a rectangle with vertices $(0, 0), (\pi, 0), (\pi, 1)$ and $(0, 1)$, then $\int_C xdy - ydx =$

Options :

34058021609. ✗ π

34058021610. ✓ 2π

34058021611. ✗ 3π

34058021612. ✗ $\frac{1}{2}\pi$

Question Number : 4 Question Id : 3405805404 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

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If $y_p = k\,(9e^x + 4e^{2x} + 36)$ is the particular integral of $y'' + 2y' + y = 1 + e^x + e^{2x}$, then $k =$

Options :

34058021613. ✔ $\frac{1}{36}$

34058021614. ✖ $\frac{1}{18}$

34058021615. ✖ $\frac{1}{9}$

34058021616. ✖ $\frac{1}{72}$

Question Number : 5 Question Id : 3405805405 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

$$\int_{|z|=2} \operatorname{sech} z \, dz =$$

Options :

34058021617. ✔ 0

34058021618. ✖ $2\pi i$

34058021619. ✖ $-2\pi i$

34058021620. ✖ πi

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Question Number : 6 Question Id : 3405805406 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 curve $y = f(x)$ satisfies $y'' + 2y' + y = 0$, $y(0) = 0$ and $y'(0) = 1$. Then $f(x) =$

Options :

34058021621. ✗ $2xe^{-x}$

34058021622. ✗ $2xe^{x}$

34058021623. ✓ xe^{x}

34058021624. ✗ xe^{-x}

Question Number : 7 Question Id : 3405805407 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

$$\frac{1}{2\pi i}\int_{|z|=1}\frac{24\cos z - 24 + 12z^2 - z^4}{z^7}\,dz \;=$$

Options :

34058021625. ✗ $\frac{-1}{15}$

34058021626. ✓ $\frac{-1}{30}$

34058021627. ✗

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$\frac{1}{30}$

34058021628. ✗ $\frac{1}{15}$

Question Number : 8 Question Id : 3405805408 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

$$\int_{-\infty}^{\infty} \frac{\sin x}{x} dx =$$

Options :

34058021629. ✗ $\frac{\pi}{2}$

34058021630. ✓ π

34058021631. ✗ 0

34058021632. ✗ ∞

Question Number : 9 Question Id : 3405805409 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 $P(A) = \frac{1}{3}$, $P(B) = \frac{1}{5}$ and $P(A \cup B) = \frac{1}{2}$, then $P(A \mid B) =$

Options :

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34058021633. ✗ $\frac{1}{2}$

34058021634. ✗ $\frac{1}{3}$

34058021635. ✓ $\frac{1}{6}$

34058021636. ✗ $\frac{1}{12}$

Question Number : 10 Question Id : 3405805410 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

Using Newton –Raphson method to find $\sqrt{N}$, the iterative formula to be used is

Options :

34058021637. ✓ $x_{n+1}=\frac{1}{2}\left(x_n+\frac{N}{x_n}\right)$

34058021638. ✗ $x_{n+1}=\frac{1}{2}\left(x_n+\frac{N}{x_{n-1}}\right)$

34058021639. ✗ $x_{n+1}=\frac{1}{2}\left(x_n-\frac{N}{x_n}\right)$

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34058021640. ✖ $x_{n+1}=\frac{1}{2}\left(x_n-\frac{N}{x_{n-1}}\right)$

Electronics and Communication Engineering

Section Id :	34058085
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 :	34058085
Question Shuffling Allowed :	Yes

Question Number : 11 Question Id : 3405805411 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 single tone signal with frequency component at 2 kHz is sampled at 3 kHz sampling frequency followed by low pass filtering with a cut off frequency of 7 kHz. The frequency components present at the resultant signal is

Options :

34058021641. ✖ 1 kHz, 2 kHz, 4 kHz and 5 kHz

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34058021642. ✗ 1 kHz

34058021643. ✓ 1 kHz, 2 kHz, 4 kHz, 5 kHz and 7 kHz

34058021644. ✗ 1 kHz and 2 kHz

Question Number : 12 Question Id : 3405805412 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 p(t) is the shaping pulse at the transmitter in a matched filter-based communication receiver, the impulse response of the receiver filter is

Options :

34058021645. ✓ P(T-t)

34058021646. ✗ P(t-T)

34058021647. ✗ P(t)

34058021648. ✗ P(T)

Question Number : 13 Question Id : 3405805413 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 net work done in a conservative field

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Options :

34058021649. ✗ Is zero always

34058021650. ✗ Depends on the path travelled

34058021651. ✓ Does not depend on the path travelled

34058021652. ✗ Depends on wavelength

Question Number : 14 Question Id : 3405805414 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 effective channel length, when n MOSFET operates in saturation region is given as $L' = L - \Delta L$, where L is total channel length and ΔL is the portion of the channel length for which

Options :

34058021653. ✓ Inversion layer charge is zero

34058021654. ✗ Inversion layer charge is half

34058021655. ✗ Inversion layer charge is infinite

34058021656. ✗ Inversion layer charge is equal to total charge

Question Number : 15 Question Id : 3405805415 Question Type : MCQ Option Shuffling : Yes

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

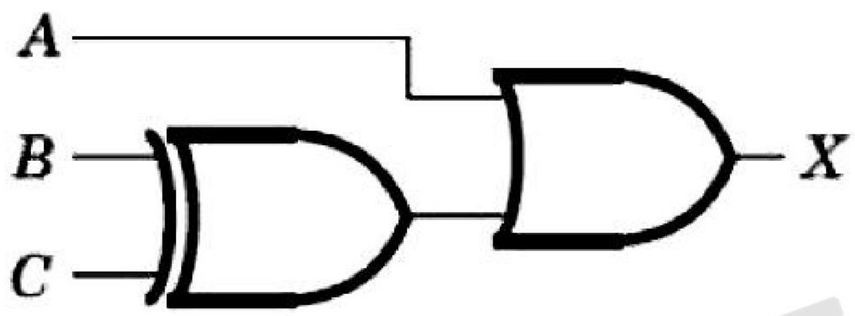
Correct Marks : 1 Wrong Marks : 0

A logic circuit controls the passage of a signal according to the following requirements:

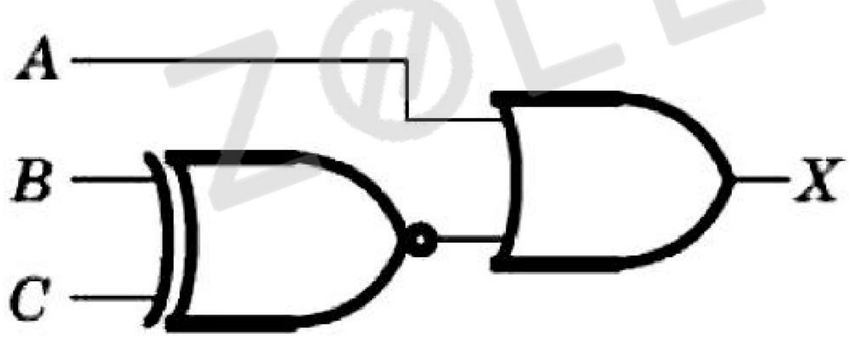
1. Output X will equal A when control input B and C are the same.
2. X will remain HIGH when B and C are different. Which one of the following logic circuits meet the above requirements

Options :

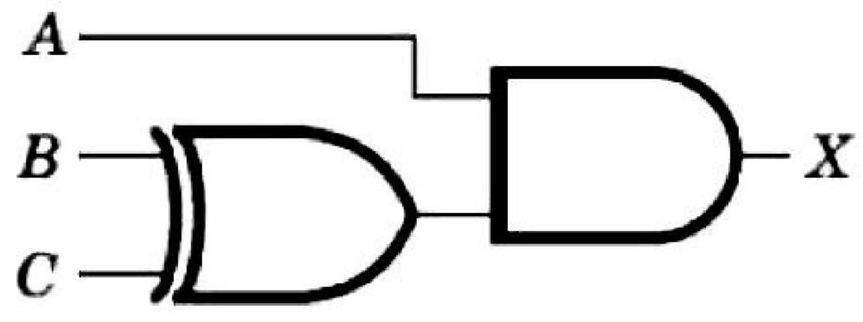
34058021657. ✔



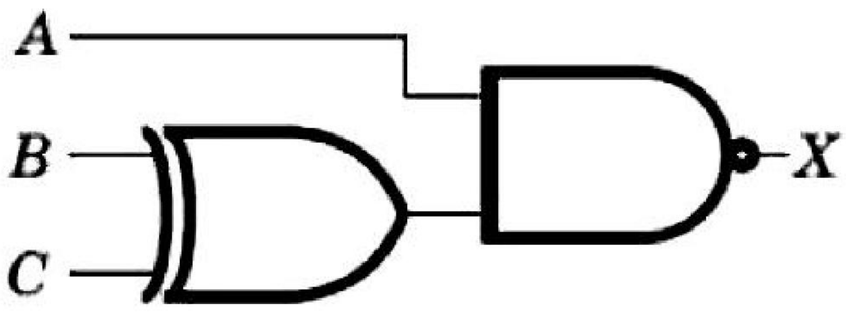
34058021658. ✘



34058021659. ✘



34058021660. ✘



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Question Number : 16 Question Id : 3405805416 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 differential equation of a control system having input x(t) and output Y(t) is given as

$$\frac{d^2y(t)}{dt^2}+9\frac{dy(t)}{dt}+20\,y(t)=20\,x(t)$$

The output response of the system for unit step input is given by

Options :

34058021661. ✗ $-1+5e^{-4t}-4e^{-5t}$

34058021662. ✗ $1-e^{-4t}-e^{-5t}$

34058021663. ✓ $1-5e^{-4t}+4e^{-5t}$

34058021664. ✗ $1+5e^{-4t}+4e^{-5t}$

Question Number : 17 Question Id : 3405805417 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

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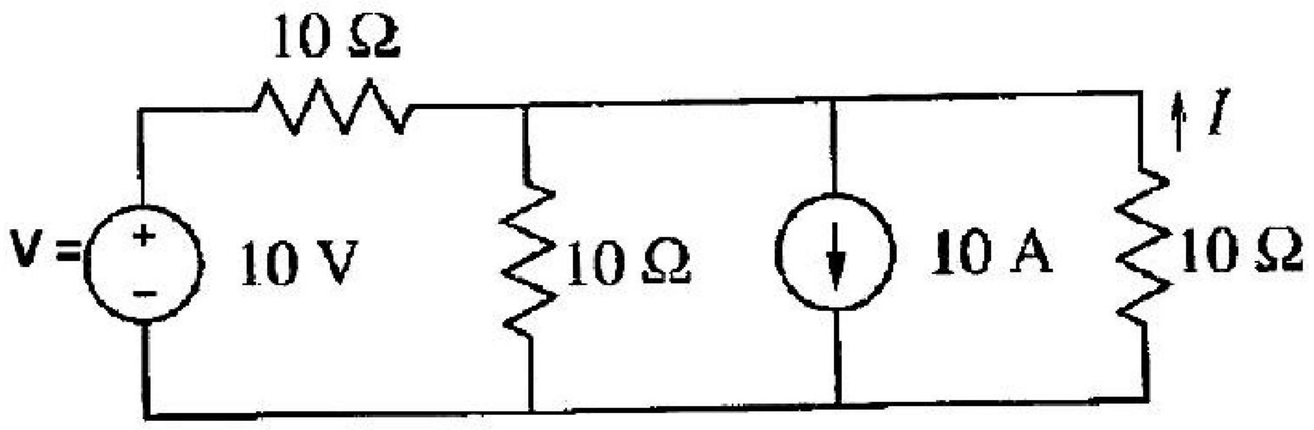
For the circuit shown below the ratio $\frac{V}{I}$ is



Options :

34058021665. ✖ 3

34058021666. ✔ 3.33

34058021667. ✖ 10

34058021668. ✖ 1

Question Number : 18 Question Id : 3405805418 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 a height of 'x' above the surface earth, the escape velocity is 50 km/sec. At a height of _____ , the escape velocity is 10 km/sec

Options :

34058021669. ✖ 5x

34058021670. ✖ 10x

34058021671. ✖ 500x

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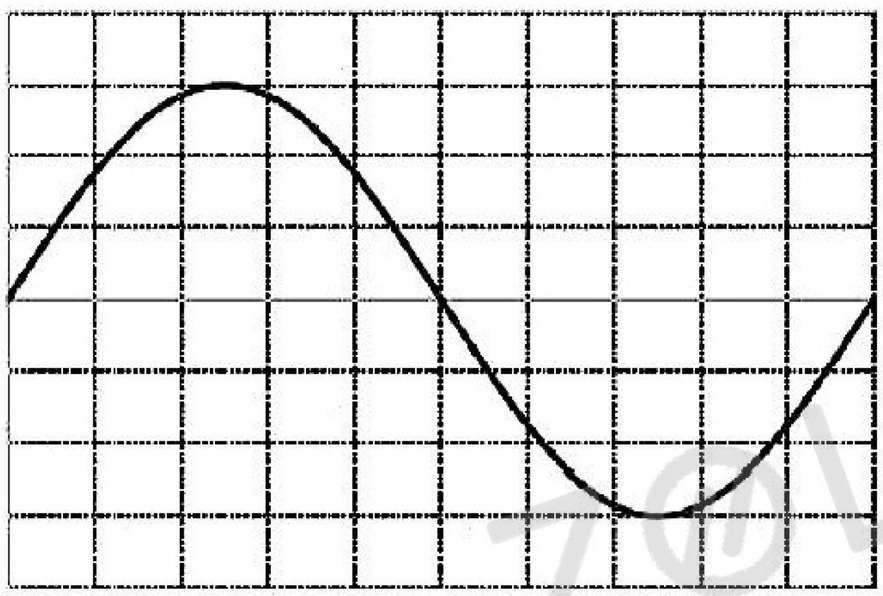
34058021672. ✓ 25x

Question Number : 19 Question Id : 3405805419 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 voltage of 15 Cos(50πt) V is fed as y-input to a CRO. The waveform seen on the screen of the CRO is shown in the figure. The Y and X axes settings for the CRO are respectively



Options :

34058021673. ✗ 15V/Div and 4 ms/Div

34058021674. ✗ 5 V/Div and 5 ms/Div

34058021675. ✓ 5V/Div and 4ms/Div

34058021676. ✗ 0.5V/Div and 5ms/Div

Question Number : 20 Question Id : 3405805420 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

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Correct Marks : 1 Wrong Marks : 0

Consider following set of instructions executed sequentially in the assembler of 8085:

MVI A,20H

ADI, 06H

CMA

MOV C, A

At the end of the execution the content of register C is

Options :

34058021677. ✓ D9 H

34058021678. ✗ 9D H

34058021679. ✗ 26 H

34058021680. ✗ 62 H

Question Number : 21 Question Id : 3405805421 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

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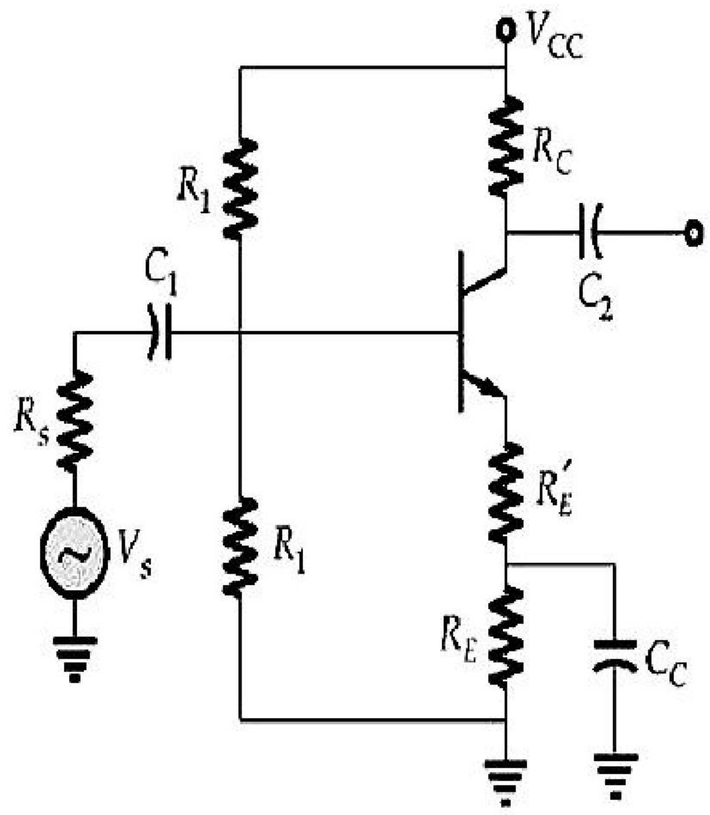
The given amplifier circuit has current series feedback topology. Identify the feedback element



Options :

34058021681. ✗ R_E

34058021682. ✓ R_E'

34058021683. ✗ R_C

34058021684. ✗ $R_1||R_2$

Question Number : 22 Question Id : 3405805422 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

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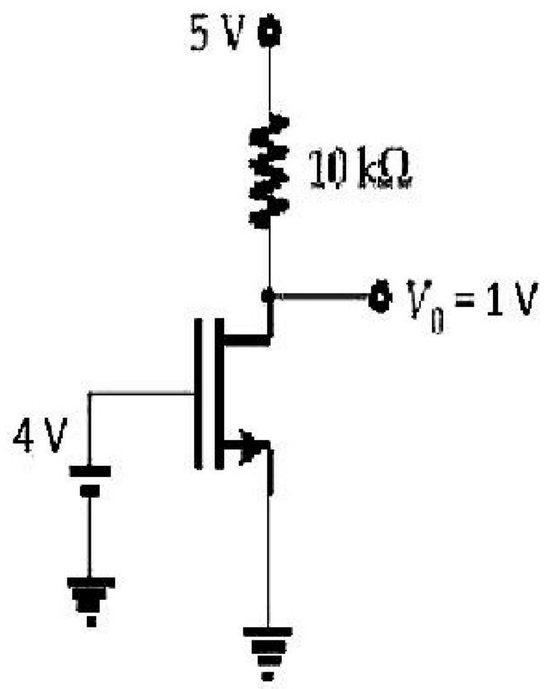
For the given circuit (Fig. 1), the threshold voltage is 0.8V, what will be the transconductance in mA/V^2



Options :

34058021685. ✗ 0.245

34058021686. ✓ 0.148

34058021687. ✗ 1.52

34058021688. ✗ 1.12

Question Number : 23 Question Id : 3405805423 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 n-MOSFET, the current-voltage equation is given as $I_D = \mu_n C_{ox}(\frac{W}{L})[(V_{GS} - V_T)V_{DS} - V_{DS}^2/2]$ is valid for which voltage conditions

Options :

34058021689. ✓ $Vgs \geq Vt \; and \; (Vgs - Vt) > Vds$

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34058021690. ✖ $Vgs < Vt\ and\ (Vgs - Vt) > Vds$

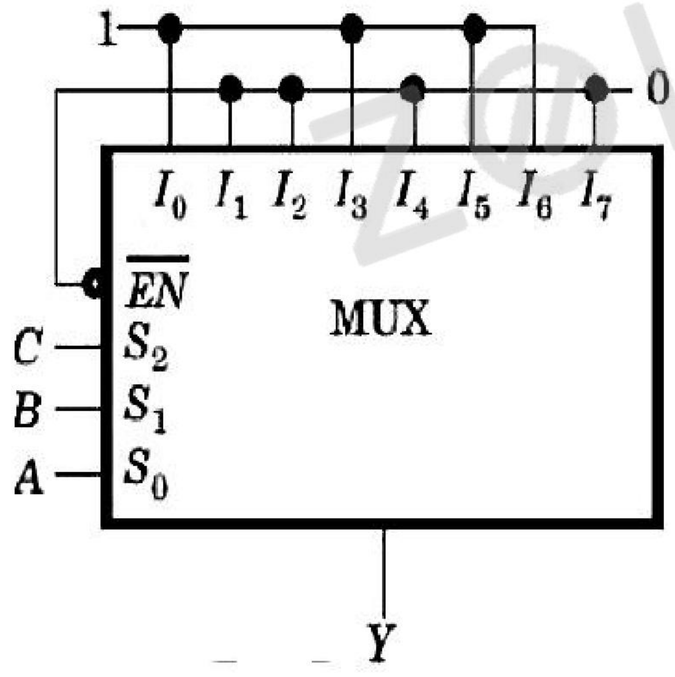
34058021691. ✖ $Vgs < Vt\ and\ (Vgs - Vt) < Vds$

34058021692. ✖ $Vgs \geq Vt\ and\ (Vgs - Vt) < Vds$

Question Number : 24 Question Id : 3405805424 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 logic circuit shown in figure below the output Y can be expressed as



Options :

34058021693. ✖ $A \oplus B$

34058021694. ✔ $A \oplus B \oplus C$

34058021695. ✖ $\overline{A \oplus B \oplus C}$

34058021696. ✖ $\overline{A \oplus B}$

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Question Number : 25 Question Id : 3405805425 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

Energy of a periodic signal x(t) is E, then the energy of x(2t) is

Options :

34058021697. ✔ E

34058021698. ✖ $2E$

34058021699. ✖ $E/2$

34058021700. ✖ E^2

Question Number : 26 Question Id : 3405805426 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 root locus of $s(s+1) + K(s + 2) = 0$ is a circle. The co-ordinate of the centre and the radius (in units) of this circle are respectively

Options :

34058021701. ✖ $(-2, 0)$ and $\sqrt{3}$ units

34058021702. ✔ $(-2, 0)$ and $\sqrt{2}$ units

34058021703. ✖ $(-1, 0)$ and $\sqrt{2}$ units

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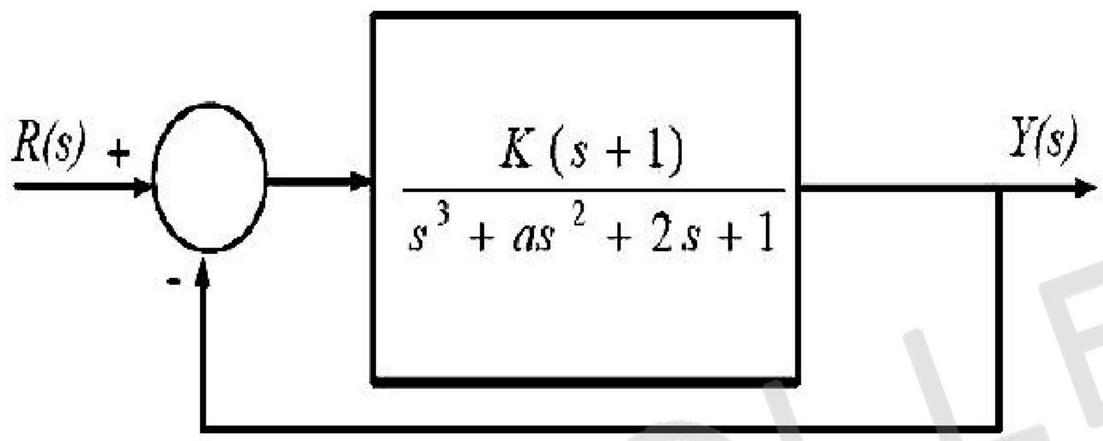
34058021704. ✖ $(-1, 0)$ and $\sqrt{3}$ units

Question Number : 27 Question Id : 3405805427 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 feedback system shown in below figure with K = 2 and a= 0.75 oscillates at a frequency of



Options :

34058021705. ✖ 4 rad/s

34058021706. ✖ 1 rad/s

34058021707. ✔ 2 rad/s

34058021708. ✖ 0.75 rad/s

Question Number : 28 Question Id : 3405805428 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

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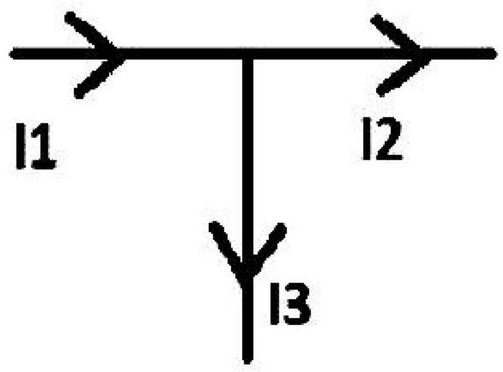
Three currents I1, I2 and I3 meet at a node as shown in the figure below.

If I1 = 6 cos (ωt) A, I2 = 8 sin(ωt) A and I3 = 13 cos (ωt + θ) A, the value of I3 in ampere is_____.



Options :

34058021709. ✖ -2 A

34058021710. ✖ 2 A

34058021711. ✖ 14 A

34058021712. ✔ 10 A

Question Number : 29 Question Id : 3405805429 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which of the following is not true for Laplace transform

Options :

34058021713. ✖ For finite duration and absolutely integrable signal, the ROC is the entire s-plane

34058021714. ✖ For rational Laplace transform, no poles are present in the ROC

34058021715. ✖ For causal signals, the ROC is right to the rightmost pole

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34058021716. ✓ If the ROC is right to the right most pole the signal is causal

Question Number : 30 Question Id : 3405805430 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

Output of an LVDT is connected to an amplifier of gain 250 then to a 5V voltmeter of 100 divisions. The input displacement for the LVDT is $\pm 0.5\,mm$ and corresponding output is 2 mV. If the voltmeter can read $\frac{1}{5}$ th of a division certainly then the resolution of the overall setup is

Options :

34058021717. ✗ 0.1 mm

34058021718. ✓ 0.01mm

34058021719. ✗ 1 mm

34058021720. ✗ 0.001 mm

Question Number : 31 Question Id : 3405805431 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

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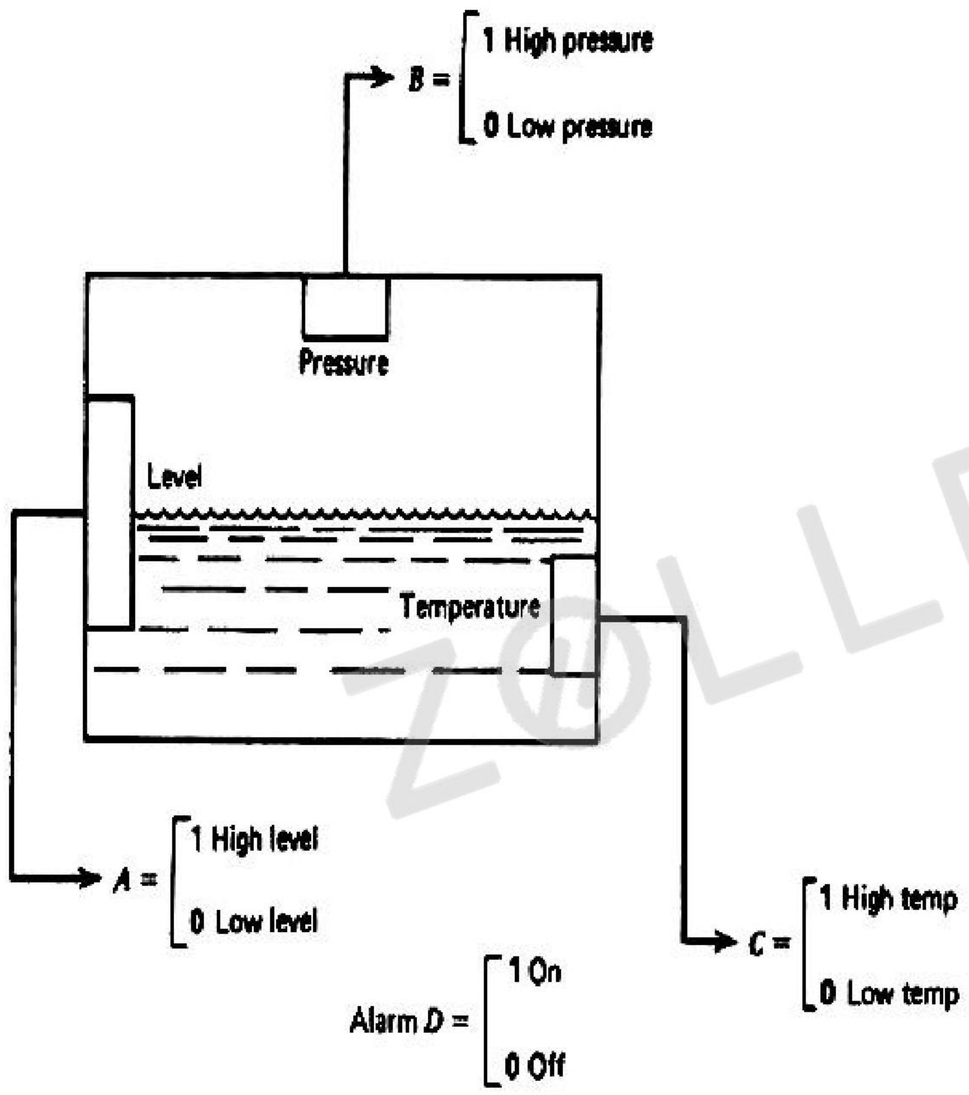
Consider following diagram illustrating different variables A, B, C of a control system. The alarm D is to be activated due to change in A, B and C. These variables are controlled using an embedded microcontroller. The conditions for activation of alarm D are as follows

i) Low level with high pressure
ii) High level with high temperature
iii) High level with low temperature and high pressure

Which of the following Boolean expression will be helpful in designing electronic circuitry for activation of alarm



Options :

34058021721. ✗ $A.B + A.C + A.\bar{C}.B$

34058021722. ✗ $\bar{A}.B + A.C + A.B.C$

34058021723. ✓ $\bar{A}.B + A.C + A.B.\bar{C}$

34058021724. ✗ $A.B + A.C + A.\bar{B}.C$

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Question Number : 32 Question Id : 3405805432 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 GSM mobile communication standard uses

Options :

34058021725. ✗ QAM modulation

34058021726. ✓ GMSK modulation

34058021727. ✗ CPFSK modulation with index 0

34058021728. ✗ QPSK Modulation

Question Number : 33 Question Id : 3405805433 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Two events A and B are said to be equal with probability 1 if

Options :

34058021729. ✗ $P(A) = P(B)$

34058021730. ✓ $P(A) = P(B) = P(AB)$

34058021731. ✗ $P(A|B) = P(B|A)$

34058021732. ✗ $P(AUB) = P(B)\ P(B)$

ZOLLEGE.in

Question Number : 34 Question Id : 3405805434 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[n] = {4,2, -1, -2,5,6,9,10} and then y[n] = DFT(DFT(x[n])), then y[0] is

Options :

34058021733. ✗ 4

34058021734. ✗ 8

34058021735. ✓ 32

34058021736. ✗ 16

Question Number : 35 Question Id : 3405805435 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 $X(\omega)$ be the Fourier transform of $x(t)$. The Fourier transform of $x(3t) + x(3t-3)$

Options :

34058021737. ✗ $X(\omega/3)(1+exp\,(-j\omega))$

34058021738. ✗ $\frac{1}{3}X(\omega/3)(1+exp\,(-3j\omega))$

34058021739. ✓ $\frac{1}{3}X(\omega/3)(1+exp\,(-j\omega))$

ZOLLEGE.in

34058021740. ✗ $X(\omega/3)(1+exp\ (-3j\omega))$

Question Number : 36 Question Id : 3405805436 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

N-point DFT and IDFT is used to implement an LTI system with L length impulse response. If an input of length M is given an input, the minimum value of N to obtain the desired output is

Options :

34058021741. ✗ L+M

34058021742. ✓ L+M-1

34058021743. ✗ Max (L, M)

34058021744. ✗ Min (L, M)

Question Number : 37 Question Id : 3405805437 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 right hand sided discrete time impulse response has its outermost pole at z = 0.5, then

Options :

34058021745. ✓ System is BIBO stable

34058021746. ✗ System is BIBO unstable

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34058021747. ✗ Cannot comment on stability

34058021748. ✗ System is critically stable

Question Number : 38 Question Id : 3405805438 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 slope of the drain current versus drain voltage curve for the NMOS, operating in saturation region is given in terms of *channel length modulation coefficient* (λ) as

Options :

34058021749. ✓ λ

34058021750. ✗ $1/\lambda$

34058021751. ✗ λ^2

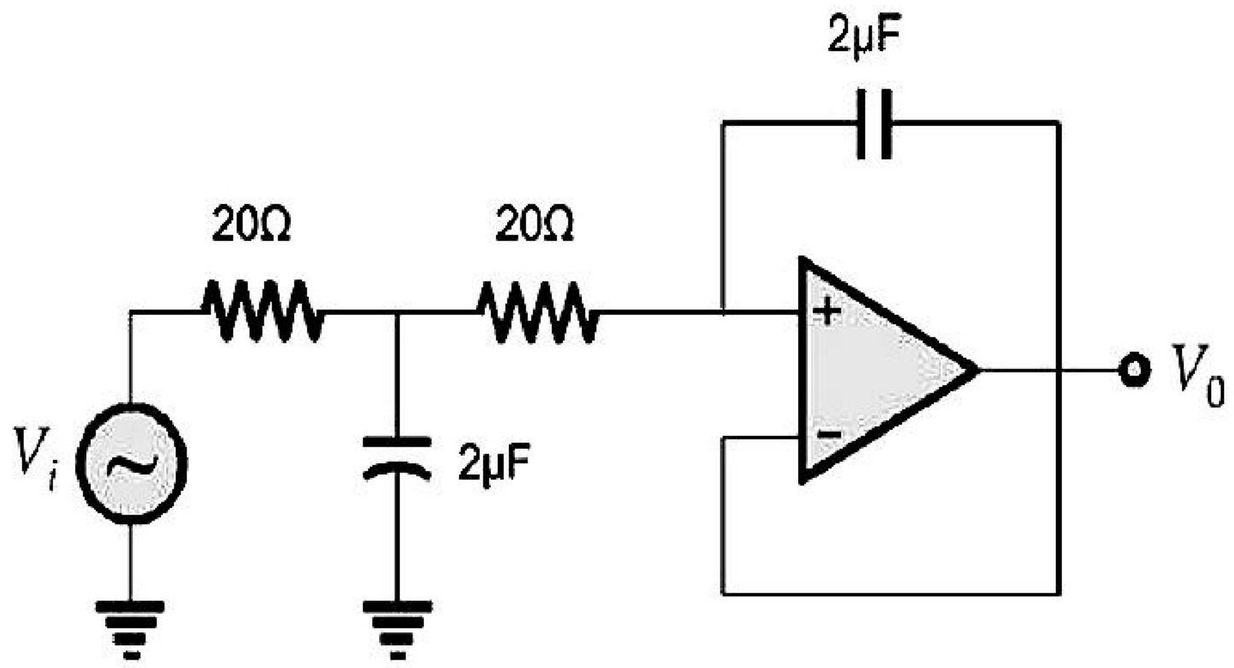
34058021752. ✗ 2λ

Question Number : 39 Question Id : 3405805439 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

ZOLLEGE.in

For the filter circuit operating at 1MHz frequency. Find mag |Vo/Vi|.



Options :

34058021753. ✔ $3.9x10^{-3}$

34058021754. ✘ $2.5x10^{-3}$

34058021755. ✘ $0.39x10^{-3}$

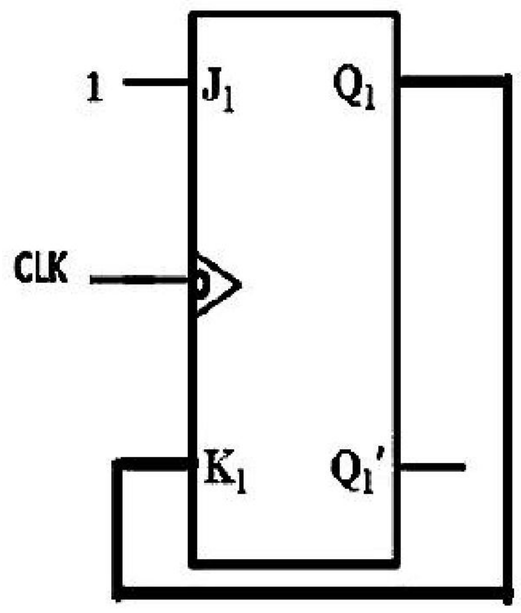
34058021756. ✘ $1.3x10^{-3}$

Question Number : 40 Question Id : 3405805440 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

ZOLLEGE.in

For the following flip flop circuit, if the initial state of output Q1 is 0 then the output sequence after each clock pulse will be



Options :

34058021757. ✗ 00000000.....

34058021758. ✗ 11111111.....

34058021759. ✓ 10101010.....

34058021760. ✗ 11001100.....

Question Number : 41 Question Id : 3405805441 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 the output of an LTI system have Laplace transform as $\frac{s+1}{3s^2+5s+2}$. The output at $t = 0$ is

Options :

34058021761. ✗ 3

34058021762. ✓ $\frac{1}{3}$

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34058021763. ✗ 0

34058021764. ✗ ∞

Question Number : 42 Question Id : 3405805442 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 PCM system, if the code word length is increased from 6 to 8 bits, the signal to quantization noise ratio improves by factor (in dB)

Options :

34058021765. ✗ 8/6

34058021766. ✓ 12

34058021767. ✗ 16

34058021768. ✗ 8

Question Number : 43 Question Id : 3405805443 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

A system is represented by following open loop transfer function $\frac{1}{(S+2)(S+10)}$ the polar plot of the system will intersect the negative real axis at

Options :

34058021769. ✗ -0.5

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34058021770. ✗ -0.1

34058021771. ✓ Will never intersect with negative real axis

34058021772. ✗ -10

Question Number : 44 Question Id : 3405805444 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 bandlimited signal has a maximum frequency of 5 kHz and is multiplied by another bandlimited signal with maximum frequency of 10 kHz. The minimum sampling frequency required for sampling the resultant signal is

Options :

34058021773. ✗ 15 kHz

34058021774. ✗ 20 kHz

34058021775. ✓ 30 kHz

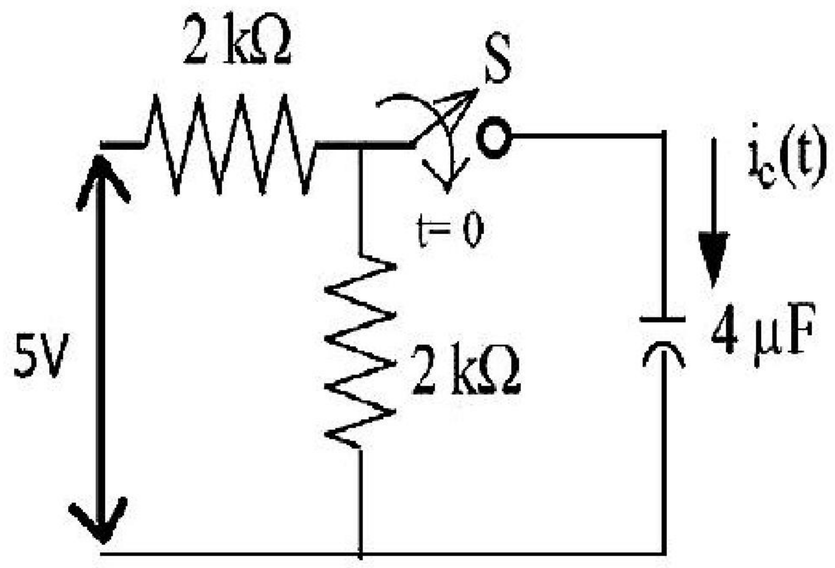
34058021776. ✗ 10 kHz

Question Number : 45 Question Id : 3405805445 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

ZOLLEGE.in

For the circuit shown below the capacitor is initially discharged completely. The switch 'S' is closed at t = 0. The approximate current through the capacitor after 4 milliseconds of the switch closer is



Options :

34058021777. ✗ 1.5 mA

34058021778. ✗ 2.5 mA

34058021779. ✓ 0.9 mA

34058021780. ✗ 0.75 mA

Question Number : 46 Question Id : 3405805446 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

Network N1 and N2 are cascaded. Network N1 is having ABCD parameters as $\begin{bmatrix} 1 & 2 \\ 0 & 1 \end{bmatrix}$ and N2 is having ABCD parameter as $\begin{bmatrix} 1 & 0 \\ 0.5 & 1 \end{bmatrix}$. The ABCD parameters of combined two-port network are

Options :

34058021781. ✗ $\begin{bmatrix} 1 & 2 \\ 0 & 1 \end{bmatrix}$

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34058021782. ✗ $\begin{bmatrix} 1 & 0 \\ 0.5 & 1 \end{bmatrix}$

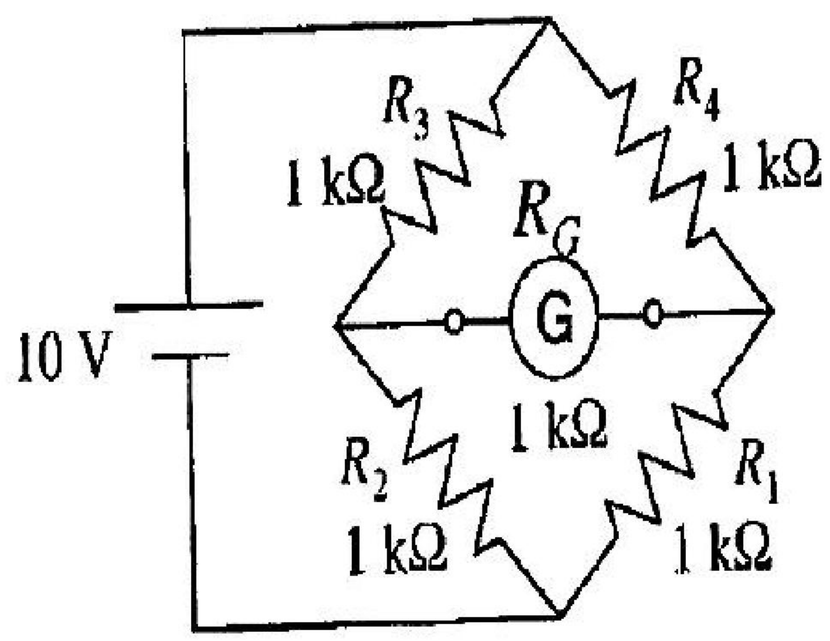
34058021783. ✓ $\begin{bmatrix} 2 & 2 \\ 0.5 & 1 \end{bmatrix}$

34058021784. ✗ $\begin{bmatrix} 1 & 0.5 \\ 0 & 1 \end{bmatrix}$

Question Number : 47 Question Id : 3405805447 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 the Wheatstone bridge circuit shown below the resistance R1 = $R_0(1+\alpha\Delta T)$ is temperature sensitive. The bridge is formed at 25 °C. If the temperature of the room rises to 125 °C then the change in voltage observed across the output terminals of the bridge approximately is? R_G is galvanometer internal resistance and the resistance R1 increases by 10 Ω for the said temperature change and R_0 = 1KΩ



Options :

34058021785. ✗ 2.5 V

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34058021786. ✗ 2.5 mV

34058021787. ✗ 25 μV

34058021788. ✓ 25 mV

Question Number : 48 Question Id : 3405805448 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

Consider following set of instruction for an 8-bit microprocessor

MVI C, 00 H.....7 T-states
LOOP: DCR C.....4 T-states
JNZ LOOP.....10 T-states

The above instructions are used to induce a purpose full delay in a circuit operation, if one T-state is equal to 1 μs then the amount of delay introduced in (μs) is

Options :

34058021789. ✗ 3567

34058021790. ✗ 3570

34058021791. ✗ 3577

34058021792. ✓ 3591

Question Number : 49 Question Id : 3405805449 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time

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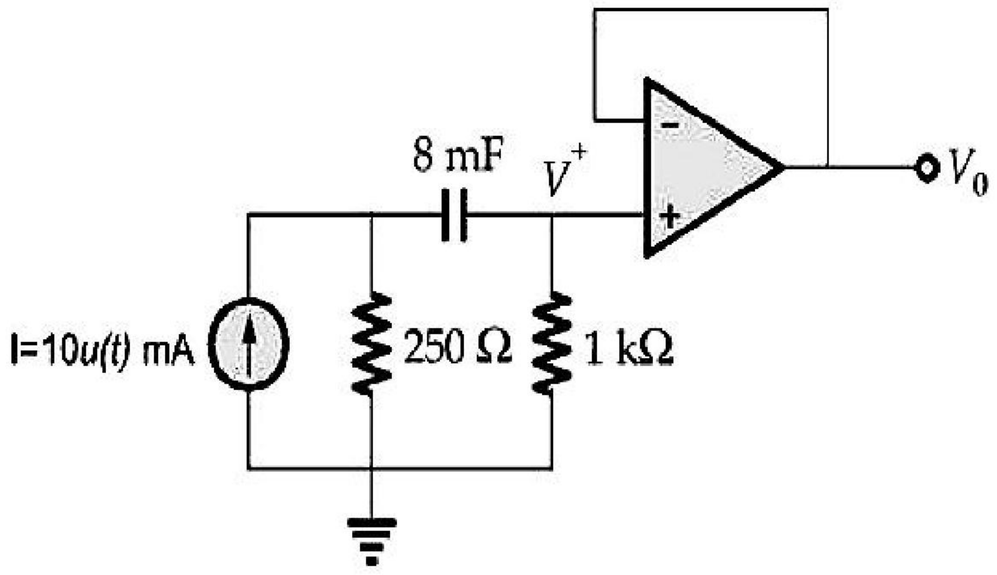
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Consider the RC circuit, connected to an ideal operational amplifier. The current source I is connected to the RC circuit. What is output voltage V_0 (in V) at 10 sec *(e=exponential)*



Options :

34058021793. ✓ $2e^{-1}$

34058021794. ✗ $2e$

34058021795. ✗ e^{-1}

34058021796. ✗ e

Question Number : 50 Question Id : 3405805450 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 demand assigned TDMA satellite access is one in which

Options :

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34058021797. ✗ The burst length may be not be constant and the number of bursts per frame used by the given station is not varied when the demand is varied

34058021798. ✗ The burst length may be not be constant and the number of bursts per frame used by the given station is varied when the demand is varied

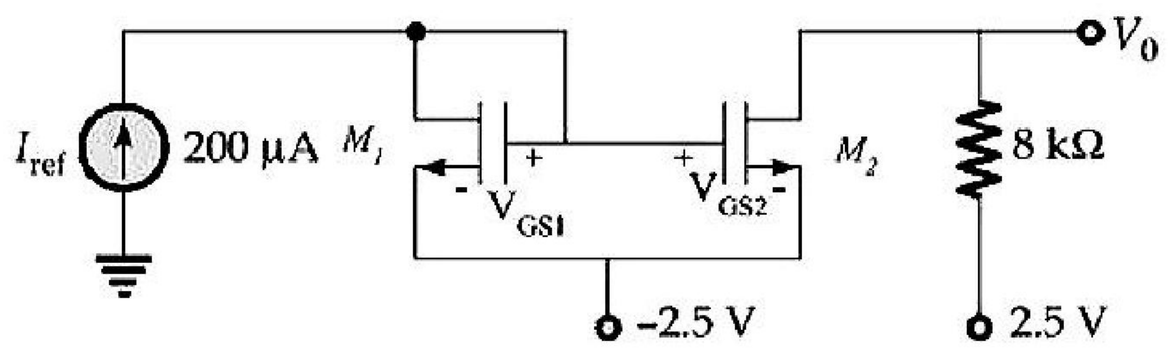
34058021799. ✓ The burst length may be kept constant and the number of bursts per frame used by the given station is varied when the demand is varied

34058021800. ✗ The burst length may be kept constant and the number of bursts per frame used by the given station is varied when the demand is not varied

Question Number : 51 Question Id : 3405805451 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 the circuit given below, M1 and M2 are NMOS transistors with following parameters. Find gate to source voltage for M2 (V_{GS2}).
$\mu nCox(W/2L)1=0.15mA/V^2$, $nCox(W/2L)2=0.15\ mA/V^2$ and $V_{TN1}=V_{TN2}=0.4V$.



Options :

34058021801. ✓ 1.55V

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34058021802. ✖ 2.35V

34058021803. ✖ 4.20V

34058021804. ✖ 2.25V

Question Number : 52 Question Id : 3405805452 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 $x(t) = tu(t-2) + u(t-3)$

Options :

34058021805. ✔ $\frac{e^{-2s}}{s^2} + \frac{e^{-3s}}{s}$

34058021806. ✖ $\frac{e^{-3s}}{s^2} + \frac{e^{-2s}}{s}$

34058021807. ✖ $\frac{e^{-2s}}{s^2} + \frac{e^{-3s}}{s^2}$

34058021808. ✖ $\frac{e^{-2s}}{s} + \frac{e^{-3s}}{s}$

Question Number : 53 Question Id : 3405805453 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

ZOLLEGE.in

In order to radiate 100W from a circular loop of circumference equal to 10 % of wavelength, the current required will be

Options :

34058021809. ✓ 10A

34058021810. ✗ 100 A

34058021811. ✗ 200 A

34058021812. ✗ 400A

Question Number : 54 Question Id : 3405805454 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

Minimum Hamming distance of a code for detecting 'n' errors is

Options :

34058021813. ✗ $n-1$

34058021814. ✓ $n+1$

34058021815. ✗ 2^n

34058021816. ✗ $2n+1$

Question Number : 55 Question Id : 3405805455 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

ZOLLEGE.in

Correct Marks : 1 Wrong Marks : 0

A 4 bit modulo–6 ripple counter uses J-K flip-flop. If the propagation delay of each FF is 50 ns, the maximum clock frequency that can be used is equal to

Options :

34058021817. ✓ 5 MHz

34058021818. ✗ 10 MHz

34058021819. ✗ 4 MHz

34058021820. ✗ 20 MHz

Question Number : 56 Question Id : 3405805456 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 the system is given by $\frac{e^{-0.2s}}{(S+1)}$ if x(t) is 0.5 sint then the phase angle between the output and the input will be

Options :

34058021821. ✗ -39.27°

34058021822. ✗ -45°

34058021823. ✗ -90°

34058021824. ✓ -56.46°

Question Number : 57 Question Id : 3405805457 Question Type : MCQ Option Shuffling : Yes

ZOLLEGE.in

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

Correct Marks : 1 Wrong Marks : 0

Two voltmeters A and B are connected in series across a DC Line. Voltmeter A reads 200 Volts and has a resistance of 100Ω/V. B has a total resistance of 15000 Ohms. What is the line voltage

Options :

34058021825. ✗ 200V

34058021826. ✗ 150V

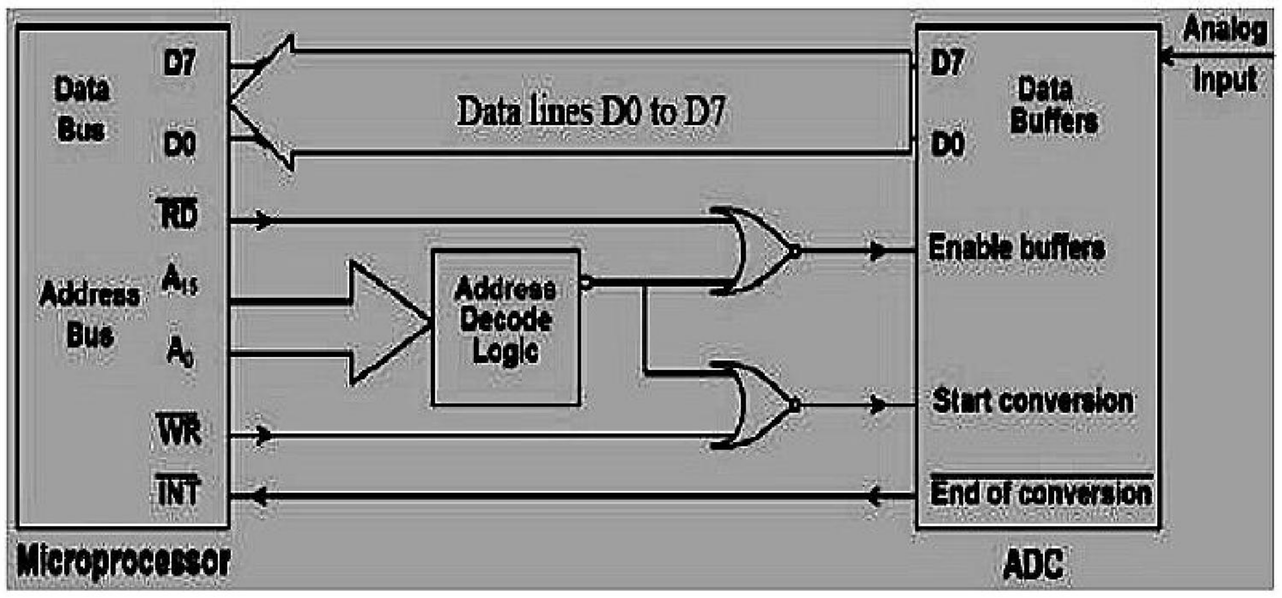
34058021827. ✗ 300V

34058021828. ✓ 350V

Question Number : 58 Question Id : 3405805458 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 the microprocessor-based system given below the address decoding logic is nothing but a ____ circuit and microprocessor involve____ cycle followed by___ cycle to acquire new data. Fill in the blanks using correct options given below.



Options :

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34058021829. ✗ Multiplexer, one read, one write

34058021830. ✗ Encoder, one read, one write

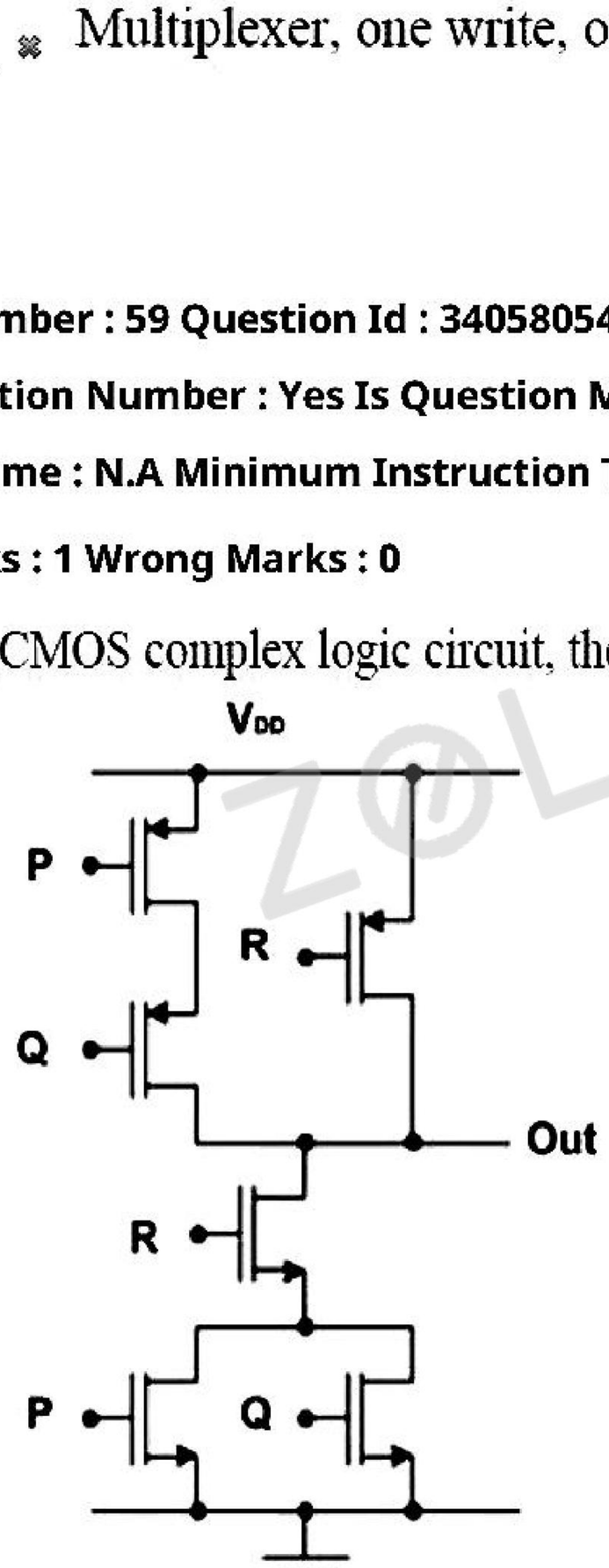
34058021831. ✓ Decoder, one write, one read

34058021832. ✗ Multiplexer, one write, one read

Question Number : 59 Question Id : 3405805459 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 the given CMOS complex logic circuit, the output "out" is given by



Options :

34058021833. ✓ $\overline{P+Q}+\bar{R}$

34058021834. ✗ $\overline{P.Q}+\bar{R}$

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34058021835. ✗ $P + Q + \bar{R}$

34058021836. ✗ $(P + Q).R$

Question Number : 60 Question Id : 3405805460 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

_____ is generally used for cutting and shaping silicon during wafer Preparation

Options :

34058021837. ✓ Industrial grade diamond

34058021838. ✗ Electron grade silicon

34058021839. ✗ Metallurgical grade silicon

34058021840. ✗ Platinum sheets

Question Number : 61 Question Id : 3405805461 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

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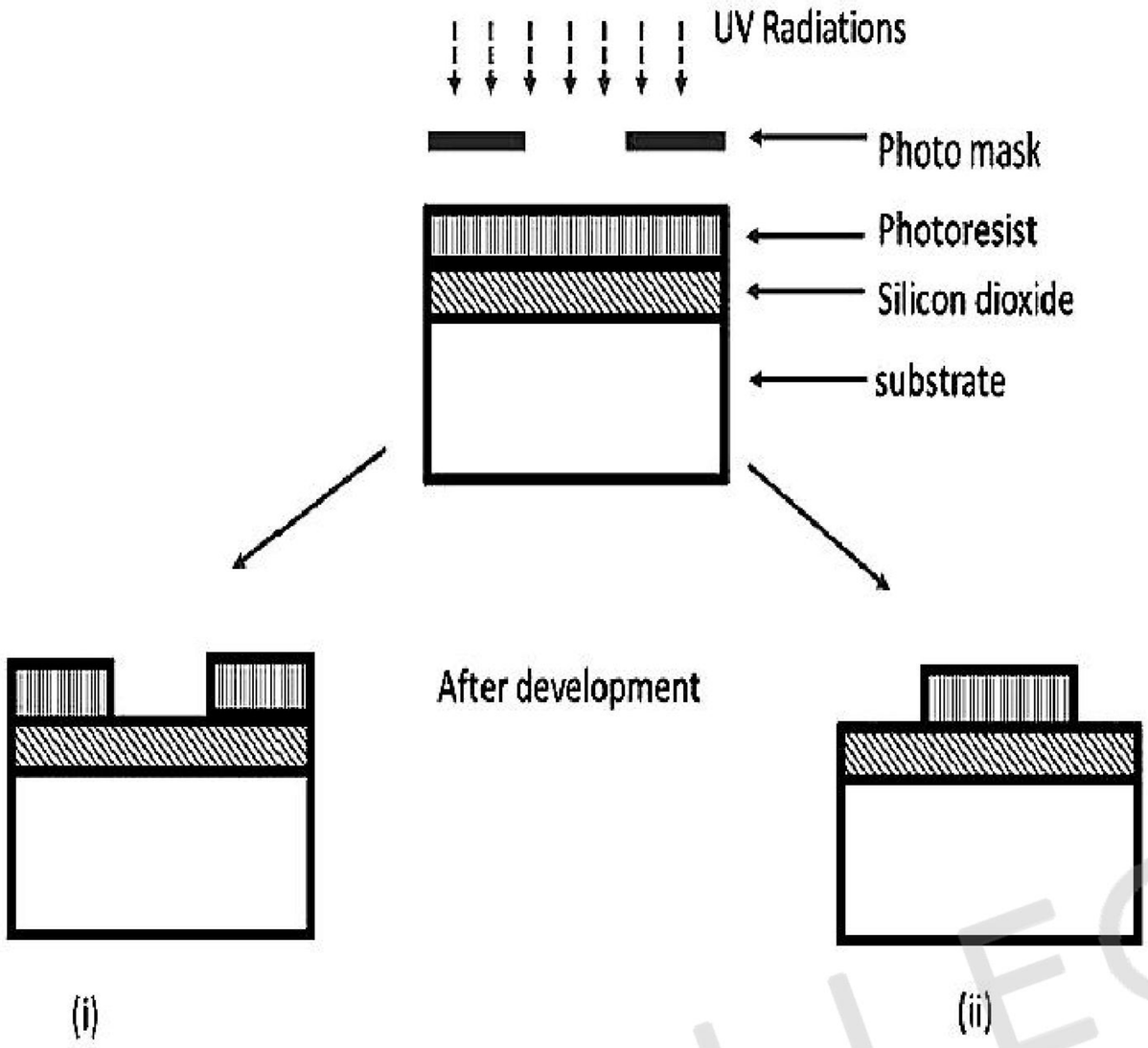
Consider the photolithography process of mask transfer using photoresist and development afterwards on silicon substrate, in the given diagram below. Which option given below is correct about the type of photoresist used.



Options :

34058021841. ✗ Figure (i) is the result of positive photo-resist

34058021842. ✗ Figure (ii) is the result of negative photo-resist

34058021843. ✗ Figure (i) is the result of negative photo-resist

34058021844. ✓ Figure (i) & (ii) is the result of positive & negative photo-resist respectively

Question Number : 62 Question Id : 3405805462 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

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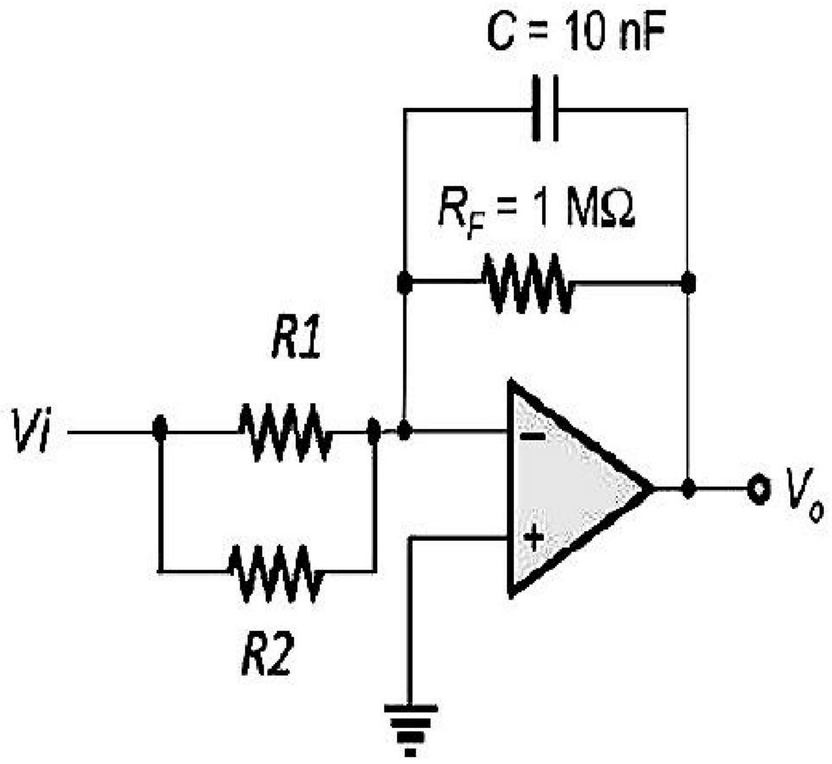
Consider the circuit below.



Vi is the input step signal of 1V, R1=R2=20KΩ. Considering OPAMP to be ideal, what will be the V_0 after 1msec time *(t=1msec)*? (let us assume that Vi is applied at *t=0 sec* and charge on the capacitor at *t=0 sec* is zero).

Options :

34058021845. ✔ -9.52 V

34058021846. ✘ -11.23 V

34058021847. ✘ -14.11 V

34058021848. ✘ +2.45 V

Question Number : 63 Question Id : 3405805463 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 LTE with reference to wireless communication stands for

Options :

34058021849. ✘ Long-range telecommunication equipment

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34058021850. ✓ Long term evolution

34058021851. ✗ Large telecommunication evolution

34058021852. ✗ Low terminal equipment

Question Number : 64 Question Id : 3405805464 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 digital modulation schemes, given the transmitted energy and binary constellation size the error performance is best for

Options :

34058021853. ✗ ASK

34058021854. ✓ PSK

34058021855. ✗ FSK

34058021856. ✗ Remains same for all

Question Number : 65 Question Id : 3405805465 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 LTI system with impulse response $h(t) = e^{-2t}u(t)$ is excited with unit step input. The output at t tending to infinity is

Options :

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34058021857. ✖ 0

34058021858. ✖ Infinity

34058021859. ✔ ½

34058021860. ✖ 2

Question Number : 66 Question Id : 3405805466 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 true about the system $y(t) = x(t)x(-t)$

Options :

34058021861. ✖ It is causal and memoryless

34058021862. ✖ It is non-causal and memoryless

34058021863. ✔ It is non-causal and with memory

34058021864. ✖ It is causal and with memory

Question Number : 67 Question Id : 3405805467 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

ZOLLEGE.in

Which of the following signals are periodic

1) x[n] = cos(2n), 2) x[n] = cos(2πn), 3) x[n] = cos(2n) + cos(3n),
4) x[n] = cos(π^2/8n)

Options :

34058021865. ✖ 1,2,3,4

34058021866. ✔ 2,3

34058021867. ✖ 2,3,4

34058021868. ✖ 2

Question Number : 68 Question Id : 3405805468 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 cannot be a 4-point DFT of a real discrete time signal?

1. {4, j, 2, -j}
2. {j, 4, -j, 2}

Options :

34058021869. ✖ 1 and 2 both

34058021870. ✖ 1 only

34058021871. ✔ 2 only

34058021872. ✖ Both are DFTs of a discrete time signal

ZOLLEGE.in

Question Number : 69 Question Id : 3405805469 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 household energy meter is a having a meter constant of $500\frac{Revolutions}{KWH}$ .If the meter makes 500 revolutions, a day due to certain load; then the total energy consumption for a month of 30 day in KWH is

Options :

34058021873. ✗ 500

34058021874. ✗ 15000

34058021875. ✗ 300

34058021876. ✓ 30

Question Number : 70 Question Id : 3405805470 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which of the following statements is correct regarding Von Neumann architecture (VNA) used in modern day embedded microcontrollers

Options :

34058021877. ✗ Separate bus is used for program memory and data memory in VNA

34058021878. ✓ Bus is shared between program memory and data memory in VNA

ZOLLEGE.in

34058021879. ✗ VNA uses external bus for program and data memory

34058021880. ✗ External bus is used only for data memory but not for program memory

Question Number : 71 Question Id : 3405805471 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

Consider the following steps used in IC fabrication. For which step silicon dioxide is best suited material

(i) Surface passivation
(ii) Implant mask
(iii) Device isolation

Options :

34058021881. ✗ Option (i) only

34058021882. ✗ Option (i) and (ii) only

34058021883. ✗ Option (ii) and (iii) only

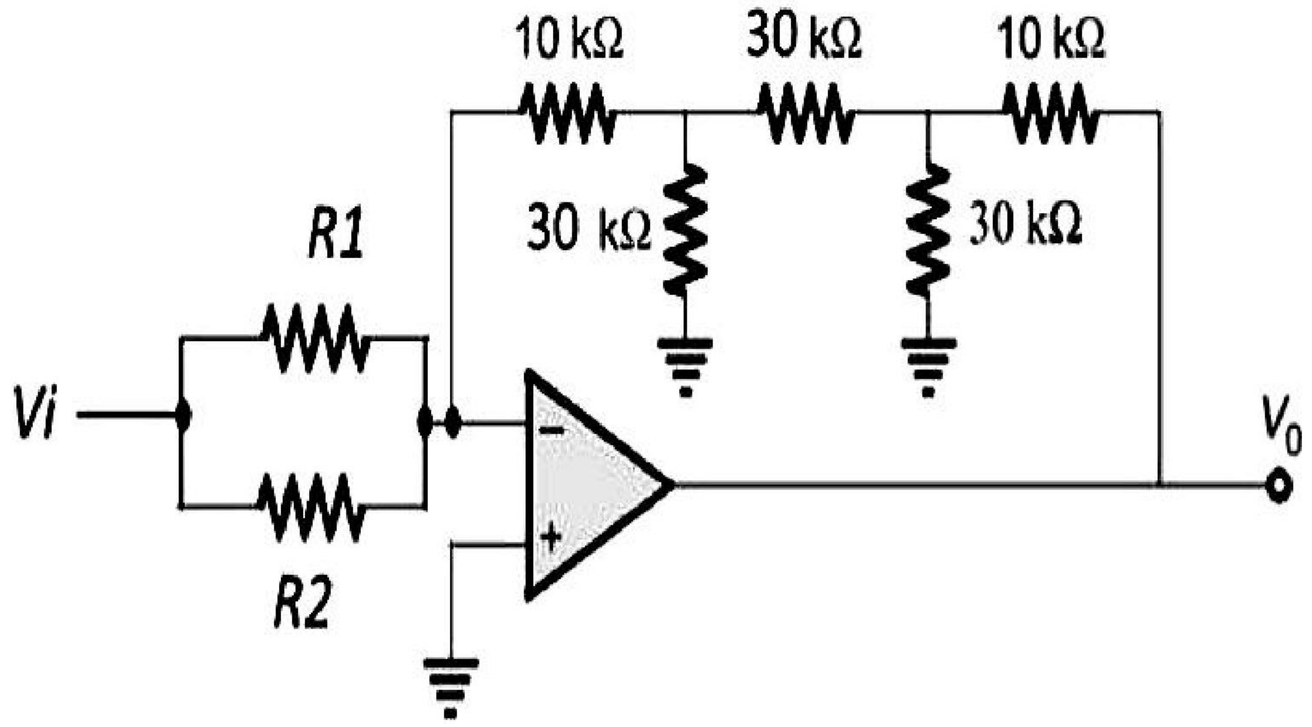
34058021884. ✓ Option (i), (ii) and (iii) only

Question Number : 72 Question Id : 3405805472 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

ZOLLEGE.in

In the given circuit below, the OPAMP is ideal and R1=R2=20KΩ. Compute the voltage gain $\frac{V_0}{V_i}$ of the circuit



Options :

34058021885. ✔ -8V

34058021886. ✘ -10V

34058021887. ✘ +8V

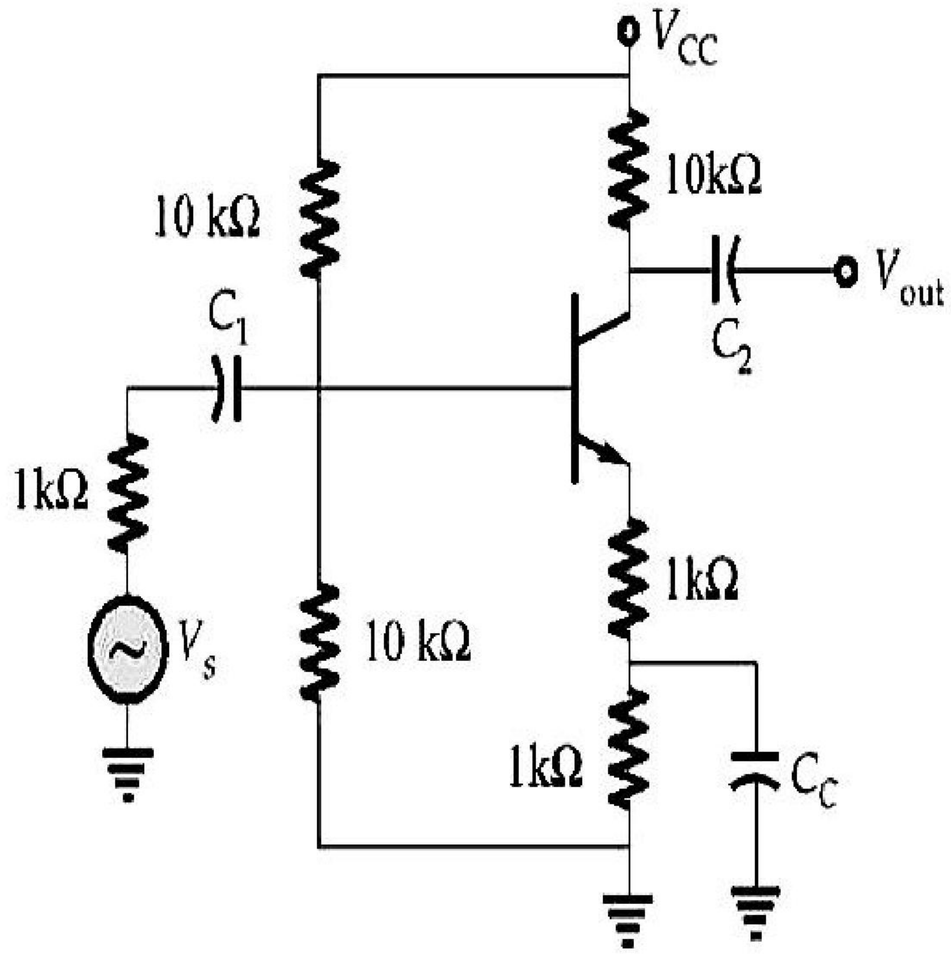
34058021888. ✘ +10V

Question Number : 73 Question Id : 3405805473 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

ZOLLEGE.in

In the given amplifier circuit,_____ the feedback topology used is known as



Options :

34058021889. ✗ Voltage - series

34058021890. ✓ Current - series

34058021891. ✗ Voltage - shunt

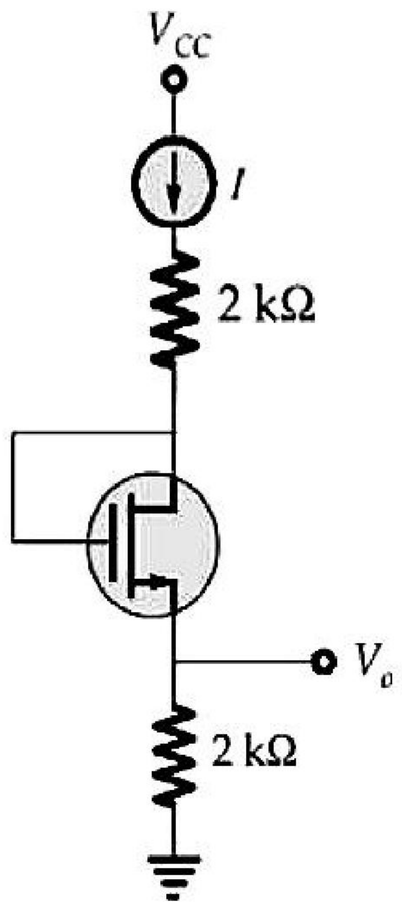
34058021892. ✗ Current - shunt

Question Number : 74 Question Id : 3405805474 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

ZOLLEGE.in

For the given MOSFET transistor, the transconductance parameter is $\mu nCox(W/2L) = 20\ \mu A/V^2$ and the threshold voltage is 0.8V. The channel length modulation parameter is assumed to be zero. If $V_{DS} = 2.8$ V, what will be the value of current source *(I)*



Options :

34058021893. ✗ 40 μA

34058021894. ✓ 80 μA

34058021895. ✗ 20 μA

34058021896. ✗ 160 μA

Question Number : 75 Question Id : 3405805475 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 input to a linear system is wide sense stationary, then the output is

Options :

ZOLLEGE.in

34058021897. ✓ Always wide sense stationary

34058021898. ✗ May or may not wide sense stationary

34058021899. ✗ Never wide sense stationary

34058021900. ✗ Stationary but not wide sense

Question Number : 76 Question Id : 3405805476 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 characteristic function of a random variable is

Options :

34058021901. ✓ Maximum at origin

34058021902. ✗ Minimum at origin

34058021903. ✗ Always greater than unity

34058021904. ✗ Defined only for discrete random variables

Question Number : 77 Question Id : 3405805477 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

ZOLLEGE.in

Which one of the following functions qualifies to be an autocorrelation function of a real valued time signal

Options :

34058021905. ✗ $\sin(\omega\tau)$

34058021906. ✗ $\exp(-\tau)$

34058021907. ✓ $\delta(\tau)$

34058021908. ✗ $u(\tau)$

Question Number : 78 Question Id : 3405805478 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

Laplace transform of $3e^{-3t}u(-t) + 2e^{-2t}u(t)$

Options :

34058021909. ✗ $\frac{3}{s+3} + \frac{2}{s+2}$

34058021910. ✗ $-\frac{3}{s+3} + \frac{2}{s+2}$

34058021911. ✗ $\frac{3}{s+3} - \frac{2}{s+2}$

34058021912. ✓ The Laplace transform does not converge

ZOLLEGE.in

Question Number : 79 Question Id : 3405805479 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 used to measure velocity of high-speed gases

Options :

34058021913. ✗ Orifice

34058021914. ✗ Venturi

34058021915. ✓ Hot wire anemometer

34058021916. ✗ Electromagnetic flow meter

Question Number : 80 Question Id : 3405805480 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 $z = 1 + 2j$ be a pole of a real all-pass filter, then consider following statements

1. 1-2j is a pole of the filter
2. 1/(1-2j) is a zero of the filter
3. 1/(1+2j) is a zero of the filter

Which of the above statements is/are correct

Options :

34058021917. ✗ only 1

34058021918. ✗ 1 and 2

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34058021919. ✖ 1 and 3

34058021920. ✔ 1, 2 and 3

Question Number : 81 Question Id : 3405805481 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 systems is linear and time invariant

Options :

34058021921. ✖ $y(t) = x(t_o - t)$

34058021922. ✖ $y(t) = x(2t)$

34058021923. ✖ $y(t) = e^{x(t)}$

34058021924. ✔ $y(t) = \sum_{n=0}^{\infty} x(t - nt_o)$

Question Number : 82 Question Id : 3405805482 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 asynchronous counter of MOD 15 is cascaded to another MOD 10 counter. The input frequency of the counter is 'f=150MHz' then the frequency at the output of the cascaded counter will be

Options :

34058021925. ✖ 15 KHz

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34058021926. ✗ 10 KHz

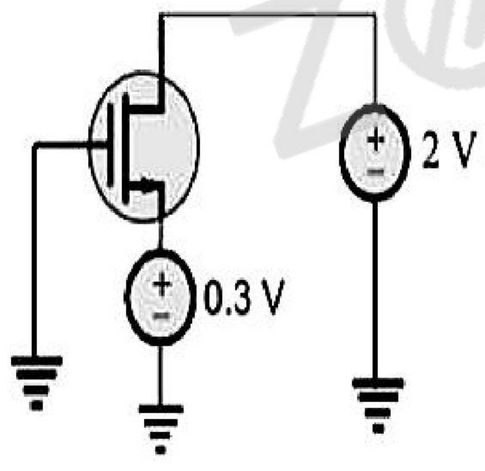
34058021927. ✗ 25 KHz

34058021928. ✓ 1000 KHz

Question Number : 83 Question Id : 3405805483 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 given NMOS circuit, the value of threshold voltage is given as $|V_{TN}|$=0.45V. What is the mode of operation



Options :

34058021929. ✗ Saturation

34058021930. ✗ Linear

34058021931. ✓ Cut-Off

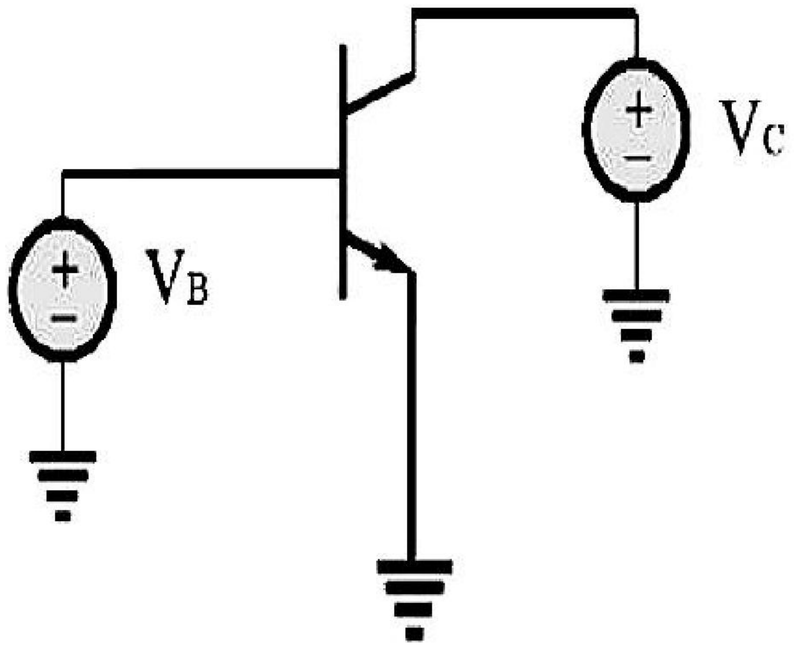
34058021932. ✗ Cannot be determined

ZOLLEGE.in

Question Number : 84 Question Id : 3405805484 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

Consider the NPN transistor with V_B and V_C biasing. It operates in which region



Options :

34058021933. ✗ Active (when $V_B>V_C$) and $V_B<0$, $V_C<0$

34058021934. ✓ Active (when $V_B<V_C$) and $V_B>0$, $V_C>0$

34058021935. ✗ Saturation (when $V_B>V_C$) and $V_B>0$, $V_C>0$

34058021936. ✗ Saturation (when $V_B<V_C$) and $V_B<0$, $V_C<0$

Question Number : 85 Question Id : 3405805485 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 superheterodyne receiver, the IF is 455 kHz. If local oscillator is tuned to 1145 kHz, the incoming RF and its image frequency pair will be

Options :

ZOLLEGE.in

34058021937. ✓ 1600, 690 kHz

34058021938. ✗ 1655, 755 kHz

34058021939. ✗ 745, 1700 kHz

34058021940. ✗ 910, 1300 kHz

Question Number : 86 Question Id : 3405805486 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which of the following is a non-linear system

Options :

34058021941. ✗ Differentiator

34058021942. ✗ Integrator

34058021943. ✗ Attenuator

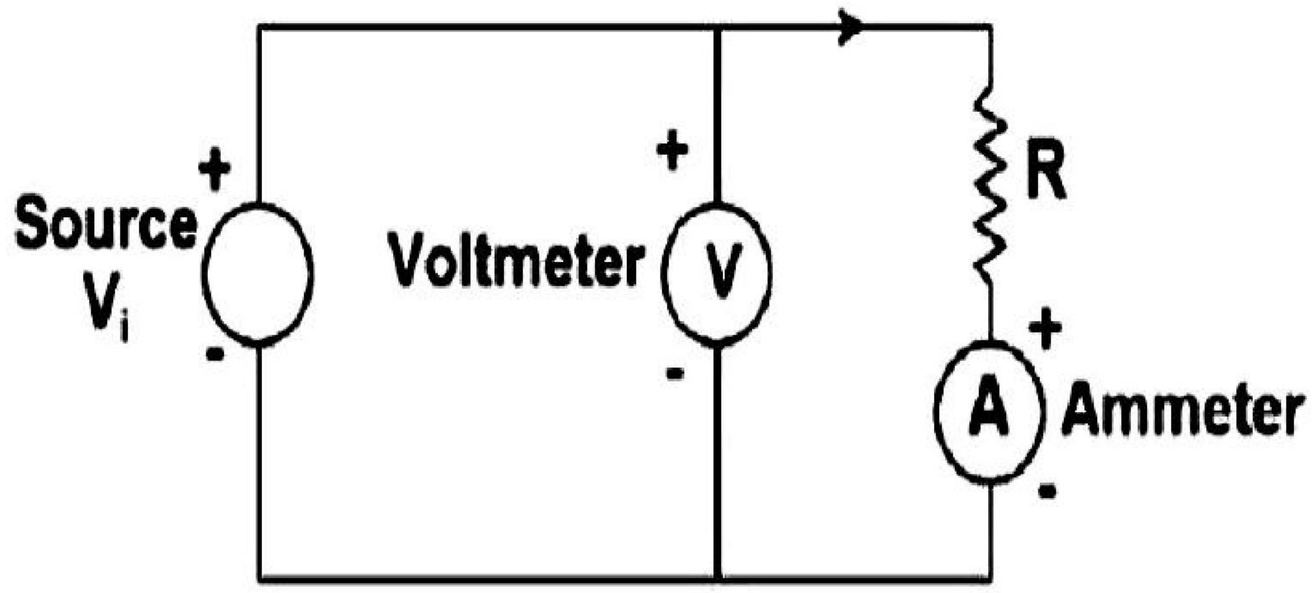
34058021944. ✓ Modulator

Question Number : 87 Question Id : 3405805487 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

ZOLLEGE.in

Voltmeter-Ammeter method is used to measure the value of an unknown resistance R as shown in the given figure below. The maximum errors of voltmeter and ammeter are known to be 2% and 2.5 % of their readings. If the R is measured from another accurate method and found to be 100 Ω then the maximum absolute error in the measurement of R by V-A method below is



Options :

34058021945. ✗ $2\ \Omega$

34058021946. ✗ 2.5Ω

34058021947. ✓ 4.5Ω

34058021948. ✗ 5Ω

Question Number : 88 Question Id : 3405805488 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 series coefficients of which of the following signals cannot be determined

Options :

34058021949. ✓ $x[n] = cos\ 2n + cos\ 3n$

ZOLLEGE.in

34058021950. ✖ $x[n] = cos\ 2\pi n + cos\ 3\pi n$

34058021951. ✖ $x[n] = exp\ (j\pi n)$

34058021952. ✖ $x[n] = exp\ (j\frac{\pi}{2}n) + exp\ (j\pi n)$

Question Number : 89 Question Id : 3405805489 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 ADC having 10-bit inputs should be connected to a microprocessor. What should be the minimum memory size of the microprocessor for the said interface

Options :

34058021953. ✖ More than 10K

34058021954. ✖ More than 2K

34058021955. ✔ More than 1K

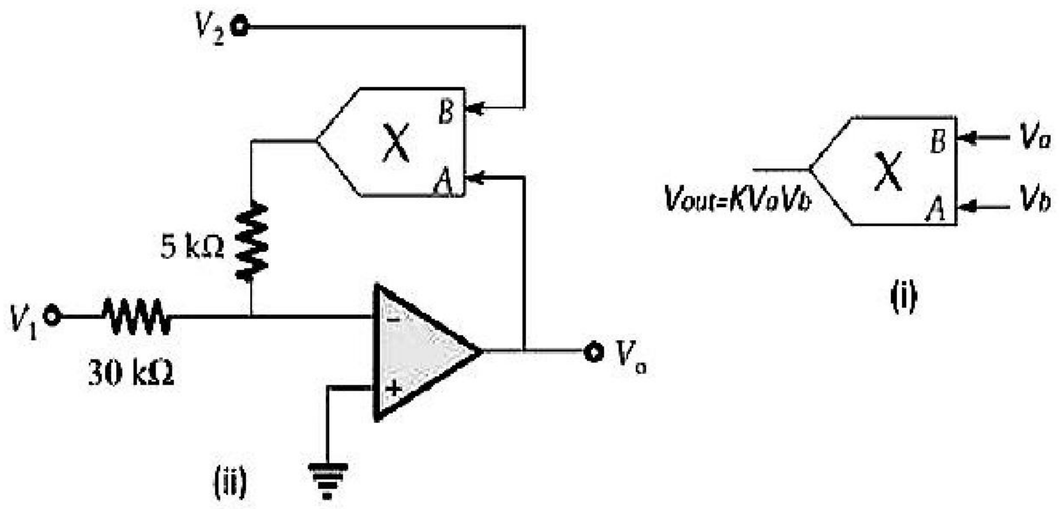
34058021956. ✖ More than 1 MB

Question Number : 90 Question Id : 3405805490 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

ZOLLEGE.in

Consider the ideal multiplier circuit given in Fig. (i). It takes two inputs V_a and V_b and gives output as its product ($V_{out} = K*V_a*V_b$). K is a constant. The circuit is Fig.(ii), uses this multiplier circuit along with ideal OP-AMP. What is the output voltage (V_o) ? *(take k=1)*



(i)

Options :

34058021957. ✔ $-\frac{V_1}{6V_2}$

34058021958. ✘ $-\frac{V_2}{6V_1}$

34058021959. ✘ $-6V_1V_2$

34058021960. ✘ $6V_1V_2$

Question Number : 91 Question Id : 3405805491 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 coil having inductance (L) of 10 mH and resistance (R) is connected in series with an ideal 100μF capacitor (C). When excited by a voltage source of $5\sqrt{2}$ cos (1000t) V, the circuit draws 10 W of power. The values of coil resistance R and Q factor of the coil at the resonant frequency respectively are.

Options :

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34058021961. ✗ $1\ \Omega$ and 2

34058021962. ✗ $2.5\ \Omega$ and 2

34058021963. ✓ $2.5\ \Omega$ and 4

34058021964. ✗ $1\ \Omega$ and 2.5

Question Number : 92 Question Id : 3405805492 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 third Kepler's law is given in mathematical form as *(T=orbital time period, a=length of semi-major axis of an orbit)*

Options :

34058021965. ✓ $T^2 \propto a^3$

34058021966. ✗ $T^2 \propto 1/a^3$

34058021967. ✗ $T \propto a^2$

34058021968. ✗ $T \propto 1/a^3$

Question Number : 93 Question Id : 3405805493 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

ZOLLEGE.in

A signal $x(t)$ with Fourier transform $X(\omega)$ is passed through an LTI system with impulse response $h(t) = x(t)$ followed by a delay of t_o. The output signal has Fourier transform as

Options :

34058021969. ✓ $X^2(\omega)e^{-j\omega t_o}$

34058021970. ✗ $X^2(\omega)e^{-j2\omega t_o}$

34058021971. ✗ $X^2(\omega)e^{-j\omega 0.5 t_o}$

34058021972. ✗ $X^2(\omega)$

Question Number : 94 Question Id : 3405805494 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 difference of energies between conduction band and fermi energy is at 20 milli eV below the conduction band at room temperature. The ratio of density of states in conduction band to the donor concentration is *(use KT = 0.026 eV)*

Options :

34058021973. ✓ 2.15

34058021974. ✗ 4.2

34058021975. ✗ 5.8

34058021976. ✗ 1.1

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Question Number : 95 Question Id : 3405805495 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

Magnitude of Laplace transform

Options :

34058021977. ✓ Increases when $s = \sigma + j\omega$ is close to the pole

34058021978. ✗ Decreases when $s = \sigma + j\omega$ is close to the pole

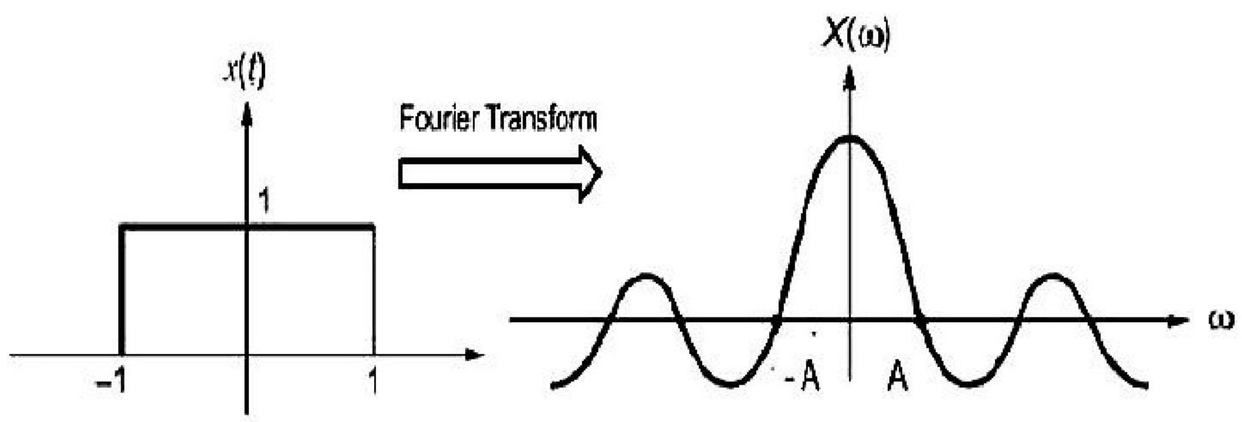
34058021979. ✗ Cannot be predicted

34058021980. ✗ Increases when $s = \sigma + j\omega$ is close to zero

Question Number : 96 Question Id : 3405805496 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 below shows the Fourier transform of $x(t) \rightarrow X(\omega)$. What will be the value of A



Options :

34058021981. ✓ π

34058021982. ✗ 2π

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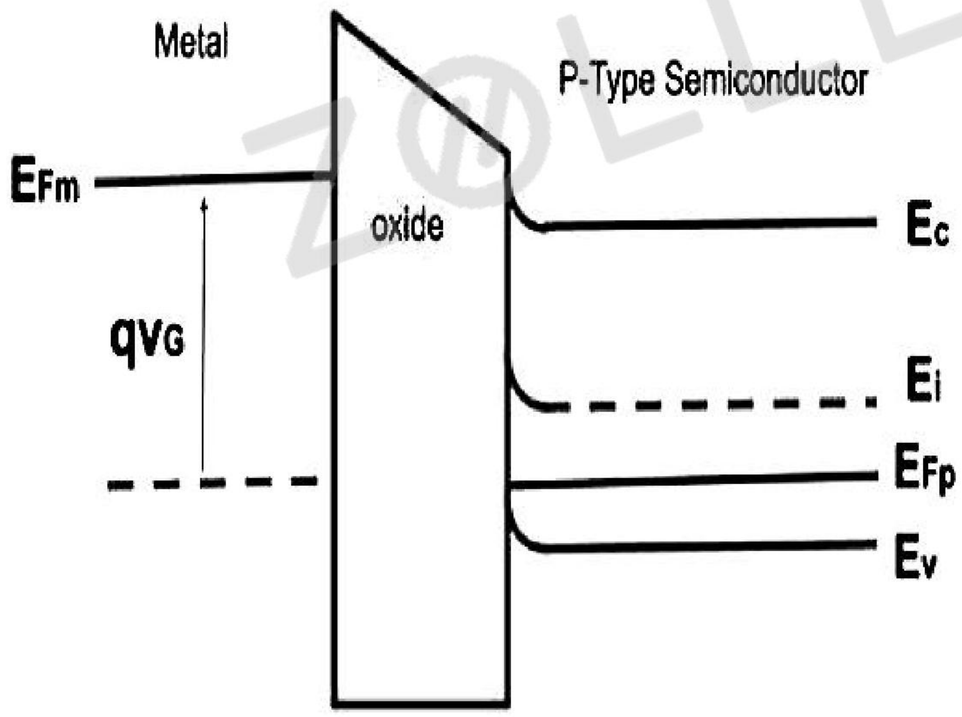
34058021983. ✖ $1/\pi$

34058021984. ✖ $2/\pi$

Question Number : 97 Question Id : 3405805497 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 below shows the energy band diagram of a MOS structure, where E_C, E_V, E_i, E_{Fp} , E_{Fm} are energy of conduction band, valence band, intrinsic band, fermi-level (p-type), fermi-level (metal) respectively. It operates in which region



Options :

34058021985. ✔ Accumulation

34058021986. ✖ Inversion

34058021987. ✖ Depletion

34058021988. ✖ Enhancement

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Question Number : 98 Question Id : 3405805498 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which one of the statements is true for the substrate bias voltage (V_{SB}) in a Enhancement MOSFET

Options :

34058021989. ✗ Positive in NMOS and negative in PMOS

34058021990. ✗ Negative in NMOS and negative in PMOS

34058021991. ✗ Positive in NMOS and positive in PMOS

34058021992. ✓ Negative in NMOS and positive in PMOS

Question Number : 99 Question Id : 3405805499 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 approximate value of the gate to bulk (C_{gb}) capacitance in cut-off, linear and saturation operating modes respectively for MOS transistor is
(C_{ox} = oxide capacitance, W and L= channel dimensions).

Options :

34058021993. ✓ $C_{ox}W*L, 0, 0$

34058021994. ✗ $0, 0, C_{ox}W*L$

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34058021995. ✗ $C_{ox}W^*L, C_{ox}W^*L, C_{ox}W^*L$

34058021996. ✗ $C_{ox}W^*L, 0, C_{ox}W^*L$

Question Number : 100 Question Id : 3405805500 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 transfer function of a unity feedback system is given by

$G(s)=\frac{25}{s(s+1)(s+10)}$ The value of phase cross over frequency of the system is

Options :

34058021997. ✓ $\sqrt{10}$ rad / sec

34058021998. ✗ $\sqrt{5}$ rad / sec

34058021999. ✗ $2\sqrt{5}$ rad / sec

34058022000. ✗ $\frac{1}{\sqrt{2}}$ rad / sec

Question Number : 101 Question Id : 3405805501 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

Determine the value of base X if $(193)_X = (623)_8$

ZOLLEGE.in

Options :

34058022001. ✖ 6

34058022002. ✖ 7

34058022003. ✖ 8

34058022004. ✔ 16

Question Number : 102 Question Id : 3405805502 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 fast computing in embedded systems microcontrollers with 80/20 rule are used. What is 80/20 rule

Options :

34058022005. ✔ 20% instructions are executed and 80% instructions are generated

34058022006. ✖ 80% instruction are executed and 20% instructions are generated

34058022007. ✖ 20 % instructions are not executed and 80% instruction are executed

34058022008. ✖ 80 % instructions are generated and 20% instructions are not generated

Question Number : 103 Question Id : 3405805503 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

ZOLLEGE.in

A piezoelectric type pressure sensor has a sensitivity of 0.5mV/kPa and a bandwidth of 500 Hz to 500 KHz. If the sensor is subjected to a static pressure of 100 kPa then the steady state output of the sensor is

Options :

34058022009. ✗ 0.5 mV

34058022010. ✗ 500 mV

34058022011. ✗ 50 mV

34058022012. ✓ 0 V

Question Number : 104 Question Id : 3405805504 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 circular parabolic reflector antenna, the isotropic power gain is given by (with the diameter D in meter and f is frequency in GHz, η= aperture efficiency)

Options :

34058022013. ✗ $G=(10.472fD)^2$

34058022014. ✗ $G=\eta^*(3.192fD)^2$

34058022015. ✓ $G=\eta^*(10.472fD)^2$

34058022016. ✗ $G=(3.192fD)^2$

ZOLLEGE.in

Question Number : 105 Question Id : 3405805505 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 MOSFET with doping densities (N_A and N_D) is scaled down dimensionally with the factor of α. The supply and terminal voltages are constant. What will be the new doping densities

Options :

34058022017. ✗ αN_A and αN_D

34058022018. ✓ $\alpha^2 N_A$ and $\alpha^2 N_D$

34058022019. ✗ N_A and αN_D

34058022020. ✗ $2\alpha N_A$ and $2\alpha N_D$

Question Number : 106 Question Id : 3405805506 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 transmission line of $\lambda/8$, having characteristic impedance of 100Ω is terminated with load impedance of $Z_L=(80+jY)\ \Omega$. Find the value of 'Y' for which the input impedance has only real terms

Options :

34058022021. ✗ 30

34058022022. ✗ 120

34058022023. ✓ 60

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34058022024. ✗ 45

Question Number : 107 Question Id : 3405805507 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 we scale all the dimensions of a MOS transistor by a factor of ($\alpha > 1$), it results in the reduction of the area occupied by a factor of

Options :

34058022025. ✓ α^2

34058022026. ✗ α^{-1}

34058022027. ✗ α

34058022028. ✗ α^3

Question Number : 108 Question Id : 3405805508 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 plane propagating in a free space for which the relation of electric field (**E**) and magnetic field (**H**) is $ExH=6\ W/m^2$. The value of average energy density is *(in* nJ/m^3*)*

Options :

34058022029. ✗ 10

34058022030. ✓ 20

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34058022031. ✖ 30

34058022032. ✖ 40

Question Number : 109 Question Id : 3405805509 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The average power delivered to an impedance $(5+j3)\Omega$ by a current 10 cos $(50\pi t+45^0)$ A is

Options :

34058022033. ✖ 600 W

34058022034. ✖ 300 W

34058022035. ✔ 250 W

34058022036. ✖ 500 W

Question Number : 110 Question Id : 3405805510 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

$x(t) = cos\ 2\pi ft$ is

Options :

34058022037. ✖ Energy signal

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34058022038. ✓ Power signal

34058022039. ✗ Neither energy nor power signal

34058022040. ✗ Random signal

Question Number : 111 Question Id : 3405805511 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

20 junctions of Copper-Constantan thermocouple are connected in series to constitute a thermopile. Each thermocouple has a sensitivity of 50 $\mu V/^0C$. The output of thermopile is fed to an amplifier of infinite input impedance and gain of 100. This output is further applied to a 10-bit ADC with reference voltage of 5V. The minimum change in temperature that can be detected using this system is

Options :

34058022041. ✗ $5\ ^0C$

34058022042. ✗ $0.5\ ^0C$

34058022043. ✗ $50\ ^0C$

34058022044. ✓ $0.05\ ^0C$

Question Number : 112 Question Id : 3405805512 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

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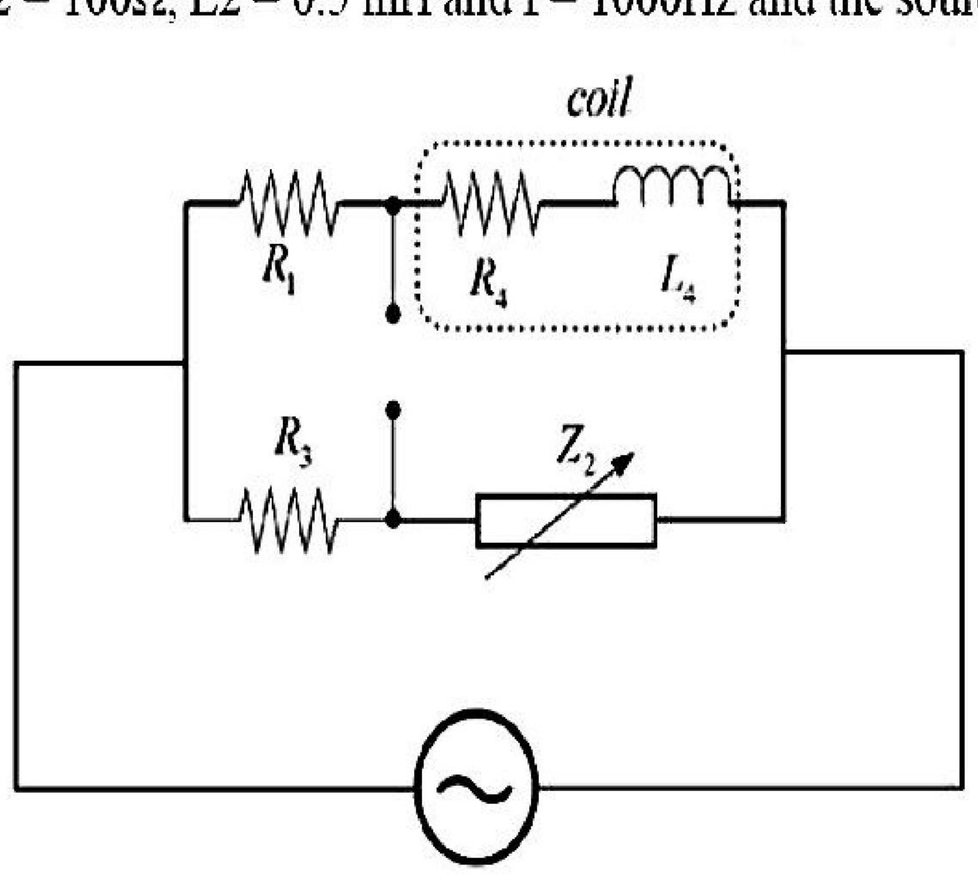
The resistance and inductance of a coil are measured using an AC bridge as shown in below figure. The balance condition of the bridge is obtained by varying Z2 = R_2+ jX_1 . Neglecting the mutual effects under the balance condition the value of R4 and L4 respectively are? Given that R1= 10 KΩ R3 = 1KΩ, R2 = 100Ω, L2 = 0.5 mH and f = 1000Hz and the source voltage is 10 V.



Options :

34058022045. ✗ 100 Ω and 0.5mH

34058022046. ✗ 1000 Ω and 0.5mH

34058022047. ✗ 100 Ω and 5mH

34058022048. ✓ 1000 Ω and 5mH

Question Number : 113 Question Id : 3405805513 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 processing gain or spreading ratio is

Options :

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34058022049. ✗ Ratio of transmission rate of (rb) bps and spread spectrum RF bandwidth

34058022050. ✓ Ratio of spread spectrum RF bandwidth and transmission rate of (rb) bps

34058022051. ✗ spread spectrum RF bandwidth

34058022052. ✗ Ratio of spread spectrum RF bandwidth and receiving rate of (rb) bps

Question Number : 114 Question Id : 3405805514 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

There are many design activities associated with the platforms in the embedded system and one such is ----------which helps in identifying the task that needed to be present in the final embedded systems. Fill in the blanks with correct option.

Options :

34058022053. ✓ Task-level concurrency management

34058022054. ✗ Task-level compilation

34058022055. ✗ Scheduling of task

34058022056. ✗ High -level transformation of task

Question Number : 115 Question Id : 3405805515 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

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Correct Marks : 1 Wrong Marks : 0

Let $x(t)$ be a periodic signal with period 20 and Fourier series coefficients as a_ks. Let b_ks be the Fourier series coefficients of $x(2t)$. If $\sum_{k=-\infty}^{\infty} |a_k| = 128$, then $\sum_{k=-\infty}^{\infty} |b_k|$ is

Options :

34058022057. ✓ 128

34058022058. ✗ 64

34058022059. ✗ 256

34058022060. ✗ 32

Question Number : 116 Question Id : 3405805516 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 impulse response of a system has Z transform as $H(z) = az^5 + bz^3 + cz^{-2}$, where a, b, c are finite constants. Then the system is

Options :

34058022061. ✗ Causal and stable

34058022062. ✗ Causal and unstable

34058022063. ✓ Non-causal and stable

34058022064. ✗ Non-causal and unstable

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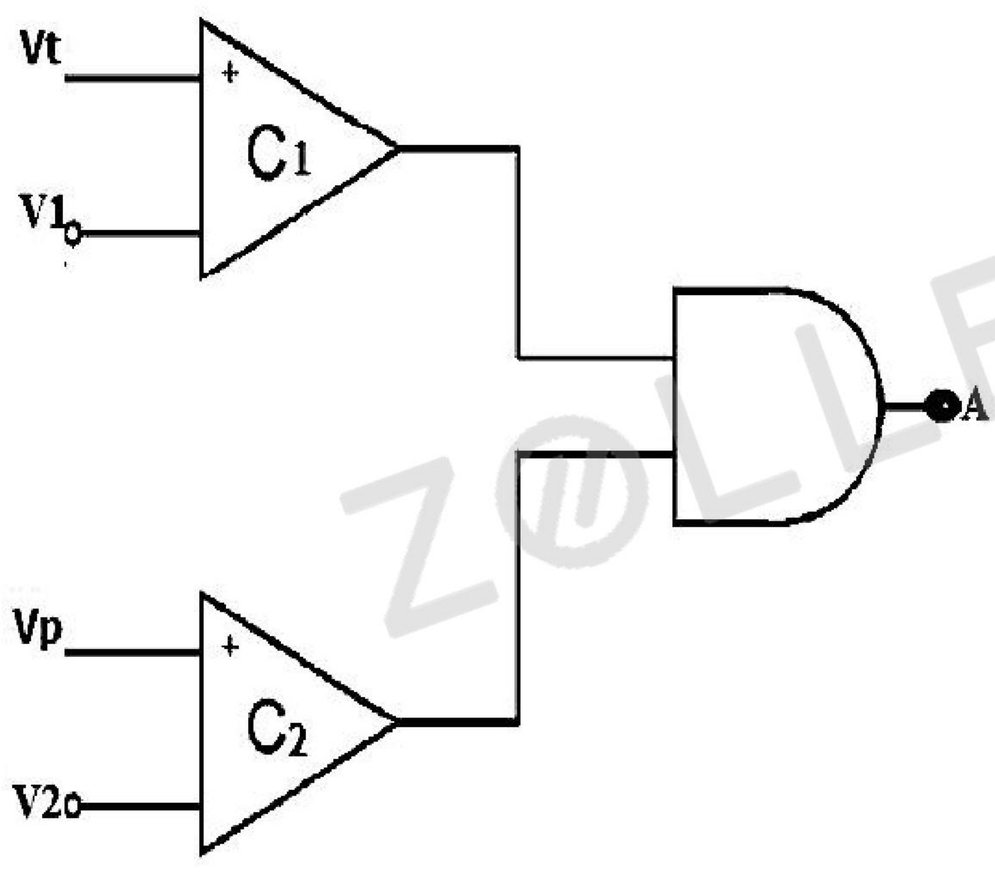
Question Number : 117 Question Id : 3405805517 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Consider the system shown below. C1 and C2 are the comparators whose output is given to an AND gate which drives an LED. Vt and Vp are the outputs of temperature and pressure sensor respectively connected in the system. The sensitivity of temperature sensor is 2.2 mV/^{0}C and that of pressure sensor is 0.2 V/kPa. If the temperature and pressure in the system exceeds their extreme values (160 ^{0}C and 10 kPa respectively) the LED glows. The suitable values of comparator reference voltages V1 and V2 respectively for detecting the extreme condition is



Options :

34058022065. ✗ 2 V, 0.35 V

34058022066. ✓ 0.35 V, 2 V

34058022067. ✗ 2.2 V, 0.2 V

34058022068. ✗ 0.2 V, 2.2 V

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Question Number : 118 Question Id : 3405805518 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 pixels p(x, y), q(s, t), and z(v, w), D is not a distance function or metric if

Options :

34058022069. ✗ $D(p, q) \geq 0$

34058022070. ✗ $D(p, z) \leq D(p, q) + D(q, z)$

34058022071. ✗ $D(p, q) = D(q, p)$

34058022072. ✓ $D(p, z) \geq D(p, q) + D(q, z)$

Question Number : 119 Question Id : 3405805519 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 pixel depth is number of

Options :

34058022073. ✗ Units used to represent each pixel in RGB space

34058022074. ✗ mn used to represent each pixel in RGB space

34058022075. ✓ Bits used to represent each pixel in RGB space

34058022076. ✗ Bytes used to represent each pixel in RGB space

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Question Number : 120 Question Id : 3405805520 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 digitization process, in which the digital image comprises M rows and N columns, necessitates choices for M, N, and the number of grey levels per pixel, L. M and N must satisfy

Options :

34058022077. ✗ M have to be positive and N have to be negative integer

34058022078. ✗ M have to be negative and N have to be positive integer

34058022079. ✗ M and N have to be negative integer

34058022080. ✓ M and N have to be positive integer

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