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Actual Answer Key:	Yes

Electronics and Communication Engineering

Group Number :	1
Group Id :	39090045
Group Maximum Duration :	0
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Revisit allowed for edit? :	No
Break time:	0
Group Marks:	120

Mathematics

Section Id :	39090083
Section Number :	1
Section type :	Online
Mandatory or Optional:	Mandatory
Number of Questions:	10
Number of Questions to be attempted:	10
Section Marks:	10
Display Number Panel:	Yes
Group All Questions:	No

Sub-Section Number:	1
Sub-Section Id:	39090083
Question Shuffling Allowed :	Yes

Question Number : 1 Question Id : 3909005281 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The characteristic polynomial of 3×3 matrix A is: $|\lambda I - A| = \lambda^3 - 7\lambda^2 + 14\lambda - 8$.

Let x = trace (A) and y =determinant of A, then

Options :

1. $\frac{x}{y}=\frac{7}{8}$

2. $\frac{x}{y}=\frac{8}{7}$

3. $x=y=7$

4. $x=y=8$

Question Number : 2 Question Id : 3909005282 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which of the following subsets of S of V_3 are linearly dependent?

Options :

1. $S=\{(1,2,1),\ (-1,\ 1,\ 0),(5,\ -1,\ 2)\}$

2. $S=\{(1,\ 0,\ 0),\ (1,\ 1,\ 1),(1,\ 2,\ 3)\}$

3. $S=\{(1,\ 5,\ 2),\ (0,\ 0,\ 1),(1,\ 1,\ 0)\}$

4. $S=\{(1,\ 1,\ -1),\ (2,-3,\ 4),(3,\ -2,\ 3)\}$

Question Number : 3 Question Id : 3909005283 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The value of the Rolle's theorem for $f(x)=(x-a)^m(x-b)^n$ where m,n are positive integers in $[a,b]$

Options :

1. $\frac{mb-na}{m-n}$

2. $\frac{b+a}{m+n}$

3. $\frac{mb+na}{m+n}$

4. $\frac{mb+na}{mn}$

Question Number : 4 Question Id : 3909005284 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which of the following improper integral is convergent?

Options :

1. $\int_0^\infty \frac{1}{x^3}dx$

2. $\int_0^\infty \frac{x}{(1+x)^3}dx$

3. $\int_1^\infty \ln\left(\frac{1}{x}\right)dx$

4. $\int_0^\infty \frac{1}{\sqrt[3]{1+x^2}}dx$

Question Number : 5 Question Id : 3909005285 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The particular integral of the differential equation $\frac{d^3y}{dx^3}+1=\cos(2x-1)$ is …

Options :

1. $[\cos(2x-1)-8\sin(2x-1)]$

2. $\frac{1}{65}[\cos(2x-1)-8\sin(2x-1)]$

3. $\frac{1}{65}[\cos(2x)-8\sin(2x)]$

4. $\frac{1}{56}[\cos(2x-1)+8\sin(2x-1)]$

Question Number : 6 Question Id : 3909005286 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The solution of the partial differential equation $xp+yq=3z$ is …

Options :

1. $\phi\left(\frac{z}{y},\frac{x^3}{y}\right)=0$

2. $\phi\left(\frac{x}{y},\frac{y}{z}\right)=0$

3. $\phi\left(\frac{x}{y},\frac{y^3}{z}\right)=0$

4. $\phi\left(\frac{x}{y},\frac{y^2}{z}\right)=0$

Question Number : 7 Question Id : 3909005287 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

If $f(x,y)=x^3+3kxy^2$ is harmonic function then the value of k is …

Options :

1. 2

2. 1

3. 0

4. -1

Question Number : 8 Question Id : 3909005288 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The value of $\int_C \frac{dz}{z^2 e^z}$ where C is $|z| = 1$

Options :

1. $-2\pi i$

2. 0

3. $2\pi i$

4. $-\pi i$

Question Number : 9 Question Id : 3909005289 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

If the joint probability density function of X and Y is given by

$$f_{XY} = \begin{cases} \frac{1}{y}, & 0 < x < y, 0 < y < 1 \\ 0, & elsewhere \end{cases}$$, then the value $E[X/Y]$ is …

Options :

1. 0.5

2. 0.6

3. 0.05

4. 0.06

Question Number : 10 Question Id : 3909005290 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Using Picard's method, the solution of the differential equation $\frac{dy}{dx} = -xy, y(0) = 1$ upto second approximation is

Options :

1. $y_2 = 1 - \frac{x^2}{2}$

2. $y_2 = 1 - \frac{x^2}{2} + \frac{x^4}{8}$

3. $y_2 = 1 + \frac{x^2}{2} + \frac{x^4}{8}$

4. $y_2 = 1 + \frac{x^2}{2}$

Electronics and Communication Engineering

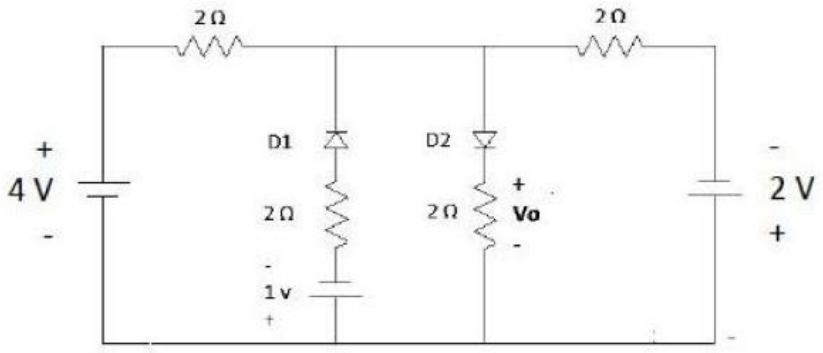
Section Id :	39090084
Section Number :	2
Section type :	Online
Mandatory or Optional:	Mandatory
Number of Questions:	110
Number of Questions to be attempted:	110
Section Marks:	110
Display Number Panel:	Yes
Group All Questions:	No

Sub-Section Number:	1
Sub-Section Id:	39090084
Question Shuffling Allowed :	Yes

Question Number : 11 Question Id : 3909005291 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

For the circuit in the figure, the voltage V_o is



Options :

1. 2 V

2. 1 V

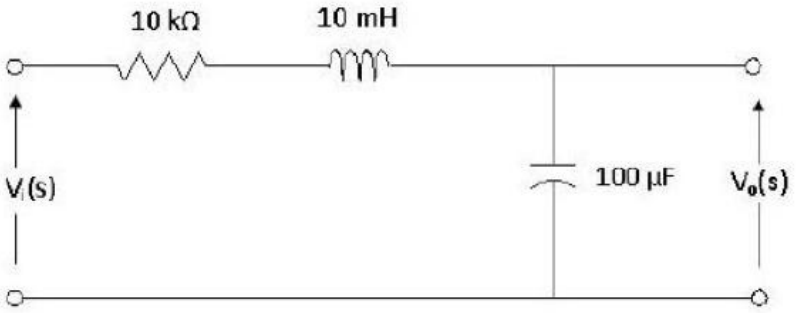
3. 1/4 V

4. 2/3 V

Question Number : 12 Question Id : 3909005292 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

For the circuit shown in figure, the initial conditions are zero. Its transfer function is



Options :

1. $1/(s^2+10^6s+10^6)$

2. $10^6/(s^2+10^3s+10^6)$

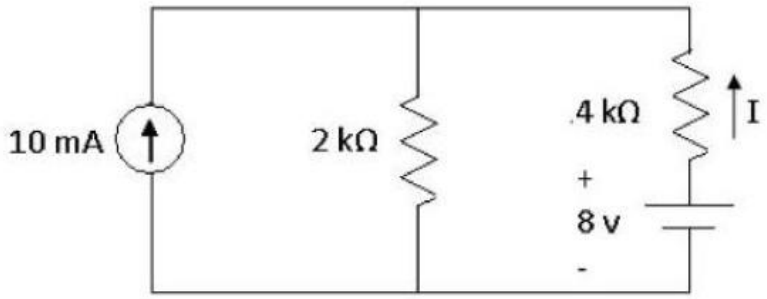
3. $10^3/(s^2+10^3s+10^6)$

4. $10^6/(s^2+10^6s+10^6)$

Question Number : 13 Question Id : 3909005293 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

In the circuit given in figure, Find the current ' I 'through the resistor.



Options :

1. 2mA

2. -2mA

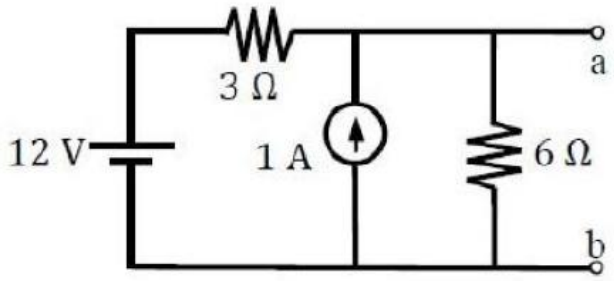
3. -4mA

4. 8mA

Question Number : 14 Question Id : 3909005294 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

For the circuit shown below, the Thevenin's equivalent voltage across terminals a-b will be



Options :

1. 9 V

2. 8 V

3. 10 V

4. 11 V

Question Number : 15 Question Id : 3909005295 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

A series RLC circuit has a resonance frequency of 1 kHz and a quality factor Q = 100. If each of R, L and C is divided by 2 from its original value, the new Q of the circuit is

Options :

1. 25

2. 50

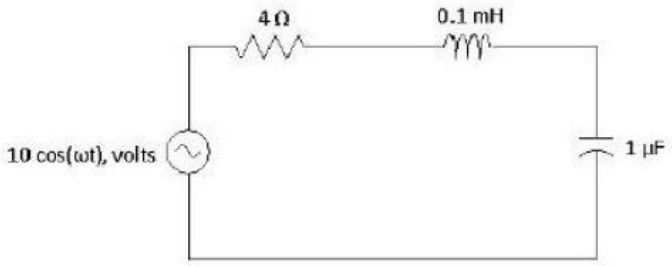
3. 100

4. 200

Question Number : 16 Question Id : 3909005296 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

In the circuit shown in the figure at Resonance, the amplitude of the current in the circuit is given by



Options :

1. 10 Amp

2. 5 Amp

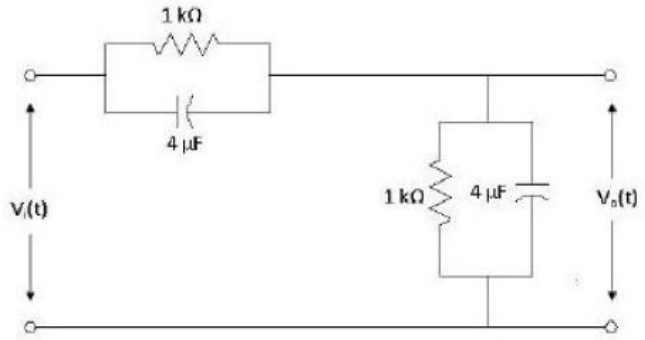
3. 2.5 Amp

4. Zero

Question Number : 17 Question Id : 3909005297 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

In the figure shown, assume all the capacitors are initially uncharged. If Vi(t) = 10U(t), then Vo(t) is given by



Options :

1. $5\ e^{-t/0.004}\ volts$

2. $5\left(1-e^{-t/0.004}\right)\ volts$

3. 5u(t) $volts$

4. $5\ volts$

Question Number : 18 Question Id : 3909005298 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

A source having internal impedance of (9 + j12) Ω is to deliver maximum power to a resistive load. Then the load resistance should be

Options :

1. 9 Ω

2. 15 Ω

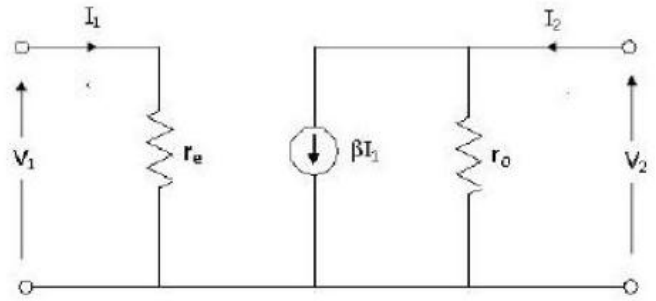
3. 12 Ω

4. 21 Ω

Question Number : 19 Question Id : 3909005299 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

In the two port network shown in figure, Z_{11} and Z_{21} are given as:



Options :

1. r_e and βr_o

2. 0 and βr_o

3. 0 and $-\beta r_o$

4. r_e and $-\beta r_o$

Question Number : 20 Question Id : 3909005300 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Consider a two port network with a Transmission matrix $T = \begin{bmatrix} A & B \\ C & D \end{bmatrix}$. If the matrix is reciprocal, then

Options :

1. $T^{-1} = T$

2. $T^2 = T$

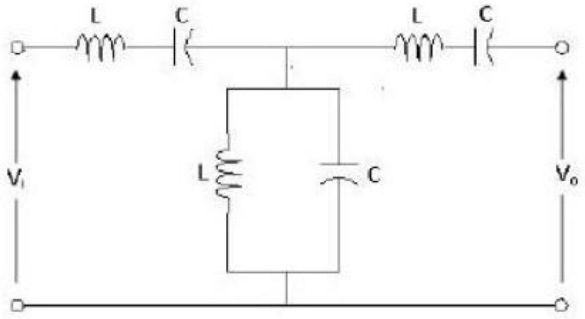
3. Determinant (T) = 0

4. Determinant (T) = 1

Question Number : 21 Question Id : 3909005301 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The LC circuit shown in the figure is



Options :

1. Low pass filter

2. High Pass filter

3. Band Pass filter

4. Band Stop Filter

Question Number : 22 Question Id : 3909005302 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The first and last critical frequencies of a driving point impedance function of a passive network having two kinds of elements are a pole and zero respectively. The above property will be satisfied by

Options :

1. RL networks only

2. RC networks only

3. LC networks only

4. RC and RL networks

Question Number : 23 Question Id : 3909005303 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

A 1 Ω resistor and a 1 H inductor and 1 μF capacitor are connected in parallel. The combination is driven by a unit step current. Under steady state condition, the current flows through

Options :

1. Resistor only

2. Inductor only

3. Capacitor only

4. Resistor, inductor and capacitor

Question Number : 24 Question Id : 3909005304 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Unit impulse response of a system is given by $c(t)= -4e^{-t}+6e^{-2t}$ The step response of the same system for $t \geq 0$ is equal to

Options :

1. $-3e^{-2t}+4e^{-t}-2$

2. $-3e^{-2t}+4e^{-t}+1$

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

4. $3e^{-2t}+4e^{-t}-1$

Question Number : 25 Question Id : 3909005305 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The response of an initially relaxed linear circuit to a signal V_s is $e^{-2t}u(t)$. If the signal is changed to $\left(V_s + 4\frac{dV_s}{dt}\right)$, then response is

Options :

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

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

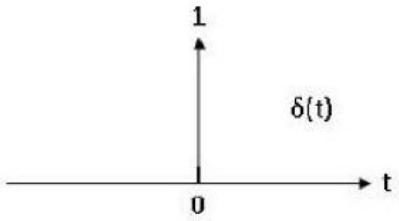
3. $5e^{-2t}u(t)$

4. $-7e^{-2t}u(t)$

Question Number : 26 Question Id : 3909005306 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The Dirac delta function $\delta(t)$ is defined as



Options :

1. $\delta(t) = 1, t = 0$
   $= 0, t \neq 0$

2. $\delta(t) = \infty, t = 0$
   $= 0, t \neq 0$

3. $\delta(t) = 1, t = 0$
   $= 0, t \neq 0$ and $\int_{-\infty}^{\infty} \delta(t) = 1$

4. $\delta(t) = \infty, t = 0$
   $= 0, t \neq 0$ and $\int_{-\infty}^{\infty} \delta(t) = 1$

Question Number : 27 Question Id : 3909005307 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

What is the minimum sampling rate of the following continuous time signal?

$S(t) = 5\cos 50\pi t + 20\cos 300\pi t$?

Options :

1. 50 Hz

2. 100 Hz

3. 150Hz

4. 300Hz

Question Number : 28 Question Id : 3909005308 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

A stable linear time invariant (LTI) system has a transfer function of $H(s) = \frac{1}{s^2+s-12}$. To make the system causal it needs to be cascaded with another LTI system having a transfer function $H_1(s)$. A correct choice for $H_1(s)$ among the following is

Options :

1. s+3

2. s-12

3. s-3

4. s+4

Question Number : 29 Question Id : 3909005309 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The impulse response of a system is h(t) = δ(t – 0.5). If two such systems are cascaded, the impulse response of the overall system will be

Options :

1. $0.5\delta(t-0.25)$

2. $\delta(t-0.25)$

3. $\delta(t-1)$

4. $0.5\delta(t-1)$

Question Number : 30 Question Id : 3909005310 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Two rectangular waveforms of duration T_1 and T_2 seconds are convolved. What is the shape of the resulting waveform?

Options :

1. Triangular

2. Rectangular

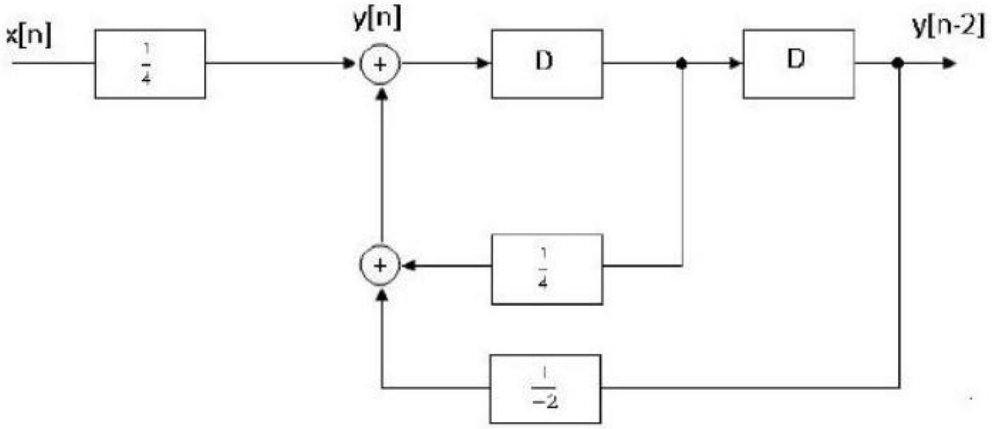
3. Trapezoidal

4. Semi-circular

Question Number : 31 Question Id : 3909005311 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The system shown in figure is



Options :

1. Stable and causal

2. Stable and not causal

3. Causal but unstable

4. Unstable and not causal

Question Number : 32 Question Id : 3909005312 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

A periodic function satisfies Dirichlet's conditions. It implies that the function

Options :

1. Is non-linear

2. Is not absolutely integrable

3. Guarantees that Fourier series representation of function exists

4. Has infinite number of maxima and minima within a period

Question Number : 33 Question Id : 3909005313 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The Fourier transform of a function $f(at)$ is given by

Options :

1. $f(at) = aF(\omega)$

2. $f(at) = 2aF(\omega)$

3. $f(at) = (2/a)F(\omega)$

4. $f(at) = (1/a)F(\omega/a)$

Question Number : 34 Question Id : 3909005314 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The Fourier transform of the signal $x(t) = e^{-3t}u(t-2)$ is

Options :

1. $\frac{e^{-3(2-j\omega)}}{2-j\omega}$

2. $\frac{e^{-3(2+j\omega)}}{2+j\omega}$

3. $\frac{e^{-2(3-j\omega)}}{3-j\omega}$

4. $\frac{e^{-2(3+j\omega)}}{3+j\omega}$

Question Number : 35 Question Id : 3909005315 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The time Fourier transform for the signal x[n]={-4,-1,0,1,4} is

Options :

1. $4j\times(\sin 4\Omega+\sin \Omega)$

2. $2j\times(4\sin 4\Omega+\sin \Omega)$

3. $-2j\times(4\sin 4\Omega+\sin \Omega)$

4. $2j\times(4\sin 4\Omega-\sin \Omega)$

Question Number : 36 Question Id : 3909005316 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The Z transform of $\sum_{k=0}^{\infty}\delta(n-k)$ is

Options :

1. $\frac{z}{z-1}$

2. $\frac{z-1}{z}$

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

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

Question Number : 37 Question Id : 3909005317 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Given the Z transform as $X(s) = \frac{z(4z-3)}{z^2+3z-4}$, the limit of $x[\infty]$is

Options :

1. 1

2. Infinity

3. Zero

4. 1/5

Question Number : 38 Question Id : 3909005318 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The impulse response of an RL circuit is a

Options :

1. Rising exponential function

2. Decaying exponential function

3. Step function

4. Parabolic function

Question Number : 39 Question Id : 3909005319 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

An intrinsic silicon sample, with intrinsic concentration of $1.5x10^{10}/cm^3$ is doped with the hole concentration is $2.25\ x10^{15}\ /cm^3$. The resultant electron concentration in the material is

Options :

1. Zero

2. $10^5/cm^3$

3. $10^{10}/cm^3$

4. $1.5x10^{25}/cm^3$

Question Number : 40 Question Id : 3909005320 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Diffusion current increase with increase in

Options :

1. Temperature

2. Applied electric field

3. Intrinsic concentration of carriers

4. Concentration gradient of carriers

Question Number : 41 Question Id : 3909005321 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

In n-type semiconductor

Options :

1. Energy level is added close to conduction band

2. Energy level is added close to Valence band

3. Intrinsic concentration of carriers increases

4. Gallium is added as impurity

Question Number : 42 Question Id : 3909005322 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

An N-channel JFET operates as an amplifier with a/an

Options :

1. Forward bias gate – source junction

2. Reverse bias gate – source junction

3. Open gate – source junction

4. Shorted gate – source junction

Question Number : 43 Question Id : 3909005323 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The potential across the depletion region of an open circuited PN junction diode

Options :

1. is zero

2. is constant

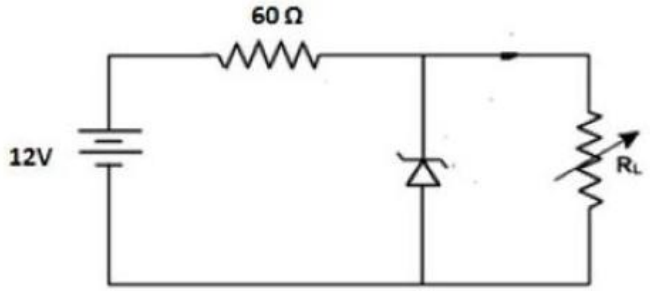
3. satisfies Laplace's equation

4. satisfies Poisson's equation

Question Number : 44 Question Id : 3909005324 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

A 6 V zener diode shown in figure has a zero zener resistance and a knee current of 10 mA. The minimum value of R_L such that the voltage across it does not fall below 6V is



Options :

1. 1.2 kΩ

2. 80 Ω

3. 66 Ω

4. 50 Ω

Question Number : 45 Question Id : 3909005325 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The diffusion coefficients of the impurities

Options :

1. Increases with increase in temperature

2. Decreases with increase in temperature

3. Independent of temperature

4. Independent of the impurity

Question Number : 46 Question Id : 3909005326 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Ebers-Moll model is applicable to

Options :

1. Bi-polar junction transistor

2. NMOS transistor

3. Uni-polar junction transistor

4. Junction field effect transistor

Question Number : 47 Question Id : 3909005327 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The efficiency of an LED for generating light is directly proportional to the

Options :

1. Applied voltage

2. Current injected

3. Temperature

4. Level of doping

Question Number : 48 Question Id : 3909005328 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

In an Integrated circuit, the SiO_2 layer provides

Options :

1. Electrical connection to external circuit

2. Physical strength

3. Isolation

4. Conducting path

Question Number : 49 Question Id : 3909005329 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Thermal runaway is not possible in FET because as the temperature of FET increases

Options :

1. Mobility decreases

2. Trans-conductance increases

3. Drain current increases

4. Drain current decreases

Question Number : 50 Question Id : 3909005330 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The threshold voltage of an n channel MOSFET can be increased by

Options :

1. Increasing channel doping concentration

2. Reducing channel length

3. Reducing oxide thickness

4. Decreasing channel doping concentration

Question Number : 51 Question Id : 3909005331 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The process of extension of a single-crystal surface by growing a film in such a way that the added atoms form a continuation of the single crystal structure is called

Options :

1. Ion temperature

2. Chemical vapour deposition

3. Electro-plating

4. Epitaxy

Question Number : 52 Question Id : 3909005332 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Class AB operation is often used in power amplifiers in order to

Options :

1. Get maximum efficiency

2. Remove harmonics

3. Overcome a cross over distortion

4. Reduce collector dissipation

Question Number : 53 Question Id : 3909005333 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which of the following statements is true for phase shift type and Wein bridge type RC oscillators

Options :

1. Both use positive feedback

2. Both use negative feedback

3. Former uses positive feedback only and later uses negative and positive feedback

4. Former uses negative and positive feedback and later uses positive feedback only

Question Number : 54 Question Id : 3909005334 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Op amp used as a tuned amplifier has a tuned circuit connected

Options :

1. Across input

2. Across series impedance at the input

3. Across feedback impedance Z_f

4. Across output

Question Number : 55 Question Id : 3909005335 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

A differential amplifier is invariably used in the input stage of all OP AMPs. This is done to provide OPAMPs with a very high

Options :

1. CMRR

2. Bandwidth

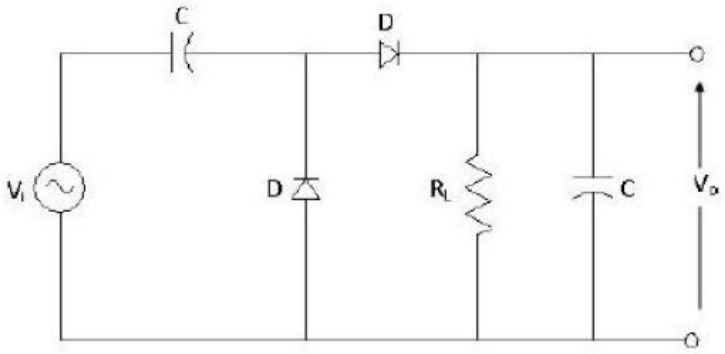
3. Slew rate

4. Open loop gain

Question Number : 56 Question Id : 3909005336 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Consider the circuit shown below, when $V_i = V_m \times \sin(\omega t)$, the output voltage V_o for R_L tends infinity will be



Options :

1. Zero

2. V_m

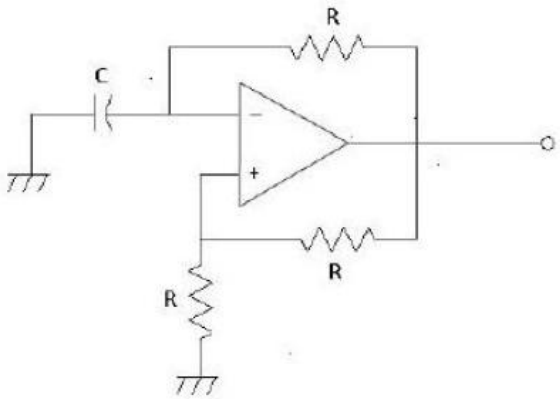
3. $-V_m$

4. $2V_m$

Question Number : 57 Question Id : 3909005337 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

For the oscillator circuit shown in figure, expression for the time period of the oscillation can be given by $(\tau = RC)$



Options :

1. $\tau\ ln3$

2. $2\tau\ ln3$

3. $\tau\ ln2$

4. $2\tau\ ln2$

Question Number : 58 Question Id : 3909005338 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The negative feedback is more effective if the loop gain is

Options :

1. Small

2. Unity

3. Zero

4. Large

Question Number : 59 Question Id : 3909005339 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Effect of cascading several amplifiers stages is to

Options :

1. Reduce the overall gain

2. Reduce the overall frequency response

3. Increase overall gain and reduce the frequency response

4. Decrease overall gain and increase the frequency response

Question Number : 60 Question Id : 3909005340 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

For a junction FET in the pinch off region as the drain voltage increased, the drain current

Options :

1. Becomes zero

2. Abruptly increases

3. Abruptly decreases

4. Remains constant

Question Number : 61 Question Id : 3909005341 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

A three stage amplifier with interacting stages has higher cut-off frequency per stage as f_H, then the system may oscillate at a high frequency fc given by

Options :

1. $\frac{f_H}{f_c} = 1.1$

2. $\frac{f_H}{f_c} = \frac{1.1}{\sqrt{3}}$

3. $\frac{f_H}{f_c} = \frac{1.1}{\sqrt{2}}$

4. $\frac{f_H}{f_c} = 1.1\sqrt{3}$

Question Number : 62 Question Id : 3909005342 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

An amplifier with mid band gain $|A| = 500$ has a negative feed-back $|b| = \frac{1}{100}$. If the bandwidth of the amplifier without feedback is 60 kHz, then with feedback it would become

Options :

1. 10 kHz

2. 12 kHz

3. 300 kHz

4. 360 kHz

Question Number : 63 Question Id : 3909005343 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

If a differential amplifier has a differential gain of 20,000 and CMRR is 80dB, then what is common mode gain?

Options :

1. 2

2. 1

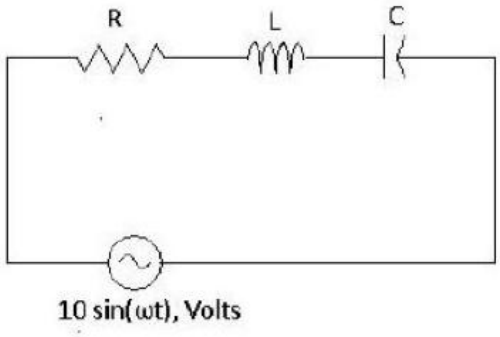
3. 1/2

4. Zero

Question Number : 64 Question Id : 3909005344 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

A series RLC circuit when excited by a 10V sinusoidal source of variable frequency exhibits resonance at 100Hz and has a 3 dB bandwidth of 5Hz. The voltage across the inductor L at resonance is



Options :

1. 10 V

2. $10\sqrt{2}$ V

3. $10/\sqrt{2}$ V

4. 200 V

Question Number : 65 Question Id : 3909005345 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

A two stage amplifier with negative feedback has an overshoot when the damping factor 'K' is

Options :

1. Less than unity

2. Greater than unity

3. Zero

4. Negative

Question Number : 66 Question Id : 3909005346 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

If each successive code differs from its preceding code by a single bit, then the code is called as

Options :

1. BCD code

2. Gray code

3. Hamming code

4. Cyclic code

Question Number : 67 Question Id : 3909005347 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

A function of Boolean variables A,B,C and D is expressed in terms of the min terms as F(A,B,C,D)=$\sum(0,2,3,8,10,11)$. The minimal expression is given by

Options :

1. $\bar{A}\bar{B} + \bar{C}\bar{D}$

2. $\bar{B}\bar{C}\bar{D} + \bar{A}\bar{B}$

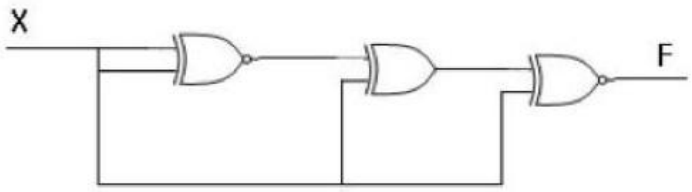
3. $\bar{B}\bar{C}\bar{D} + \bar{B}C$

4. $\bar{B}(\bar{D} + C)$

Question Number : 68 Question Id : 3909005348 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

For the circuit shown below figure, the output F is given by



Options :

1. 1

2. 0

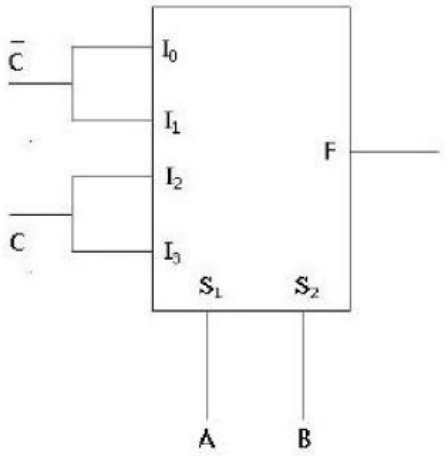
3. X

4. $\bar{X}$

Question Number : 69 Question Id : 3909005349 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The logic realized by the circuit shown in figure is



Options :

1. $A \odot C$

2. $A \oplus C$

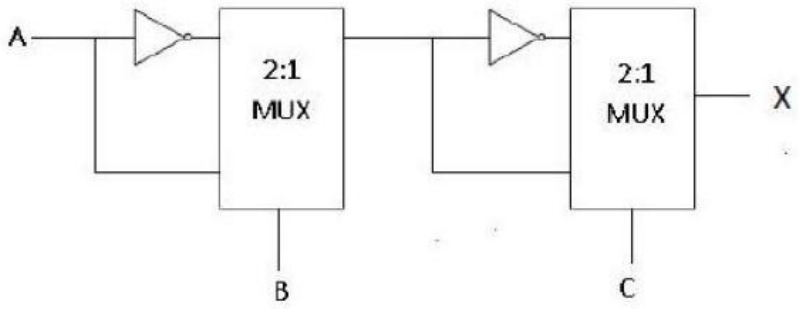
3. $B \odot C$

4. $B \oplus C$

Question Number : 70 Question Id : 3909005350 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

In the following circuit, X is given by



Options :

1. $A\,\overline{BC}$

2. $AB+BC+AC$

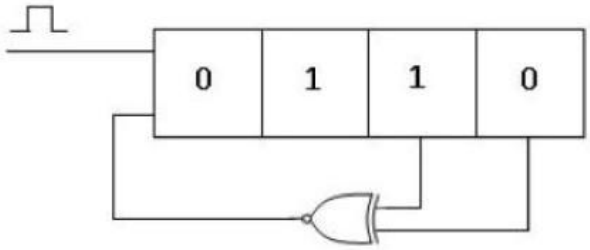
3. $A \odot B \odot C$

4. $A \oplus B \oplus C$

Question Number : 71 Question Id : 3909005351 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The initial contents of the 4 bit serial in, parallel out, right shift, shift register is shown in figure. After three clock pulses are applied, the contents of the shift register will be



Options :

1. 1111

2. 0100

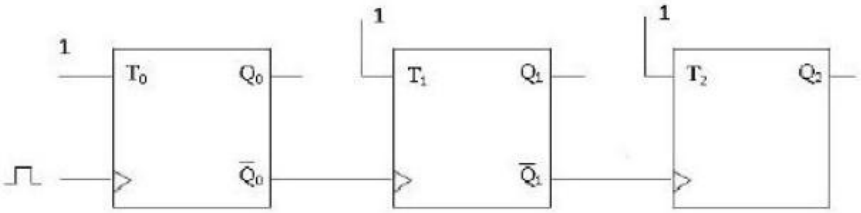
3. 1010

4. 1101

Question Number : 72 Question Id : 3909005352 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The given figure shows a ripple counter using positive edge triggered flip flop. If the present state is $Q_2Q_1Q_0 = 011$, then its next state ($Q_2Q_1Q_0$) will be



Options :

1. 010

2. 100

3. 111

4. 101

Question Number : 73 Question Id : 3909005353 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

A divide by 78 counter can be realized by using

Options :

1. 6 no.s of mod-13 counters

2. 13 no.s of mod 6 counters

3. 1 mod 13 counter followed by one mod 6 counter

4. 13 no.s mod 13 counters

Question Number : 74 Question Id : 3909005354 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

In a 5 bit weighted resistor D/A converter, the resistor value corresponding to LSB is 32K ohm. The resistor value corresponding to MSB is

Options :

1. 2 kΩ

2. 4 kΩ

3. 8 kΩ

4. 16 kΩ

Question Number : 75 Question Id : 3909005355 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Four memory chips of 16x4 size have their address buses connected together. The system will be of size

Options :

1. 64x64

2. 16x16

3. 32x8

4. 256x1

Question Number : 76 Question Id : 3909005356 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

In a microcomputer, wait states are used to

Options :

1. Make the processor wait during DMA operation

2. Make processor wait during a power interrupt processing

3. Make processor wait during power shut down

4. Interface slow peripherals to processor

Question Number : 77 Question Id : 3909005357 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which of the following interrupts in 8085 microprocessor is unmaskable interrupts?

Options :

1. RST5.5

2. RST7.5

3. TRAP

4. INTR1

Question Number : 78 Question Id : 3909005358 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

A stack is a

Options :

1. 8 bit register in the microprocessor

2. 16 bit register in the microprocessor

3. Set of memory locations in R/W memory reserved for storing information temporarily during the execution of the program

4. 16 bit memory address in the program

Question Number : 79 Question Id : 3909005359 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

2's complement representation of a 8 bit number is BD (one sign bit and 7 magnitude bits). Its magnitude in decimal representation is

Options :

1. 67

2. -67

3. 53

4. -53

Question Number : 80 Question Id : 3909005360 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Consider the following loop

```
XRA   A
LXI   B, 0007H
Loop: DCX B
JNZ   LOOP
```

The loop will be executed

Options :

1. 1 time

2. 8 times

3. 7 times

4. Infinite times

Question Number : 81 Question Id : 3909005361 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The steady state error of a stable type 0 unity feedback system for a unit step function is

Options :

1. Zero

2. $1/(1+K_p)$

3. ∞

4. $1/K_p$

Question Number : 82 Question Id : 3909005362 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The principles of homogeneity and superposition are applied to

Options :

1. Linear time invariant systems

2. Linear time variant systems

3. Non linear time invariant systems

4. Non linear time variant systems

Question Number : 83 Question Id : 3909005363 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The closed loop transfer function of a control system is given by $\frac{C(s)}{R(s)} = \frac{(s-2)}{(s+2)(s+1)}$

For a unit step function the output is

Options :

1. $-3e^{-2t}+4e^{-t}-1$

2. $3e^{-t}-2e^{-2t}-1$

3. Zero

4. Infinity

Question Number : 84 Question Id : 3909005364 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The open loop DC gain of unity negative feedback system with closed loop transfer function $\frac{s+4}{s^2+7s+13}$ is

Options :

1. 4/13

2. 4/9

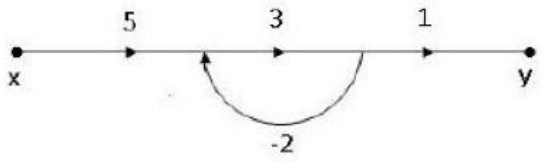
3. 4

4. 13

Question Number : 85 Question Id : 3909005365 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The signal flow graph y/x equals



Options :

1. 3

2. 5/2

3. 2

4. 15/7

Question Number : 86 Question Id : 3909005366 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Sinusoidal oscillators are

Options :

1. Stable

2. Unstable

3. Marginally stable

4. Conditionally stable

Question Number : 87 Question Id : 3909005367 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Phase margin of a system is used to specify

Options :

1. Relative stability

2. Absolute stability

3. Time response

4. Frequency response

Question Number : 88 Question Id : 3909005368 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The number of roots that lie in the right half of s plane $2s^4+s^3+3s^2+5s+7=0$ are

Options :

1. Zero

2. One

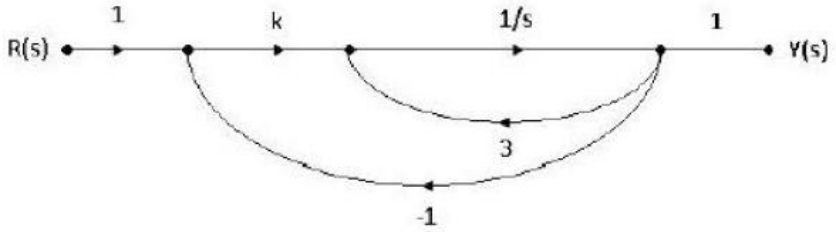
3. Two

4. Three

Question Number : 89 Question Id : 3909005369 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The system shown in the figure remains stable when



Options :

1. k<-1

2. -1<k<1

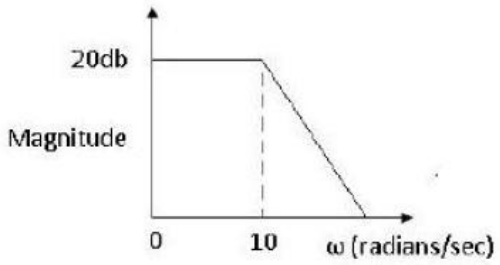
3. 1<k<3

4. k>3

Question Number : 90 Question Id : 3909005370 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Bode plot of a stable system is shown in the figure, the transfer function of the system is



Options :

1. $G(s) = \frac{100}{s+10}$

2. $G(s) = \frac{10}{s+10}$

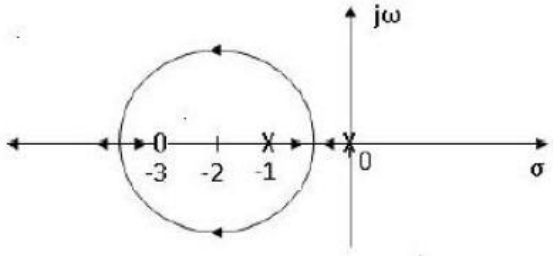
3. $G(s) = \frac{1}{s+10}$

4. $G(s) = \frac{100}{s+100}$

Question Number : 91 Question Id : 3909005371 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The root locus of a unity feedback system is shown in figure. The open loop transfer function is



Options :

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

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

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

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

Question Number : 92 Question Id : 3909005372 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

A series circuit containing R,L and C is excited by a step voltage input. The voltage across the capacitance exhibits oscillation. Damping coefficient of this circuit is given by

Options :

1. $\xi = \frac{R}{2\sqrt{LC}}$

2. $\xi = \frac{R}{LC}$

3. $\xi = \frac{R}{2\sqrt{C/L}}$

4. $\xi = \frac{R}{2\sqrt{L/C}}$

Question Number : 93 Question Id : 3909005373 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

A Phase lead compensation is used to

Options :

1. Increase rise time and decrease overshoot

2. Decrease both rise time and overshoot

3. Increase rise time and Increase overshoot

4. Decrease rise time and Increase overshoot

Question Number : 94 Question Id : 3909005374 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The auto correlation of the white noise is

Options :

1. Delta function

2. Constant

3. Gaussian

4. $e^{(-|t|)}$ with usual notation

Question Number : 95 Question Id : 3909005375 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

If a linear time invariant system is excited by a true random signal like white noise, the output of the linear system will

Options :

1. Be a white noise

2. Be periodic

3. Not be random

4. Be correlated or coloured noise

Question Number : 96 Question Id : 3909005376 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

In a Super-hetrodyne receiver, the IF is 455 kHz. If it is tuned to 1200 kHz, the image frequency will be

Options :

1. 1655 kHz

2. 745 kHz

3. 2110 kHz

4. 910 kHz.

Question Number : 97 Question Id : 3909005377 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

A 1000 kHz carrier is simultaneously modulated with 400Hz and 3 kHz audio sine waves. The frequency which will not be present in the output is

Options :

1. 999.6 kHz

2. 997 kHz

3. 1003 kHz

4. 1000.3 kHz

Question Number : 98 Question Id : 3909005378 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

De emphasis in FM systems involves

Options :

1. Compression of the modulating signal

2. Expansion of modulating signal

3. Amplification of lower frequency components of modulating signals

4. Amplification of higher frequency components of the modulating signals

Question Number : 99 Question Id : 3909005379 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which one of the following blocks is not common in both AM and FM receivers?

Options :

1. RF amplifier

2. Mixer

3. IF amplifier

4. Slope detector

Question Number : 100 Question Id : 3909005380 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

In an Amplitude modulated system, if the total power is 600 W and the power in carrier is 400 W, then the modulation index is

Options :

1. 0.5

2. 0.75

3. 0.9

4. 1

Question Number : 101 Question Id : 3909005381 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

If the distance is to be doubled in a microwave communication link, then transmitted peak power has to be increased by a factor of

Options :

1. Two

2. Four

3. Eight

4. Sixteen

Question Number : 102 Question Id : 3909005382 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

If binary PSK modulation is used for transmission, the required bandwidth is 9600 Hz. To reduce the transmission bandwidth to 2400Hz, the modulation scheme to be adopted is

Options :

1. Quadrature phase shift keying

2. Minimum shift keying

3. 16-ary quadrature shift keying

4. 8-ary PSK

Question Number : 103 Question Id : 3909005383 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

A PCM system uses a uniform quantizer followed by 8 bit encoder. The bit rate of the system is equal to 10^8 bits/s. The maximum message bandwidth for which the system operates satisfactorily is

Options :

1. 25 MHz

2. 6.25 MHz

3. 12.5 MHz

4. 50 MHz

Question Number : 104 Question Id : 3909005384 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

If the number of bits in a PCM system is increased from n to n+2, signal to quantization noise ratio will increase by a factor of

Options :

1. (n+2)/2

2. 4

3. 8

4. 16

Question Number : 105 Question Id : 3909005385 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

For distortion-less transmission through a channel, the channel should be such that

Options :

1. Its attenuation response is even function and phase response is an odd function of frequency

2. Its attenuation response is flat and phase response is linear with frequency

3. Ratio of line inductance to line capacitance is constant

4. Its termination is matched termination

Question Number : 106 Question Id : 3909005386 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Quantization process used in analog to digital conversion process involves

Options :

1. One to many mapping which causes a loss of information

2. Many to one mapping. It causes loss of information at the transmitter which can be recovered at the receiver

3. One-to one mapping

4. Many to one mapping. The loss of information at the transmitter cannot be recovered at the receiver

Question Number : 107 Question Id : 3909005387 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

In free space line of sight propagation case, the transmission losses between transmitter and receiver increase with frequency (f) as

Options :

1. f

2. f^2

3. f^4

4. $f^{1/2}$

Question Number : 108 Question Id : 3909005388 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

If a carrier modulated by a digital bit stream had one of the possible phases of 0, 90, 180 and 270 degrees, then modulation is called as

Options :

1. BPSK

2. QPSK

3. QAM

4. MSK

Question Number : 109 Question Id : 3909005389 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The equation which states the non-existence of isolated magnetic pole is

Options :

1. $\nabla.D = \rho$

2. $\nabla.B = 0$

3. $\nabla.J = -\partial\rho/\partial t$

4. $\nabla \times H = J$

Question Number : 110 Question Id : 3909005390 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

For an elliptically polarized wave incident on the interface of a di-electric at the Brewster angle, the reflected wave will be

Options :

1. Elliptically polarized

2. Linearly polarized

3. Right circularly polarized

4. Left circularly polarized

Question Number : 111 Question Id : 3909005391 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

In a uniform linear array of four isotropic elements spaced $\lambda/2$ apart, the progressive phase shift between elements required for forming main beam at 60^0 off the end fire direction is

Options :

1. $-\pi$ radians

2. $-\pi/2$ radians

3. $-\pi/4$ radians

4. $-\pi/8$ radians

Question Number : 112 Question Id : 3909005392 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

A uniform plane wave with an intensity of electric field 1 V/m is travelling in free space. The magnitude of associated magnetic field is

Options :

1. 2.65 mA/m

2. 2.65 A/m

3. 2.65 μA/m

4. 26.5 A/m

Question Number : 113 Question Id : 3909005393 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The dominant mode in a rectangular waveguide is TE10, because this mode has

Options :

1. No attenuation

2. No cut off

3. No magnetic field

4. Highest cut-off wavelength

Question Number : 114 Question Id : 3909005394 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

A transmission line of characteristic impedance of 50 Ω is terminated by 100 Ω. If the wave-length is λ, then the distance between successive minimum along a transmission line is

Options :

1. $\lambda/4$

2. $\lambda/2$

3. λ

4. 2λ

Question Number : 115 Question Id : 3909005395 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The intrinsic impedance of a conducting medium is given by

Options :

1. $\frac{j\omega\mu}{\sigma}$

2. $\frac{j\omega\varepsilon}{\sigma}$

3. $\sqrt{\frac{j\omega\mu}{\sigma+j\omega\varepsilon}}$

4. $\sqrt{\frac{\mu}{\varepsilon}}$

Question Number : 116 Question Id : 3909005396 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

If a quarter wave impedance transformer is terminated by a short circuit, then the input impedance is equal to

Options :

1. The line characteristic impedance

2. Zero

3. Infinity

4. Square root of the line characteristic impedance

Question Number : 117 Question Id : 3909005397 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The phase velocity of wave propagating in a rectangular waveguide slightly above the cut off frequency is

Options :

1. Equal to free space phase velocity

2. Greater than free space phase velocity

3. Less than free space phase velocity

4. Less than group velocity between the conductors

Question Number : 118 Question Id : 3909005398 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

What is the wave impedance for a wave travelling in medium given $\varepsilon_r = 4$ and $\mu_r = 1$?

Options :

1. 60π

2. 120π

3. 240π

4. 480π

Question Number : 119 Question Id : 3909005399 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

What is the value of Directivity of an isotropic antenna?

Options :

1. 1 dB

2. 0

3. 4π dB

4. $\pi/2$ dB

Question Number : 120 Question Id : 3909005400 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Multiple number of antennas are arranged in arrays in order to enhance

Options :

1. Both Directivity and Bandwidth

2. Only Directivity

3. Only bandwidth

4. Neither Directivity nor Bandwidth