LECTURERS IN GOVERNMENT POLYTECHNIC COLLEGES (ENGINEERING AND NON-ENGINEERING) IN A.P TECHNICAL EDUCATION SERVICE. - NOTIFICATION NO.23/2018

ELECTRONICS AND COMMUNICATION ENGINEERING - 15TH MAR 2020 – S2 – REVISED KEY

Question Number : 2 Question Id : 2310981202

A system with a unity gain margin and zero phase margin is ________.

Answer:
relatively stable

Question Number : 9 Question Id : 2310981209

If \( G(s) = \frac{5}{s} \) and \( H(s) = \frac{1}{s} \) then this is:

Answer:
type 3 system

Question Number : 16 Question Id : 2310981216

The unit impulse response of a system is \( h(t) = e^{-t}, t > 0 \)

For this system, the steady state value of the output for unit step input is equal to:

Answer: Deleted

Question Number : 17 Question Id : 2310981217

Consider a system with the transfer function \( G(s) = \frac{s+6}{(Ks^2+s+6)} \). Its damping ratio will be 0.5 when the value of K is:

Answer: Deleted

Question Number : 28 Question Id : 2310981228

Inverse Fourier Transform of \( \delta(o-o0) \) is:

Answer: Deleted

Question Number : 31 Question Id : 2310981231

A system is given by \( x(t) = eat u(t) \). The system is ________.

Answer: Deleted
Question Number : 32 Question Id : 2310981232

Let \( x(t) \) be a signal with Nyquist rate \( w_0 \). Determine the Nyquist rate for \( y(t) = x(t)\cos(w_0t) \).

Answer: Deleted

Question Number : 34 Question Id : 2310981234

If the discrete time sequence \( x(n), n \geq 0 \) is defined to be \( n(n) \), then the Z transform \( X(z) \) is (for \( |z| > 1 \)):

Answer: Deleted

Question Number : 37 Question Id : 2310981237

Channel capacity of a noise-free channel having \( M \) symbols is given by:

Answer: Deleted

Question Number : 38 Question Id : 2310981238

What is the total power carried by sidebands of the AM wave (DSB) for tone modulation for \( \mu = 0.4 \)?

Answer: Deleted

Question Number : 40 Question Id : 2310981240

A periodic signal \( F(t) \) has one of its period

\[
F(t) = \begin{cases} 
2 & \text{for } 0 \leq t < 1 \\
-1 & \text{for } 1 \leq t < 2 
\end{cases}
\]

And a signal \( g(t) \) is represented as, \( g(t) = \sum_{k=-\infty}^{\infty} \delta(t - 2k) \) if, \( \frac{df(t)}{dt} = (a_1)(g(t - t_1)) + (a_2)(g(t - t_2)) \)

What is the value of \( a_1, a_2, t_1 \) and \( t_2 \)?

Answer: Deleted

Question Number : 42 Question Id : 2310981242

In PCM, the signal-to-quantisation noise ratio for a sinusoidal signal quantised using 10-bit PCM is:

Answer: Deleted

Question Number : 43 Question Id : 2310981243

If the unit step response of the network is \((1-e^{-at})\), then its impulse response is:

Answer: Deleted
Question Number : 44 Question Id : 2310981244

For what value of $\omega_0$, the discrete time signal $x[n] = e^{j\omega_0 n}$ is periodic signal with period $N$?

Answer: Deleted

Question Number : 58 Question Id : 2310981258

A medium wave radio transmitter operating at a wavelength of 496 meters has a tower antenna height of 124 meters. What is the radiation resistance of the antenna?

Answer:

$50 \, \Omega$

Question Number : 65 Question Id : 2310981265

Let $G = 3x^2 + 2x$. Given an initial point $P(2, 1, 1)$ and a final point $Q(4, 3, 1)$, find $\int G \cdot dL$ using the straight line: $y = x - 1, z = 1$.

Answer: Deleted

Question Number : 84 Question Id : 2310981284

Out of the following Linear Shift Invariant (LSI) systems, which one is non-causal?

Answer:

$h[n] = u[n+4]$

$h[n] = \delta[n+3]$

Question Number : 90 Question Id : 2310981290

A cylindrically-shaped section of n-type silicon has 2 mm length and 0.2 mm$^2$ cross-sectional area. Calculate its resistivity when it is purely intrinsic material.

Answer: Deleted

Question Number : 98 Question Id : 2310981298

The main purpose of oxidation in the IC fabrication process using silicon is:

Answer: Deleted
Question Number : 101 Question Id : 2310981301

Within Fresnel diffraction range, the minimum resolvable feature size is of the order of_______ when a proximity exposure system is operating with a 10 μm gap and a light source with a wavelength of λ = 365 nm.

Answer: Deleted

Question Number : 103 Question Id : 2310981303

One CMOS capacitance can store _______ bit(s) of digital information.

Answer: Deleted

Question Number : 108 Question Id : 2310981308

At room temperature the concentrations of H+ and OH- ions in equilibrium are: [H+]=[OH-]=6×10^-13 cm^-3 in water. The diffusivity D of H+ ions is 9.3×10^-9 m^2 sec^-1. Calculate the mobility μ of H+ ions.

Answer: Deleted

Question Number : 117 Question Id : 2310981317

In typical circuits, the stabilisation factor S=ΔIC/ΔICO is:

Answer:

<<1

Question Number : 126 Question Id : 2310981326

The transfer function T(s) of a single OPAMP inverting mode filter that has a capacitance C and resistance R in the feedback path and an input resistance R is:

Answer: Deleted

Question Number : 129 Question Id : 2310981329

In a DC voltage regulator using LM117 IC, if the feedback resistance connected across VOUT and ADJ terminals R1 is 240 Ω and the resistance connected between ADJ and ground R2 is 4.7 kΩ, then the regulated output voltage is:

Answer: Deleted