Question Paper Preview

Question Paper Name:	Electronics and Communication Engineering 3rd May 2019 S1
Subject Name:	Electronics and Communication Engineering
Duration:	120
Share Answer Key With Delivery Engine:	Yes
Actual Answer Key:	Yes

Electronics and Communication Engineering

Display Number Panel:	Yes
Group All Questions:	No

Question Number : 1 Question Id : 2501071081 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If $A=\begin{bmatrix}2 & 1\\ 0 & 2\end{bmatrix}$ then the number of linearly independent eigen vectors is __.

Options :

1. 0

2. 1

3. 2

4. infinite

Question Number : 2 Question Id : 2501071082 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If $z=xy\log(xy)$ then ____

Options :

1. $x\frac{\partial z}{\partial x}+y\frac{\partial z}{\partial y}=0$

2. $y\frac{\partial z}{\partial x}+x\frac{\partial z}{\partial y}=0$

3. $x\frac{\partial z}{\partial x}-y\frac{\partial z}{\partial y}=0$

4. $y\frac{\partial z}{\partial x}-x\frac{\partial z}{\partial y}=0$

Question Number : 3 Question Id : 2501071083 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If a vector $\overline{A}(t)$ has constant magnitude then ____.

Options :

1. $\overline{A}\times\frac{d\overline{A}}{dt}=0$

2. $\overline{A}.\overline{A}=\frac{d\overline{A}}{dt}$

3. $\overline{A}.\frac{d\overline{A}}{dt}=0$

4. $\overline{A}\times\overline{A}=\frac{d\overline{A}}{dt}$

Question Number : 4 Question Id : 2501071084 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The equation of the curve which passes through the point (0, 1) and satisfies the differential equation $\left(1+x^2\right)dy-xydx=0$ is ___.

Options :

1. $x^2-y^2=\frac{1}{\sqrt{2}}$

2. $x^2-y^2=1$

3. $y-x=1$

4. $y^2-x^2=1$

Question Number : 5 Question Id : 2501071085 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The partial differential equation $\frac{\partial u}{\partial t}+u\frac{\partial u}{\partial x}=\frac{\partial^2 u}{\partial x^2}$ is a ___.

Options :

1. linear equation of order 1

2. non-linear equation of order 1

3. linear equation of order 2

4. non-linear equation of order 2

Question Number : 6 Question Id : 2501071086 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The value of $\oint_C \frac{1}{z^2+1} dz$, where C: $\left|Z - \frac{i}{2}\right| = 1$, is___.

Options :

1. π

2. $2\pi i$

3. $\text{Tan}^{-1}2$

4. $\pi i \ Tan^{-1}2$

Question Number : 7 Question Id : 2501071087 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A coin is tossed 4 times. What is the probability of getting heads exactly 3 times?

Options :

1. $\frac{1}{4}$

2. $\frac{3}{8}$

3. $\frac{1}{2}$

4. $\frac{3}{4}$

Question Number : 8 Question Id : 2501071088 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If the correlation coefficient r = 0.5 and n = 50 then the probable error is ___.

Options :

1. 1

2. 0.5

3. 0.07

4. 0.7

Question Number : 9 Question Id : 2501071089 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

What is the interval in which a root lies for $f(x) = x^3 - 2x - 5$?

Options :

1. $(1,2)$

2. $(3,5)$

3. $(0,1)$

4. $(2,3)$

Question Number : 10 Question Id : 2501071090 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

From the following table

x	0	0.1	0.2	0.3	0.4
f(x)	1	0.99	0.96	0.91	0.85

Find the $\int_0^{0.4} f(x)\,dx$ by Simpson's $1/3^{rd}$ rule.

Options :

1. 0.379

2. 0.358

3. 0.365

4. 0.389

Question Number : 11 Question Id : 2501071091 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

An ideal voltage and current sources are connected in parallel. This combination will have

Options :

1. both Thevenin's and Norton's equivalent

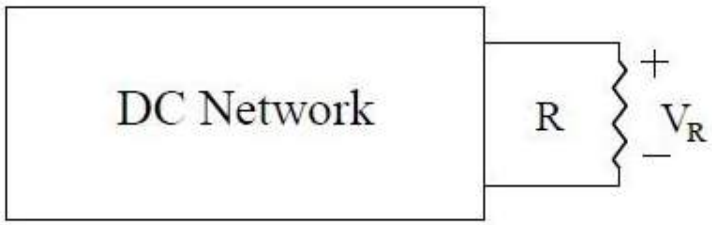
2. norton's but not Thevenin's equivalent

3. Thevenin's but not Norton's equivalent

4. neither Thevenin's nor Norton's equivalents

Question Number : 12 Question Id : 2501071092 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

When R = 10 Ω, then V_R = 20 V and when R = 20 Ω, then V_R = 30 V. Find V_R when R = 80 Ω.



Options :

1. 40

2. 160

3. 48

4. 96

Question Number : 13 Question Id : 2501071093 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A 24V battery of internal resistance r = 4 Ω is connected to a variable resistance R. The rate of heat dissipation in the resistor is maximum when the current drawn from the battery is I. Current drawn from the battery will be I/2 when R is equal to

Options :

1. 8 Ω

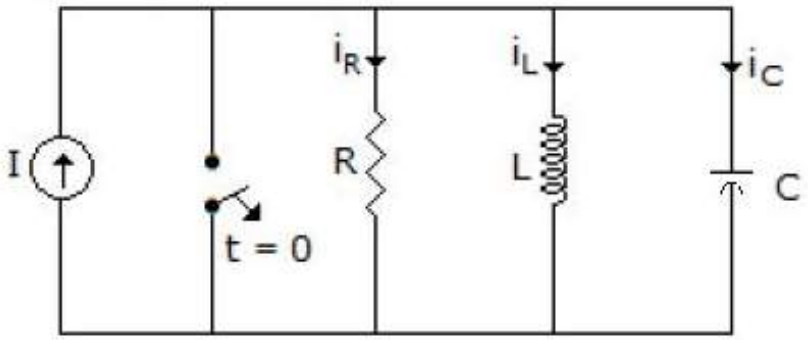
2. 12 Ω

3. 16 Ω

4. 20 Ω

Question Number : 14 Question Id : 2501071094 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In the figure, the current i_L at $t = \infty$ is



Options :

1. I

2. 0

IR/L

3.

IL/RC

4.

Question Number : 15 Question Id : 2501071095 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In a single line diagram of a network if there are b number of branches and n number of nodes, then the number of independent meshes M and independent nodes N are respectively _____.

Options :

n and b

1.

b – n +1and n – 1

2.

b – n and b

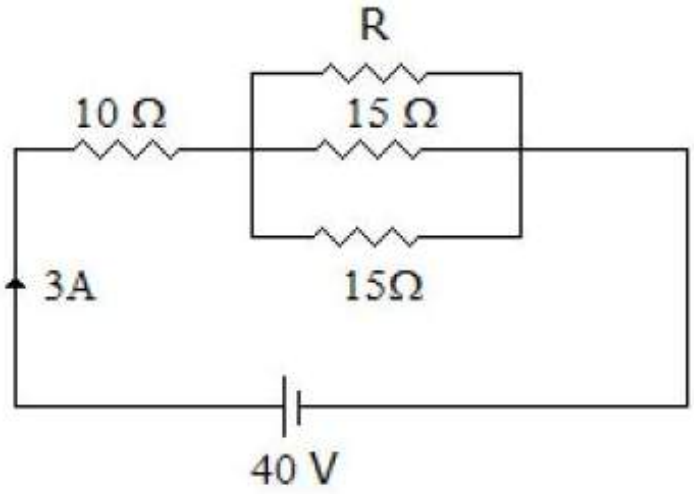
3.

b + n – 1and n + 1

4.

Question Number : 16 Question Id : 2501071096 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In figure, the value of R should be



Options :

12 Ω

1.

2. $6\ \Omega$

3. $3\ \Omega$

4. $1.5\ \Omega$

Question Number : 17 Question Id : 2501071097 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In a two port reciprocal network, the output open circuited voltage divided by the input current is equal to

Options :

1. h_{12}

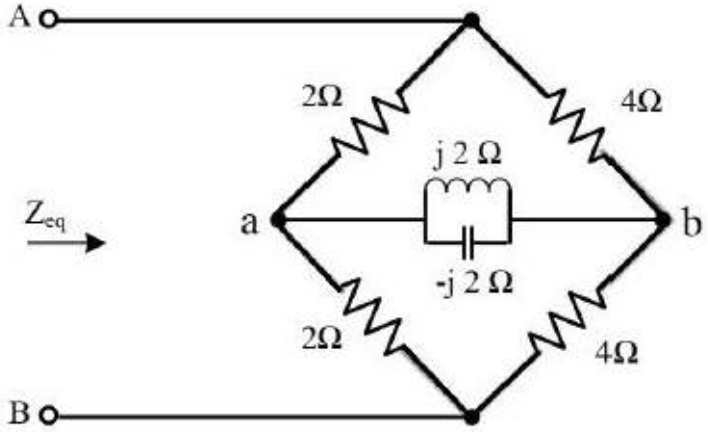
2. B

3. Z_{12}

4. $\frac{1}{Y_{21}}$

Question Number : 18 Question Id : 2501071098 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In the circuit of the figure, the equivalent impedance seen across terminals A, B is



Options :

1. $16/3\ \Omega$

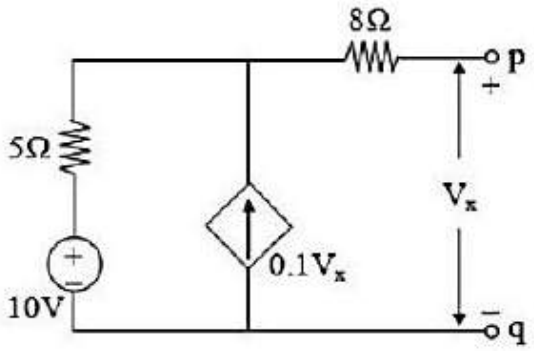
2. $(8/3 + 12j)\ \Omega$

3. $8/3$

4. $-8/3$

Question Number : 19 Question Id : 2501071099 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Determine the Thevenin's equivalent voltage and resistance values, across p & q terminals, for the circuit as shown in below figure,



Options :

1. 20 V, 10 Ω

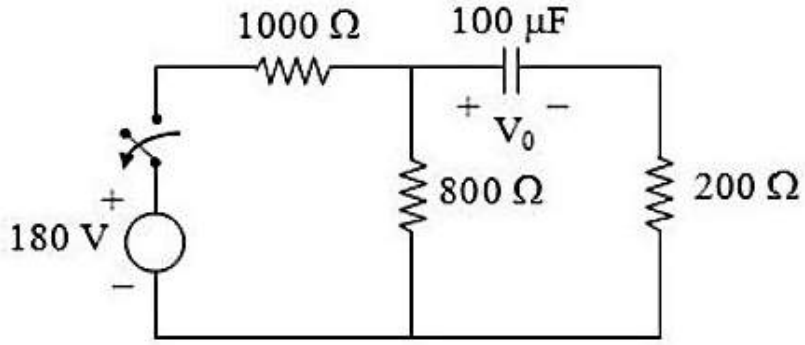
2. 40 V, 13 Ω

3. 20 V, 26 Ω

4. 40 V, 26 Ω

Question Number : 20 Question Id : 2501071100 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The switch of circuit has been closed for a long time. It is opened at t = 0. Determine the voltage across 200 Ω resistor.



Options :

1. $8e^{-20t}$ V

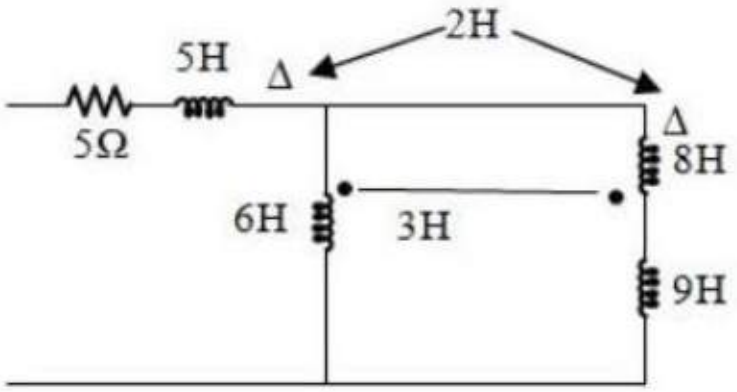
2. $8e^{-10t}$ V

3. $16e^{-10t}$ V

4. $16e^{-20t}$ V

Question Number : 21 Question Id : 2501071101 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The effective inductance (in Henry) of the network shown below is _____.



Options :

1. 6.83

2. 7.23

3. 8.57

4. 9.45

Question Number : 22 Question Id : 2501071102 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

What is the potential value of a datum node used in the node analysis of a network?

Options :

1. Zero

2. Unity

3. Greater than zero but less than infinity

4. Unpredictable

Question Number : 23 Question Id : 2501071103 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A Zener voltage regulator has load requirement of 10 V and 1.8 A. The Zener diode minimum current requirement is 0.2 A. The voltage at input is 20 V. What is the series resistance required and its wattage?

Options :

1. 5 Ω, 20 W

2. 10 Ω, 10 W

3. 5 Ω, 10 W

10 Ω, 20 W

4.

Question Number : 24 Question Id : 2501071104 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In the fabrication of semiconductor devices, a controlled amount of impurities are added selectively into the single crystal wafers. The methods used for controlled doping are

Options :

Epitaxy, Diffusion and Ion implantation

1.

Etching, Masking and Oxidation

2.

Masking, Diffusion and Ion implantation

3.

Oxidation, Diffusion and Ion implantation

4.

Question Number : 25 Question Id : 2501071105 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Stability factor is a function of

Options :

I_{C0}, β, V_{BE}

1.

I_{C0}, β

2.

I_{C0}, V_{BE}

3.

I_B, V_{CE}

4.

Question Number : 26 Question Id : 2501071106 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Avalanche breakdown voltage is

Options :

1. positive

2. negative

3. negative and higher than Zener breakdown voltage

4. zero

Question Number : 27 Question Id : 2501071107 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If the transconductance of MOSFET is 10 m℧ and its drain resistance is 3 KΩ, its voltage gain is

Options :

1. 30

2. 3.3

3. 0.3

4. 3

Question Number : 28 Question Id : 2501071108 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Hall effect is observed in a specimen when it (metal or a semiconductor) is carrying current and is placed in a magnetic field. The resultant electric field inside the specimen will be in

Options :

a direction normal to both current and magnetic field.

1.

the direction of current.

2.

a direction anti-parallel to the magnetic field.

3.

an arbitrary direction depending upon the conductivity of the specimen.

4.

Question Number : 29 Question Id : 2501071109 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

For a transistor the power dissipation capability at 25°C is 10W and the derating factor is 25mW/°C. Its power dissipation capability at 150°C is

Options :

6.875W

1.

3.125W

2.

0.6875W

3.

0.3125W

4.

Question Number : 30 Question Id : 2501071110 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A transistor has $I_E = 10$ mA and $h_{FB} = 0.98$. The base and collector currents respectively are

Options :

9.8 mA and 0.2 mA

1.

0.2 mA and 9.8 mA

2.

10 mA and 0.2 mA

3.

10 mA and 2 mA

4.

Question Number : 31 Question Id : 2501071111 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

An n-channel MOSFET has operating at a current of 1mA when V_{gs} is 3V. If V_{gs} is increased to 5V and a device has a threshold voltage of 1 V then current will be

Options :

5 mA

1.

6 mA

2.

8 mA

3.

4 mA

4.

Question Number : 32 Question Id : 2501071112 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Assume electronic charge $q = 1.6 \times 10^{-19}$ C, kT/q = 25 mV and electron mobility μ_n = 1000 cm^2/V-s. If the concentration gradient of electrons injected into a P-type silicon sample is $1 \times 10^{21}/cm^4$, the magnitude of electron diffusion current density (in A/cm^2) is

Options :

4000

1.

3000

2.

8000

3.

4. 6000

Question Number : 33 Question Id : 2501071113 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In a Zener diode

Options :

1. only P region is heavily doped

2. only N region is heavily doped

3. both P and N regions are heavily doped

4. both P and N regions are lightly doped

Question Number : 34 Question Id : 2501071114 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Photons of energy 1.53×10^{-19}J are incident on a photodiode which has responsivity of 0.65 Amp/W. If the optical power level is 10 μW then the quantum efficiency is in percentage

Options :

1. 72.1

2. 82.1

3. 62.1

4. 92.1

Question Number : 35 Question Id : 2501071115 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Upper 3 dB cut-off frequency of common emitter amplifier depends on

Options :

1. E-B junction capacitance

2. C-B junction capacitance

3. capacitance of both the junctions

4. coupling capacitor capacitance

Question Number : 36 Question Id : 2501071116 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Transconductance of an n-channel MOSFET which is working in saturation is gm1. If the parameter $\frac{W}{L}$ is doubled by maintaining constant current, then new trans-conductance gm2 is equal to

Options :

1. $2\,gm1$

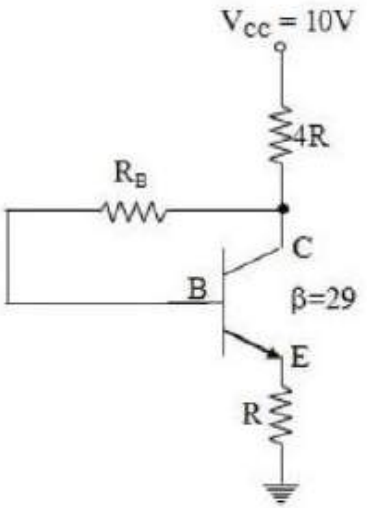
2. $gm1$

3. $\frac{gm1}{2}$

4. $\sqrt{2}\,gm1$

Question Number : 37 Question Id : 2501071117 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

For the circuit shown in the figure below, given that $V_{CE} = \frac{V_{CC}}{2}$. The transistor has $\beta = 29$ and $V_{BE} = 0.7$ V when the B-E junction is forward biased. The ratio $\frac{R_B}{R}$ is_____.



Options :

1. 49

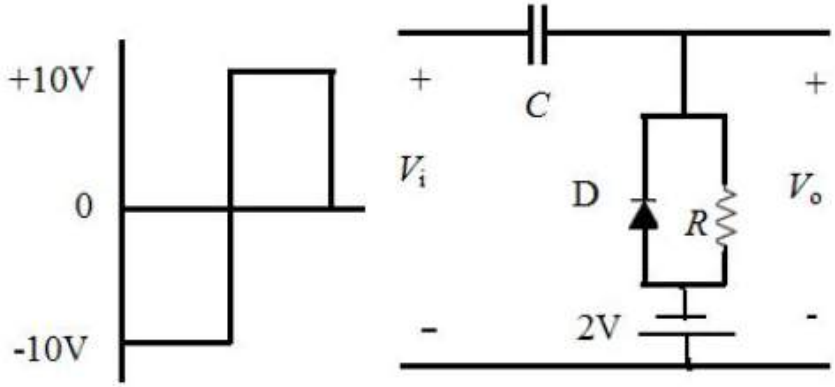
2. 99

3. 129

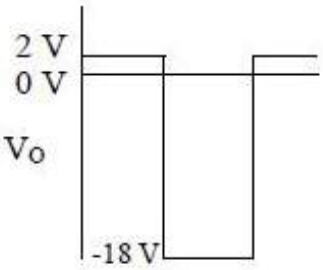
4. 149

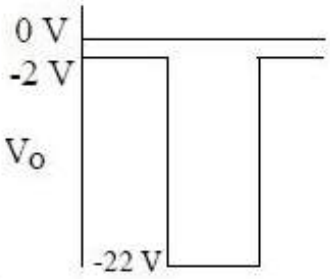
Question Number : 38 Question Id : 2501071118 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

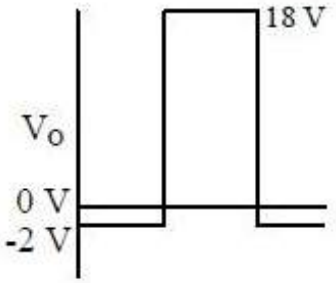
The steady state output of the given clamping circuit, for which C is large and the diode is ideal, is

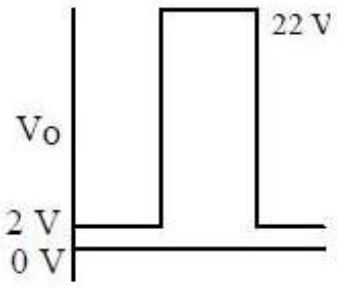


Options :

1. 

2. 

3. 

4. 

Question Number : 39 Question Id : 2501071119 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Peak-to-peak ripple voltage of a full-wave rectifier with capacitor filter is

Options :

1. $\frac{I_{DC}}{2fC}$

2. $\frac{V_m}{\pi}$

3. $\frac{2V_m}{\pi}$

4. $\frac{I_{DC}}{4f^2C}$

Question Number : 40 Question Id : 2501071120 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Cross over distortion is present in

Options :

1. class-A power amplifier

2. class-B power amplifier

3. class-AB power amplifier

4. class-C power amplifier

Question Number : 41 Question Id : 2501071121 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A double peak limiting circuit employs

Options :

1. two zener diodes.

2. parallel resonance principle.

series resonance principle.

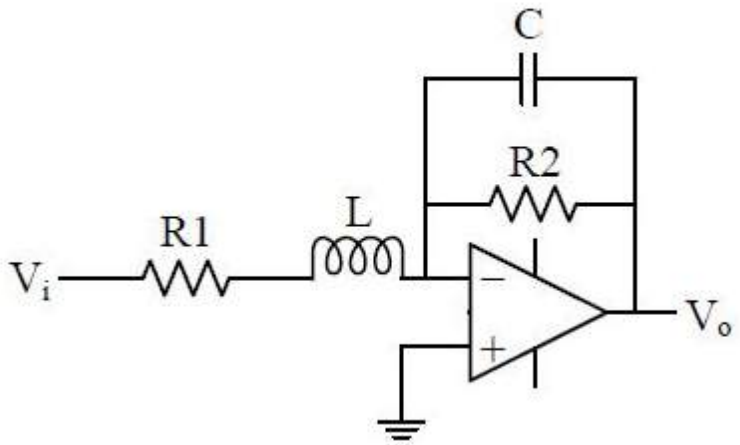
3.

inductor to store the peak power of the clipping circuit.

4.

Question Number : 42 Question Id : 2501071122 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The OP-AMP circuit shown below represents a



Options :

high pass filter

1.

low pass filter

2.

band pass filter

3.

band reject filter

4.

Question Number : 43 Question Id : 2501071123 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The transistor biasing circuit has stability factor S′of 40. If due to temperature change V_{BE}, changes by 100 μV, then I_C will change by

Options :

20 μA

1.

2. 4 mA

3. 80 μA

4. 100 μA

Question Number : 44 Question Id : 2501071124 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A transistor has $P_{D(max)} = 10W$ at 25°C. The derating factor is 50mW/°C . Its power dissipation capability at 100°C is

Options :

1. 5 W

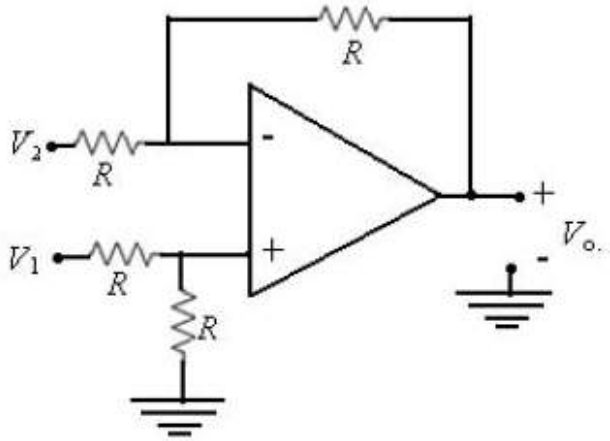
2. 2.5 W

3. 6.25 W

4. 10 W

Question Number : 45 Question Id : 2501071125 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The output of the circuit is



Options :

1. $V_1 - V_2$

2. $V_2 - V_1$

3. $V_1 + V_2$

4. $2V_2 - V_1$

Question Number : 46 Question Id : 2501071126 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Maximum conversion efficiency occurs in the

Options :

1. class-A power amplifier

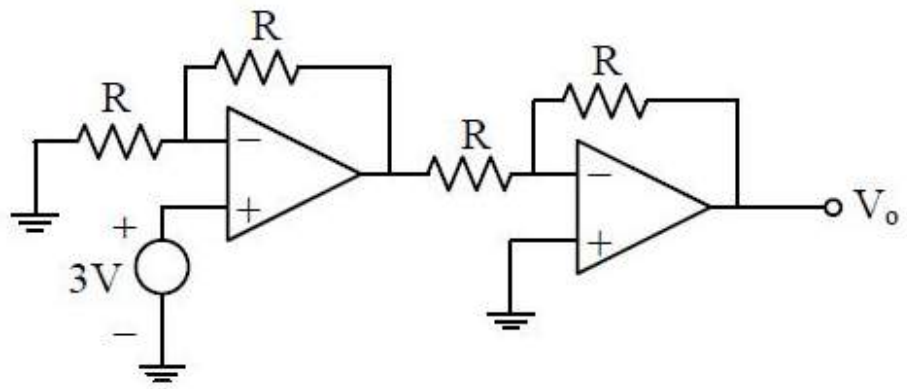
2. class-B power amplifier

3. class-AB power amplifier

4. class-C power amplifier

Question Number : 47 Question Id : 2501071127 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Find the output voltage V_o?



Options :

1. −6 V

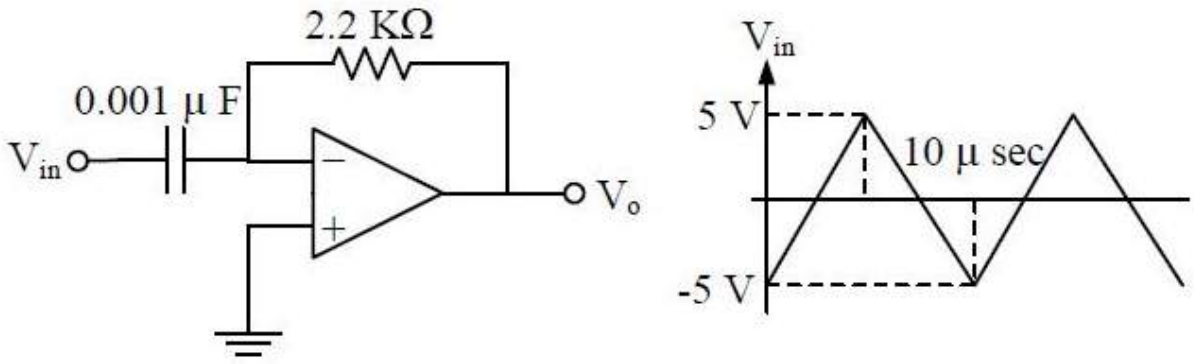
2. −8 V

3. −4 V

4. −10V

Question Number : 48 Question Id : 2501071128 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Determine the output voltage of the op-amp differentiator for the triangular wave input?



Options :

1. −4.4V

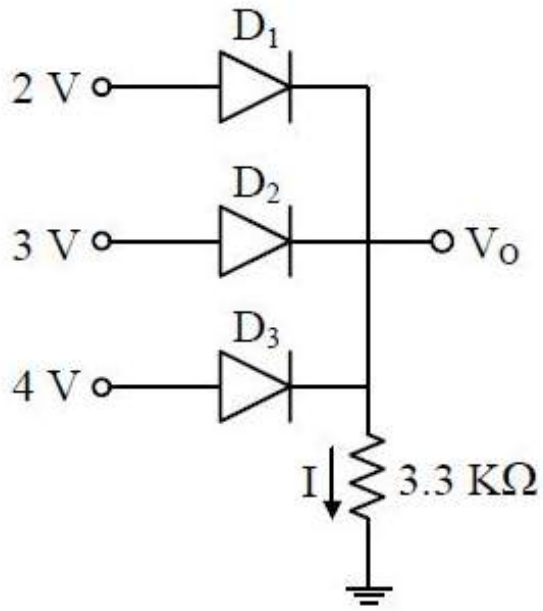
2. −5.4V

3. −6.4V

4. −8.4V

Question Number : 49 Question Id : 2501071129 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Given $V_{D(ON)} = 0.7$ V, find V_o?



Options :

1. 3.3 V

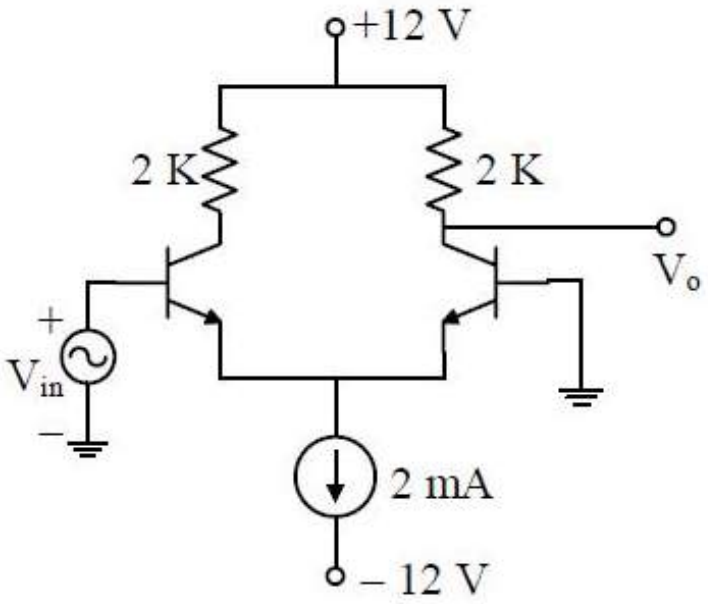
2. 2.3 V

3. 4.3 V

4. 4 V

Question Number : 50 Question Id : 2501071130 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

For the circuit given below, find $A_V = \frac{V_0}{V_{in}}$ if β is large.



Options :

1. 40

2. 80

3. 20

4. 100

Question Number : 51 Question Id : 2501071131 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The term $AB+AC+B\bar{C}$ reduce to

Options :

1. $AB + CA$

2. $AC + BC$

3. $AC + B\bar{C}$

$AB + \overline{B}\overline{C}$

4.

Question Number : 52 Question Id : 2501071132 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If the various logic families are arranged in the ascending order of their fan-out capabilities, the sequence will be

Options :

TTL, ECL, IIL, CMOS

1.

ECL, TTL, IIL, CMOS

2.

IIL, TTL, ECL, CMOS

3.

TTL, ECL, CMOS, IIL

4.

Question Number : 53 Question Id : 2501071133 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

An SR flip flop can be built using

Options :

NOR gate only

1.

NAND gate only

2.

either NOR or NAND gates

3.

neither NOR nor NAND gates

4.

Question Number : 54 Question Id : 2501071134 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Flash ADC is a

Options :

1. serial ADC

2. parallel ADC

3. series – parallel ADC

4. successive approximation ADC

Question Number : 55 Question Id : 2501071135 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In 8085 stack pointer is

Options :

1. 4 bit register

2. 8 bit register

3. 16 bit register

4. 32 bit register

Question Number : 56 Question Id : 2501071136 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If the output of one family of logic gates is required to drive the input of a logic gate of another family, 0 and 1 levels of the driving and the driven gates are made compatible by a process of translation called

Options :

1. interfacing

coupling

2.

amplification

3.

rectification

4.

Question Number : 57 Question Id : 2501071137 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Applying De Morgan's theorem to the expression $\overline{ABC}$, we get

Options :

$\overline{A} + \overline{B} + \overline{C}$

1.

$\overline{A} + B + \overline{C}$

2.

$A + \overline{B} + \overline{C}$

3.

$\overline{A}(\overline{B} + \overline{C})$

4.

Question Number : 58 Question Id : 2501071138 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A drawback of counter type A/D converter is

Options :

counter clears automatically

1.

more complex

2.

high conversion time

3.

low speed

4.

Question Number : 59 Question Id : 2501071139 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which of these is the memory element used in a clocked sequential circuit?

Options :

Flip-flop

1.

Gate

2.

Static RAM

3.

ROM

4.

Question Number : 60 Question Id : 2501071140 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The length of bus cycle in 8086/8088 is four clock cycles, T_1, T_2, T_3, T_4 and an indeterminate number of wait state clock cycles denoted by T_w. The wait states are always inserted between

Options :

T_1 & T_2

1.

T_2 & T_3

2.

T_3 & T_4

3.

T_4 & T_1

4.

Question Number : 61 Question Id : 2501071141 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A 4 bit successive approximation ADC has an input voltage range of 0 to 15 volts. The sequence of states, the successive approximation ADC will traverse for an analog input of 13.26 volts is

Options :

1. 1000 1100 1110 1111 1110

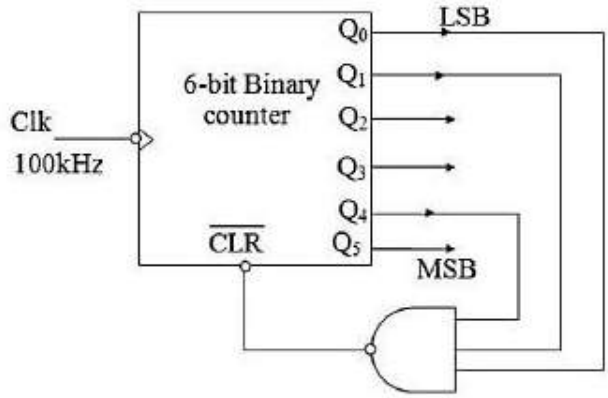
2. 1000 1100 1110 1101 1101

3. 1000 1100 1110 1111 1111

4. 1000 1100 1110 1101 1100

Question Number : 62 Question Id : 2501071142 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A mod K counter using asynchronous binary up counter with synchronous clear input is shown below.



The output frequency in kHz is _____.

Options :

1. 50

2. 10

3. 20

5

4.

Question Number : 63 Question Id : 2501071143 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which one of the following can be used as parallel to serial converter?

Options :

Decoder

1.

Digital counter

2.

Multiplexer

3.

De-Multiplexer

4.

Question Number : 64 Question Id : 2501071144 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The truth table as shown in Table below is for a/an _____ gate.

A	B	f
0	0	0
0	1	1
1	0	1
1	1	1

Options :

XNOR

1.

OR

2.

AND

3.

NAND

4.

Question Number : 65 Question Id : 2501071145 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The spectrum of a Gaussian signal is

Options :

Gaussian function

1.

rectangular function

2.

triangular function

3.

SinC function

4.

Question Number : 66 Question Id : 2501071146 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The time convolution theorem states that $F\left[x_1(t) * x_2(t)\right] =$

Options :

1. $X_1(\omega)\, X_2(\omega)$

2. $X_1(\omega) * X_2(\omega)$

3. $\frac{1}{2\pi}[X_1(\omega)\, X_2(\omega)]$

4. $\frac{1}{2\pi}[X_1(\omega) * X_2(\omega)]$

Question Number : 67 Question Id : 2501071147 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

$L^{-1}\left[\frac{3}{s(s+3)}\right]$ for ROC; $\mathrm{Re}(s) > 0$ is

Options :

1. $u(t)-u(t+3)$

2. $u(t)-e^{-3t}\,u(t)$

3. $u(-t)-e^{-3t}\,u(-t)$

4. $u(t)+u(t+3)$

Question Number : 68 Question Id : 2501071148 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Double integration of a unit step function would lead to

Options :

1. an impulse

2. a parabola

3. a ramp

4. a doublet

Question Number : 69 Question Id : 2501071149 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Transfer function of a linear system is $200\,e^{-j10\omega}$. The system is a/an

Options :

1. distortion less attenuator

amplifier with phase distortion

2.

distortionless amplifier

3.

attenuator with phase distortion

4.

Question Number : 70 Question Id : 2501071150 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

What is the inverse Fourier transform of u(ω)?

Options :

$\frac{1}{2}\delta(t)+\frac{j}{2\pi t}$

1.

$\frac{1}{2}\delta(t)$

2.

$2\delta(t)+\frac{1}{\pi t}$

3.

$2\delta(t)+\mathrm{sgn}(t)$

4.

Question Number : 71 Question Id : 2501071151 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The auto-correlation function of a rectangular pulse of duration T is

Options :

a rectangular pulse of duration T

1.

a rectangular pulse of duration 2T

2.

3. a triangular pulse of duration T

4. a triangular pulse of duration 2T

Question Number : 72 Question Id : 2501071152 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If G(f) represents the Fourier Transform of a signal g (t) which is real and odd symmetric in time, then G (f) is

Options :

1. complex

2. imaginary

3. real

4. real and non negative

Question Number : 73 Question Id : 2501071153 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The given system is characterized by the differential equation $\frac{d^2y(t)}{dt^2} - \frac{dy(t)}{dt} - 2y(t) = x(t)$. Then the system is

Options :

1. linear and stable

2. linear and unstable

3. nonlinear and unstable

4. nonlinear and stable

Question Number : 74 Question Id : 2501071154 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A linear time invariant system with an impulse response h(t) produces an output y(t) when input x(t) is applied. When input $x(t-\tau)$ is applied to a system with impulse response $h(t-\tau)$, the output will be

Options :

1. $y(\tau)$

2. $y(2(t-\tau))$

3. $y(t-\tau)$

4. $y(t-2\tau)$

Question Number : 75 Question Id : 2501071155 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The Z- transform of the signal, $X(n)= e^{j\pi n} u(n)$ is

Options :

1. $\frac{Z}{Z+1}$, ROC $|Z|>1$

2. $\frac{Z}{Z-j}$, ROC $|Z|>1$

3. $\frac{Z}{z^2+1}$, ROC $|Z|<1$

4. $\frac{1}{Z+1}$, ROC $|Z|<1$

Question Number : 76 Question Id : 2501071156 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If the unit step response of a system is $\left(1-e^{-\alpha t}\right)u(t)$, then its unit impulse response is

Options :

$\alpha e^{-\alpha t} u(t)$

1.

$\alpha^{-1} e^{-\alpha t} u(t)$

2.

$\left(1-\alpha^{-1}\right) e^{-\alpha t} u(t)$

3.

$(1-\alpha) e^{-\alpha t} u(t)$

4.

Question Number : 77 Question Id : 2501071157 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Given x = [a, b, c, d] as the input to an LTI system produces an output y = [x,x,x,x,…., repeated N times]. The impulse response of the system is

Options :

$\sum_{i=0}^{N-1} \delta[n-4i]$

1.

$u(n) - u(n-N)$

2.

$u(n) - u(n-N-1)$

3.

$\sum_{i=0}^{N-1} \delta[n-i]$

4.

Question Number : 78 Question Id : 2501071158 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The impulse response of a system is h(t) = t u(t). For an input u(t – 1), the output is

Options :

1. $\frac{t^2}{2}u(t)$

2. $\frac{t(t-1)}{2}u(t-1)$

3. $\frac{(t-1)^2}{2}u(t-1)$

4. $\frac{t^2-1}{2}u(t-1)$

Question Number : 79 Question Id : 2501071159 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Given the transfer function $G(s)=\frac{121}{s^2+13.2s+121}$ of a system. Which of the following characteristics does it have?

Options :

1. Overdamped and settling time 1.1s.

2. Underdamped and settling time 0.6s.

3. Critically damped and settling time 0.8s.

4. Underdamped and settling time 0.707s.

Question Number : 80 Question Id : 2501071160 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In a polar plot, the curve was found to cross the negative real axis at –1.2, then

Options :

1. the gain margin is 1.2

2. the gain margin is 1.833

3. the gain margin is 12

4. the gain margin is 0.83

Question Number : 81 Question Id : 2501071161 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

$\dot{X}(t) = \begin{bmatrix} 0 & 1 & 0 \\ 0 & 0 & 1 \\ -2 & -3 & -4 \end{bmatrix} X(t) + \begin{bmatrix} 0 \\ 0 \\ 3 \end{bmatrix} U(t)$, $Y(t) = \begin{bmatrix} 6 & 5 & 1 \end{bmatrix} X(t)$. The transfer function $\frac{Y(S)}{U(S)}$ is

Options :

1. $\frac{s^2 + 5s + 6}{s^3 + 4s^2 + 3s + 2}$

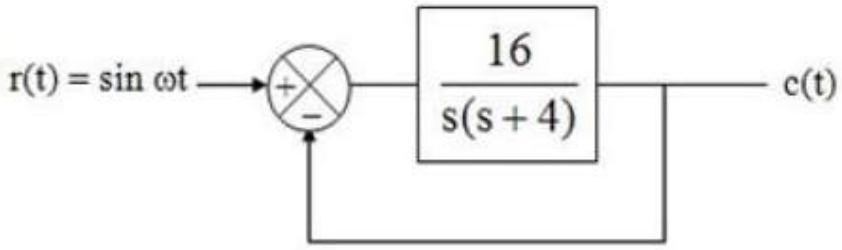
2. $\frac{3s^2 + 5s + 6}{s^3 + 4s^2 + 3s + 2}$

3. $\frac{3s^2 + 15s + 18}{s^3 + 4s^2 + 3s + 2}$

4. $\frac{s^2 - 5s - 6}{s^3 + 4s^2 + 3s + 2}$

Question Number : 82 Question Id : 2501071162 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In the system shown below, the steady state response c(t) will exhibit a resonant peak at a frequency of _____rad/sec (rounding up to 2 decimals)



Options :

1. 2.52

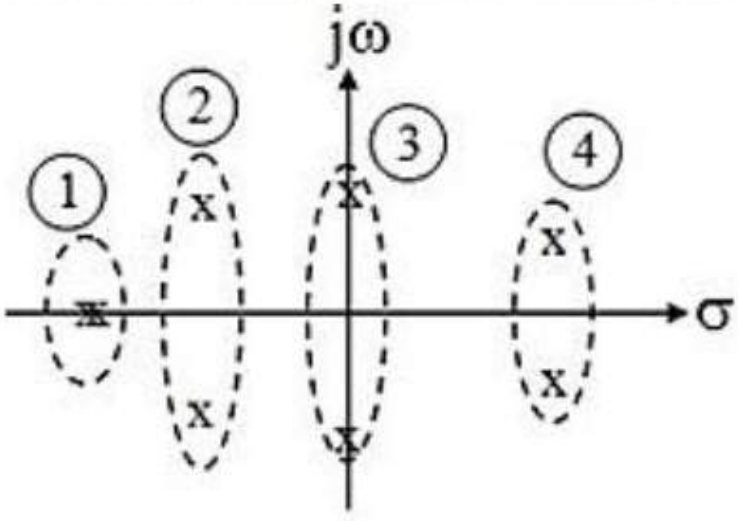
2. 2.82

3. 2.72

4. 2.62

Question Number : 83 Question Id : 2501071163 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The poles of a continuous time oscillator lies at which of the below figure?



Options :

1. 1

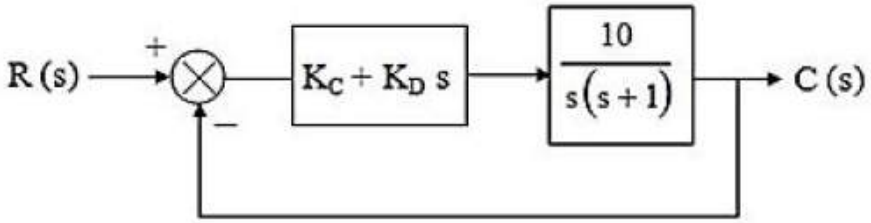
2. 3

3. 2

4. 4

Question Number : 84 Question Id : 2501071164 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A control system with a PD controller is shown in the following figure.



If the velocity error constant Kv =100 and the damping ratio (ξ) = 0.5 then the value of $K_C + K_D$ =

Options :

1. 10

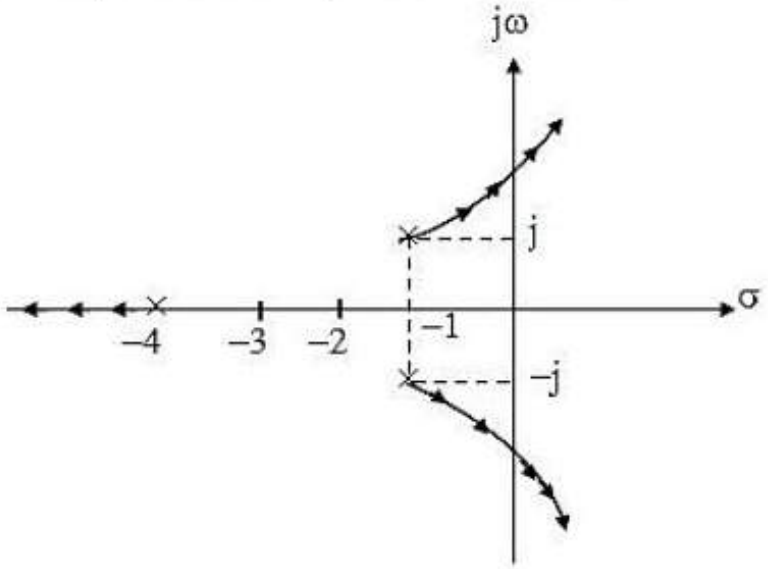
2. 10.9

3. 0.9

4. 9.1

Question Number : 85 Question Id : 2501071165 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The Root Locus of a unity feedback system is shown below



The point at which Root Locus crosses the imaginary axis is

Options :

1. $\pm 3.162j$

2. $\pm 2.486j$

3. $\pm 4.564j$

4. $\pm 6j$

Question Number : 86 Question Id : 2501071166 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The state space representation of a system is given by $\dot{x} = \begin{bmatrix} 0 & 1 \\ 0 & -3 \end{bmatrix} x + \begin{bmatrix} 1 \\ 0 \end{bmatrix} u$, $y = [1\ 0]x$. The transfer function $\frac{Y(S)}{U(S)}$ of the system will be

Options :

1. $\frac{1}{s}$

2. $\frac{1}{s(s+3)}$

3. $\frac{1}{(s+3)}$

4. $\frac{1}{s^2}$

Question Number : 87 Question Id : 2501071167 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The resonant peak of a proto type 2^{nd} order system is 1.042. The damping ratio of the system is

Options :

1. 0.4

2. 0.6

3. 0.8

4. 0.9

Question Number : 88 Question Id : 2501071168 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The open loop transfer function of a unity feedback system is given by $\frac{K}{s(s+1)}$. If the value of gain K is such that the system is critically damped, then the closed loop poles of the system will lie at

Options :

1. –0.5 and 0.5

2. $\pm j0.5$

3. 0 and –1

4. $0.5 \pm j0.5$

Question Number : 89 Question Id : 2501071169 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In order to improve the system response transient behavior, the type of controller used is

Options :

1. phase lead controller

2. phase lag controller

3. PI controller

4. P controller

Question Number : 90 Question Id : 2501071170 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

For a control system having gain margin of -10dB, the magnitude of G(s)H(s) for 180° phase shift is

Options :

1. 10 dB

2. 1/10 dB

3. –1/10 dB

-10 dB

4.

Question Number : 91 Question Id : 2501071171 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A TF has a pole at s = –5 and zero at s = –2 the unit step response of the system is

Options :

$1+e^{-2t}+e^{-5t}$

1.

$1-e^{-2t}-e^{-5t}$

2.

$\frac{2}{5}+\frac{3}{5}e^{-5t}$

3.

$\frac{2}{5}e^{2t}+\frac{3}{5}e^{-5t}$

4.

Question Number : 92 Question Id : 2501071172 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A control system is defined by the following mathematical relationship

$$\frac{d^2y}{dt^2}+6\frac{dy}{dt}+5x=12(1-e^{-2t})$$

The response of the system as $t \to \infty$ is

Options :

1. $x=6$

2. $x=2$

3. $x=2.4$

$x = -2$

4.

Question Number : 93 Question Id : 2501071173 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The pre-emphasis circuit provides extra noise immunity by

Options :

1. boosting the bass frequencies.

2. amplifying the higher audio frequencies.

3. pre amplifying the whole audio band.

4. converting the phase modulation to FM.

Question Number : 94 Question Id : 2501071174 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Companding is used

Options :

1. to overcome quantizing noise in PCM.

2. in PCM transmitters, to allow amplitude limiting in the receivers.

3. to protect small signals in PCM from quantizing distortion.

4. in PCM receivers, to overcome impulse noise.

Question Number : 95 Question Id : 2501071175 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The PSD of a random process whose auto correlation function is $ae^{-b|\tau|}$ is _____.

Options :

1. $\frac{a}{a^2+\omega^2}$

2. $\frac{2ab}{a^2+\omega^2}$

3. $\frac{2ab}{b(a^2+\omega^2)}$

4. $\frac{2ab}{a^2+\omega^4}$

Question Number : 96 Question Id : 2501071176 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The circuit that is used to suppress the unwanted channel noise when there is no reception by the receiver is

Options :

1. Band pass filter

2. Band elimination filter

3. Squelch circuit

4. Notch filter

Question Number : 97 Question Id : 2501071177 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Television signal with a bandwidth of 4.2 MHz is transmitted using binary PCM, the number of quantization levels are 512. Then the codeword length is

Options :

1. 9 bits

2. 10 bits

3. 11 bits

4. 8 bits

Question Number : 98 Question Id : 2501071178 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The digital modulation technique in which the step size is varied according to the variation in the slope of the input is called

Options :

1. delta modulation

2. PCM

3. adaptive delta modulation

4. PAM

Question Number : 99 Question Id : 2501071179 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

What is the bandwidth occupied by a sinusoidal frequency modulated carrier for which the modulation index is 2.4?

Options :

1. $4.8\ f_m$

2. $6.8\ f_m$

2.4 f_m

3.

3.8 f_m

4.

Question Number : 100 Question Id : 2501071180 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In a PCM system with uniform quantization, increasing the number of bits from 8 to 10 will reduce the quantization noise power by factor of

Options :

16

1.

8

2.

4

3.

2

4.

Question Number : 101 Question Id : 2501071181 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which one of the following schemes is not a digital modulation technique?

Options :

Pulse code modulation

1.

On-off keying

2.

Pulse width modulation

3.

Delta modulation

4.

Question Number : 102 Question Id : 2501071182 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Two messages m1, and m2 have a probability of 0.5 each. The entropy is

Options :

1. 0.25

2. 0.5

3. 0.75

4. 1

Question Number : 103 Question Id : 2501071183 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The power in a DSB-SC signal when the depth of modulation is 60% with a carrier power of 100W is

Options :

1. 18 W

2. 36 W

3. 100 W

4. 9 W

Question Number : 104 Question Id : 2501071184 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A signal $m(t) = 2\cos(2\pi 10^3 t)$ frequency modulates a 1 MHz carrier to produce a peak frequency deviation of 4 kHz. The time domain expression for the resulting FM signal, if the amplitude of the FM wave is 1 V, is

Options :

1. $\emptyset_{FM} = \cos(2\pi 10^6 t + 4 \sin 2\pi 10^3 t)$

2. $\emptyset_{FM} = \sin(2\pi 10^6 t + 2 \sin 2\pi 10^6 t)$

3. $\emptyset_{FM} = \cos(2\pi 10^3 t + 4 \sin 2\pi 10^6 t)$

4. $\emptyset_{FM} = \cos(2\pi 10^6 t - 2 \sin 2\pi 10^3 t)$

Question Number : 105 Question Id : 2501071185 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Television signal with a bandwidth of 4.2 MHz is transmitted using binary PCM, the number of quantization levels are 512 then output signal to quantization noise ratio is?

Options :

1. 58.8 dB

2. 48.8 dB

3. 52.8 dB

4. 54.8 dB

Question Number : 106 Question Id : 2501071186 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A super heterodyne radio receiver with an intermediate frequency of 455 KHz is tuned to a station operating at 1200 KHz. The associated image frequency

Options :

1. 4221 kHz

2. 2110 kHz

1655 kHz

3.

455 kHz

4.

Question Number : 107 Question Id : 2501071187 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If $\nabla \cdot D = \varepsilon \nabla \cdot E$ and $\nabla \cdot J = \sigma \nabla \cdot E$ in a given material, the material is said to be

Options :

isotropic

1.

linear and homogeneous

2.

linear and isotropic

3.

isotropic and homogeneous

4.

Question Number : 108 Question Id : 2501071188 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which of the following conditions will not guarantee a distortionless transmission line?

Options :

$R = 0 = G$

1.

$RC = GL$

2.

Very low frequency range($R >> \omega L, G >> \omega C$)

3.

Very high frequency range($R << \omega L, G << \omega C$)

4.

Question Number : 109 Question Id : 2501071189 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The directivity of a half wave dipole is given by

Options :

1. 1.51

2. 1.64

3. 2.03

4. 2.54

Question Number : 110 Question Id : 2501071190 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A rectangular waveguide having TE10 mode as dominant mode is having a cutoff frequency of 18 GHz for the TE30 mode. The inner broad-wall dimension of the rectangular waveguide is _____.

Options :

1. 5/3 cms

2. 5 cms

3. 5/2 cms

4. 10 cms

Question Number : 111 Question Id : 2501071191 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which of the following antennas is circularly polarized?

Options :

1. Yagi-Uda

Parabolic reflector

2.

Small circular loop

3.

Helical

4.

Question Number : 112 Question Id : 2501071192 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A TEM wave is incident normally upon a perfect conductor. The E and H fields at the boundary will be, respectively.

Options :

minimum and minimum

1.

maximum and maximum

2.

minimum and maximum

3.

maximum and minimum

4.

Question Number : 113 Question Id : 2501071193 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The wavelength of a wave with propagation constant $(0.1\pi + j0.2\pi)$ m^{-1} is

Options :

0.05 m

1.

10 m

2.

20 m

3.

4. $30\ \mathrm{m}$

Question Number : 114 Question Id : 2501071194 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

When a charge q moves with velocity v in an electric field E and magnetic field V. The Lorenz force F is given by

Options :

1. $F = qE$

2. $F = vBq$

3. $F = 0$

4. $F = qE + vqB$

Question Number : 115 Question Id : 2501071195 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Maxwell's curl equation for static magnetic field is given by

Options :

1. $\nabla \cdot B = 0$

2. $\nabla \cdot \overline{B} = \mu_0 J$

3. $\nabla \times B = \mu_0 J$

4. $\nabla \cdot B = \mu_0 J$

Question Number : 116 Question Id : 2501071196 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The electric field intensity at any point on the surface of a conductor is _____ to it and equal to _____ times the surface charge density at that point.

Options :

1. normal, $1/\varepsilon_0$

2. normal, ε_0

3. parallel, $1/\varepsilon_0$

4. parallel, ε_0

Question Number : 117 Question Id : 2501071197 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A Silica fiber has a refractive index of 1.5 and it is surrounded by cladding material with a refractive index of n_2. If the critical angle is 60° then n_2 is

Options :

1. 1.5

2. 1.0

3. 1.3

4. 1.7

Question Number : 118 Question Id : 2501071198 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

For an antenna the aperture efficiency is 80% and maximum effective area is 2 m^2. The physical area of the antenna is _____ m^2.

Options :

1. 2.0

2. 1.5

3. 2.5

4. 3.0

Question Number : 119 Question Id : 2501071199 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In a non-magnetic medium the electric field is given by

$$E = 10 \cos (10^8 t - 3y)\, \hat{a_x}\ V/m.$$

What type of medium is it?

Options :

1. Free space

2. Lossy dielectric

3. Lossless dielectric

4. Perfect conductor

Question Number : 120 Question Id : 2501071200 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A wave is incident normally on a good conductor. If the frequency of a plane electromagnetic wave increases four times, the skin depth, will

Options :

1. increase by a factor of 2

2. decreases by a factor 4

3. remain the same

4. decreases by a factor 2