

Id	1
Question	There are twenty four students in a certain class. For every nine girls there are three boys. How many girls and how many boys are there in the class?
A	19 and 5
B	18 and 6
C	15 and 9
D	14 and 10
Answer	B

Id	2
Question	A is a unitary matrix. Then eigen value of A are
A	1,-1
B	1,-i
C	i,-i
D	-1,i
Answer	C

Id	3
Question	Transpose of a rectangular matrix is a
A	Rectangular matrix
B	Diagonal matrix
C	Square matrix
D	Scaler matrix
Answer	A

Id	4
Question	Two matrices A and B are multiplied to get AB if
A	Both are rectangular
B	Both have same order
C	No of columns of A is equal to columns of B
D	No of rows of A is equal to no of columns of B
Answer	B

Id	5
Question	The impulse response of the system is $h(t)=tu(t)$. for an input $u(t-1)$ the output is
A	$\frac{t^2}{2}u(t)$
B	$\frac{t(t-1)}{2}u(t-1)$
C	$\frac{(t-1)^2}{2}u(t-1)$
D	$\frac{t^2}{2}u(t-1)$
Answer	C

Id	6
Question	A Fourier series of a real periodic function has only P. Cosine terms if it is even Q. Sine terms if it is even R. Cosine terms if it is odd S. Sine terms if it is odd which of the following statements are correct
A	P& S
B	P& R
C	Q& S
D	Q & R
Answer	A

Id	7
Question	The ROC of z transform of discrete time sequence $x(n)=\left(\frac{1}{3}\right)^n u(n)-\left(\frac{1}{2}\right)^n u(-n-1)$ is
A	$\left(\frac{1}{3}< Z <\frac{1}{2}\right)$
B	$(Z >\frac{1}{2})$
C	$(Z <\frac{1}{2})$
D	$(2< Z <3)$
Answer	A

Id	8
Question	The unilateral Laplace transform of $x(t)$ is $\frac{1}{(s^2+s+1)}$ then the Laplace transform of $tx(t)$ is
A	$\frac{s}{(s^2+s+1)^2}$
B	$\frac{2s+1}{(s^2+s+1)^2}$
C	$\frac{-s}{(s^2+s+1)^2}$
D	$\frac{-(2s+1)}{(s^2+s+1)^2}$
Answer	B

Id	9
Question	The impulse response of a continuous time system is given by $h(t) = \delta(t-1) + \delta(t-3)$ the out of the system for input is $u(t)$ is
A	$u(t-1) + u(t-3)$
B	$u(t) + u(t-1)$
C	$u(t) + u(t-3)$
D	$u(t-4)$
Answer	A

Id	10
Question	A transistor has a current gain of 0.99 in the CB mode. Its current gain in the CC mode is
A	100
B	99
C	1.01
D	0.99
Answer	A

Id	11
Question	Voltage series feedback (Also called series – shunt feedback) results in
A	Increase in both I/P and O/P impedances
B	Decrease in both I/P and O/P impedances
C	Increase in I/P impedance and decrease in O/P impedance
D	Decrease in I/P impedance and increase in O/P impedance
Answer	C

Id	12
Question	To ensure that a zener diode does not get destroyed
A	The applied voltage should not exceed breakdown voltage
B	The current should not exceed rated current
C	The current should be less than magnitude of barrier potential
D	Both a and b
Answer	B

Id	13
Question	Which among the following are specifically the advantages of bipolar design technology ? A) High input resistance at low frequencies B) Zero input bias current C)High voltage gain D)High value of trans conductance
A	A & B
B	A & C
C	B & D
D	C & D
Answer	D

Id	14
Question	According to the principle of current mirror, if gate – source potentials of two identical MOS transistors are equal then the channel currents should be -----
A	Equal
B	Different
C	Both a and b
D	None of the above
Answer	A

Id	15
Question	Which resistance plays a significant role in stabilization of Q- point for self- biasing circuit of BJT?
A	Emitter resistance
B	Collector resistance
C	Source resistance
D	Drain resistance
Answer	A

Id	16
Question	Which among the below mentioned devices acts as a driver in CMOS Inverter circuit ?
A	PMOS
B	NMOS
C	Both a and b
D	None of the above
Answer	B

Id	17
Question	For a 100% AM modulated wave with carrier suppressed the percentage power saving will be
A	100
B	50
C	150
D	6.66
Answer	D

Id	18
Question	In a amplitude modulated system, if the total power is 600 W and the power in carrier is 400 W, then the modulation index is
A	0.5
B	0.75
C	0.9
D	1
Answer	D

Id	19
Question	The modulation index of AM wave is changed from 0 to 1. the transmitted power is
A	Doubled
B	Halved
C	Unchanged
D	Increased by 50 %
Answer	D

Id	20
Question	BW required for amplitude modulation is
A	Half the frequency of the modulating signal
B	Equal to the frequency of the modulating signal
C	Twice the frequency of the modulating signal
D	Four times the frequency of the modulating signal
Answer	C

Id	21
Question	Vestigial sideband modulation is generally used for
A	TV broadcasting
B	Point – to -point communication
C	Telemetry
D	Stereo broadcasting
Answer	A

Id	22
Question	A carrier is simultaneously modulated by two sine waves with modulation indices of 0.3 & 0.4 If the modulated power is 10kW, the total modulated power will be
A	12.5kW
B	10kW
C	10.125kW
D	10.5 kW
Answer	B

Id	23
Question	The core of an optical fiber has a
A	Lower refracted index than air
B	Lower refractive index than the cladding
C	Higher refractive index than the cladding
D	Similar refractive index with the cladding
Answer	C

Id	24
Question	The semiconductor diode which can be used in switching circuits at microwave range is
A	PIN diode
B	Tunnel diode
C	Varactor diode
D	Gunn diode
Answer	A

Id	25
Question	Gyrator is device which provides
A	Phase shift of 180 degree for transmission from port 1 to port 2
B	No phase shift for transmission from port 1 to port 2
C	Phase shift of 180 degree for transmission from port 3 to port 2
D	Phase shift of 180 degree for transmission from port 3 to port 1
Answer	A

Id	26
Question	In TE & TM modes of rectangular wave guide having propagation in Z direction
A	E_z & H_z are both zero
B	In TE mode E_z is zero & in TM mode H_z is zero
C	In TM mode E_z is zero & in TE mode H_z is zero
D	In both TE & TM mode both E_z & H_z is nonzero
Answer	B

Id	27
Question	How many modes possible with a multimode step – index with a core diameter of 50um,a core refractive index of 1.6, a cladding refractive index of 1.584 and a wavelength of 1300nm.
A	456
B	213
C	145
D	372
Answer	D

Id	28
Question	The signal path from earth station to satellite is called
A	Uplink signal
B	Reflected signal
C	Incident signal
D	Downlink signal
Answer	A

Id	29
Question	Properties of Hilbert transform are
A	The signal and its Hilbert transform have same energy density spectrum
B	The signal and its Hilbert transform are mutually diagonal
C	Both A and B are correct
D	None of the above
Answer	C

Id	30
Question	Calculate the Nyquist rate for sampling when a continuous time signal is given by $x(t) = 5 \cos 100 \pi t + 10 \cos 200 \pi t - 15 \cos 300 \pi t$
A	300Hz
B	600Hz
C	150Hz
D	200Hz
Answer	A

Id	31
Question	The spectrum of the sampled signal may be obtained without overlapping only if
A	$f_s \geq 2f_m$
B	$f_s < 2f_m$
C	$f_s > f_m$
D	$f_s < f_m$
Answer	A

Id	32
Question	In P-I controller , what does an integral of a function compute?
A	Density of curve
B	Area under the curve
C	Volume over the curve
D	Circumference of curve
Answer	B

Id	33
Question	Due to an addition of pole at origin, the polar plot gets shifted by ----- at $\omega=0$?
A	-45°
B	-60°
C	-90°
D	-180°
Answer	C

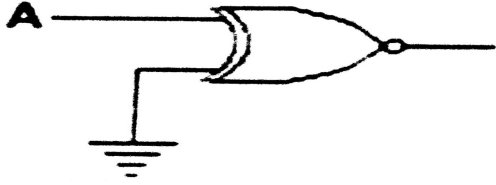
Id	34
Question	Consider the system represented by the equation given below. what would be the total phase value at $\omega=0$? $200/[s^3(s+3)(s+6)(s+10)]$
A	-90°
B	-180°
C	-270°
D	-360°
Answer	C

Id	35
Question	During the design of FOC system which among the following reasons is / are responsible for an extrinsic absorption?
A	Atomic defects in the composition of glass
B	Impurity atoms in glass material
C	Basic constituent atoms of fiber material
D	All of the above
Answer	B

Id	36
Question	Which feature of an eye – diagram assists in the measurement of additive noise in the signal ?
A	Eye opening (height , peak to peak)
B	Eye overshoot / undershoot
C	Eye width
D	None of the above
Answer	A

Id	37
Question	In 2's complement representation the number 11100101 represents the decimal number -----
A	+37
B	-31
C	+27
D	-27
Answer	D

Id	38
Question	A memory system of size 16 k bytes is to be designed using memory chips which have 12 address lines and 4 data lines each. The number of such chips required to design the memory system is -----
A	2
B	4
C	8
D	18
Answer	C

Id	39
Question	For the gate in the given figure the output will be ----- <div style="text-align: center;">  </div>
A	0
B	1
C	A
D	\bar{A}
Answer	D

Id	40
Question	A closed – loop control system is stable if the Nyquist plot of the corresponding open-loop transfer function
A	Encircles the s-plane point $(-1 + j0)$ in the counter clockwise direction as many times as the number of right – half s-plane poles.
B	Encircles the s-plane point $(0-j1)$ in the clockwise direction as many times as the number of right – half s-plane poles
C	Encircles the s- plane point $(-1 + j0)$ in the counter clockwise direction as many times as the number of left – half s-plane poles
D	Encircles the s-plane point $(-1 +j0)$ in the counter clockwise direction as many times as the number of right – half s-plane zeros
Answer	A

Id	41
Question	A 12 bit ADC is used to convert analog voltage of 0 to 10 V into digital. The resolution is -----
A	2.44mV
B	24.4mV
C	1.2V
D	None of these
Answer	A

Id	42
Question	The computational procedure for Decimation in frequency algorithm takes
A	Log ₂ N stages
B	2 Log ₂ N stages
C	Log ₂ N ² stages
D	Log ₂ N/2 stages
Answer	A

Id	43
Question	For square wave generator if $C=0.1\mu F$ and $R=10K\Omega$ and $R1=R2$ the frequency of square wave is
A	454.54Hz
B	454.54KHz
C	4.54KHz
D	4545.4Hz
Answer	A

Id	44
Question	When the reference voltage in a comparator is zero then the circuit is known as
A	Schmitt trigger
B	Zero crossing detector
C	Peak detector
D	Sample & Hold circuit
Answer	B

Id	45
Question	A 741- type OP-AMP has a gain – bandwidth product of 1 MHz. A non- inverting amplifier using this opamp & having a voltage gain of 20db will exhibit -3 db bandwidth of
A	50KHz
B	100KHz
C	1000/17KHz
D	1000/7.07 KHz
Answer	A

Id	46
Question	A opamp having a common mode gain of 1dB and a differential gain of 100dB will have common mode rejection ratio of
A	100
B	0.01
C	40
D	1
Answer	A

Id	47
Question	As -----, an ideal op-amp can drive infinite number of devices
A	$AV = \infty$
B	$Ri = \infty$
C	$Ro = 0$
D	$CMRR = \infty$
Answer	B

Id	48
Question	Damping factor & the resonance frequency of a system are 0.2588 & 3 rad /sec respectively what will be the settling time of the system assuming a 2% tolerance band
A	3.5 sec
B	0.8 sec
C	2.7 sec
D	4.95sec
Answer	D

Id	49
Question	An octave is a frequency band from F1 to F2 where $F1/F2 =$
A	2
B	8
C	10
D	4
Answer	A

Id	50
Question	The output of the combinational circuit given below is <div style="text-align: center;"> </div>
A	$A+B+C$
B	$A(B+C)$
C	$B(C+A)$
D	$C(A+B)'$
Answer	C

Id	51
Question	If $ A =0$,Then A is
A	Zero matrix
B	Singular matrix
C	Non – singular matrix
D	0
Answer	B