PU M Tech Electronics and Communication Engg

1 of 100

182 PU_2015_304

The ratio of conduction current density to the displacement current density is:-

- jσ/ωε
- σ/jωε
- σω/jε
- σε/jω

2 of 100

171 PU_2015_304

The maximum data rate supported by IEEE 802.11a at 5 GHz is:-

- 100 Mbps
- 10 Mbps
- 48 Mbps
- 54 Mbps

3 of 100

107 PU_2015_304

In the interval [0, π], the equation $x = \cos x$ has:-

- no solution
- exactly one solution
- an infinite number of solutions
- exactly two solutions

4 of 100

111 PU_2015_304

Which of the following is not a logical operator in C programming?

- &
- !
- &&
- ||

5 of 100

160 PU_2015_304

100 Base T refers to:-

- Fibre Connectivity
- Thick Ethernet
- SONET
- Twisted Pair

6 of 100

144 PU_2015_304
Which of the following is used as a data selector?

- Encoder
- Decoder
- Demultiplexer
- Multiplexer

7 of 100

105 PU_2015_304
Laplace transform of $8t^3$ is :-

- $\frac{8}{s^4}$
- $\frac{16}{s^4}$
- $\frac{24}{s^4}$
- $\frac{48}{s^4}$

8 of 100

206 PU_2015_304
The phase angle corresponding to λ/4 in a standing-wave pattern is:-

- 30°
- 180°
- 45°
- 90°

9 of 100

141 PU_2015_304
The best electronic device for fast switching is:-

- MOSFET
- BJT
- Triode
- FET

10 of 100

153 PU_2015_304
What do the contents of instruction register specify?

- Op code for the instruction to be executed next
- Operand for the instruction to be executed next
- Operand for the instruction being executed
- Op code for the instruction being executed

11 of 100
162 PU_2015_304
The Ethernet protocol uses:-

- CSMA/CA
- Slotted ALOHA
- SCPC
- CSMA/CD

12 of 100
184 PU_2015_304
Strictly speaking, in a microstrip the propagating mode that is excited is:-

- only TE mode
- non-TEM mode
- only TM mode
- only TEM mode

13 of 100
142 PU_2015_304
The SCR is a semiconductor device made up of:-

- Three P-type and one N-type layers
- One P-type and three N-type layers
- Two P-type and two N-type layers
- Four N-type layers

14 of 100
146 PU_2015_304
The Darlington pair is a multistage configuration of:-

- CC-CC
- CE-CB
- CE-CE
- CC-CE

15 of 100
210 PU_2015_304
An emitter follower has high input impedance because of:-

- Negative feedback in the base emitter circuit
- Emitter resistance
- Large biasing resistance
- Large load resistance

16 of 100

150 PU_2015_304

ICs, which are made by sputtering materials on a ceramic substrate are called:-

- Thin film
- Hybrid
- Thick film
- Monolithic

17 of 100

165 PU_2015_304

The number of subcarriers used in OFDM technology for IEEE 802.16e network with the system bandwidth of 10 MHz is:-

- 256
- 1024
- 52
- 128

18 of 100

152 PU_2015_304

A fetch cycle is the:-

- First part of the instruction cycle
- Intermediate part of the instruction cycle
- Last part of the instruction cycle
- Auxiliary part of the instruction cycle

19 of 100

183 PU_2015_304

A transmission line with a characteristic impedance Z_1 is connected to a transmission line with characteristic impedance Z_2. If the system is being driven by a generator connected to the first line, then the overall transmission coefficient will be:-

- Z_1/Z_1+Z_2
- Z_2/Z_1+Z_2
- $2Z_2/Z_1+Z_2$
- $2Z_1/Z_1+Z_2$

20 of 100

204 PU_2015_304

A wave is propagated in a waveguide at frequency of 9 GHz and separation is 2 cm between walls. Find cut off wavelength for dominant mode.

- 8 cm
- 2 cm
- 4 cm
- 1 cm

21 of 100
200 PU_2015_304
For a type one system, the steady–state error due to step input is equal to:-

- zero
- 0.25
- 0.5
- infinite

22 of 100
127 PU_2015_304
Pilot carrier transmission is one in which:-

- Two sidebands as well as a trace of carrier are transmitted
- Only two sidebands are transmitted
- One sideband and carrier are transmitted
- Only one sideband is transmitted

23 of 100
192 PU_2015_304
In a series resonance circuit, the impedance of the circuit is:-

- minimum
- one
- zero
- maximum

24 of 100
121 PU_2015_304
The concept of segmenting an image based on discontinuity or similarity of the gray level values of its pixels is applicable to _____.

- dynamic images
- static images
- indexed images
- dynamic and static images

25 of 100
120 PU_2015_304
Increased pulse-width in the flat top sampling leads to_____ in reproduction.

- greater aliasing errors
- attenuation of high frequencies
- no harmful effects
- attenuation of low frequencies

26 of 100

202 PU_2015_304

Peak overshoot of step-input response of an underdamped second-order system is explicitly indicative of:-

- settling time
- damping ratio
- rise time
- natural frequency

27 of 100

147 PU_2015_304

How many machine cycles will the execution of SIM instruction take in an 8085 microprocessor?

- 2
- 1
- 0
- 3

28 of 100

181 PU_2015_304

In a travelling electromagnetic wave, E and H vector fields are:-

- parallel in space
- perpendicular in space
- H is in the direction of wave travel
- E is in the direction of wave travel

29 of 100

110 PU_2015_304

The MATLAB function to generate “00000” as output is:-

- zeros (1,5)
- zeros(5x1)
- zeros(5,1)
- zeros (1x5)

30 of 100

180 PU_2015_304

The wavelength of 2 GHz wave is:-

- 15 mm
- 1.5 cm
- 15 cm
- 1.5 mm

31 of 100

205 PU_2015_304

A wave is propagated in a waveguide at frequency of 9 GHz and separation is 2 cm between walls. Calculate group velocity for dominant mode.

- 1.8×10^8 m/sec
- 5×10^8 m/sec
- 1.5×10^8 m/sec
- 3×10^8 m/sec

32 of 100

140 PU_2015_304

A push pull amplifier balances out:-

- Neither odd nor even harmonics
- Both odd as well as even harmonics
- Odd harmonics
- Even harmonics

33 of 100

112 PU_2015_304

The Fourier series of an odd periodic function contains only:-

- sine terms
- cosine terms
- even harmonics
- odd harmonics

34 of 100

126 PU_2015_304

The function of baffles in speaker system is:-

- To avoid cancellation of compression
- To produce echo effect and ratification of air
- To allow high frequencies to pass
- To provide stability to the speaker

35 of 100

161 PU_2015_304

RS232 interface:-

- a logic high uses positive voltage
- uses only positive logic
- uses only negative logic
- cannot transmit signals over long distance

36 of 100
129 PU_2015_304
In AM, if modulation index is more than 100%, then:-

- Efficiency of transmission increases
- Wave gets distorted
- Bandwidth increases
- Power of the wave increases

37 of 100
109 PU_2015_304
Eigen values of a real symmetric matrix are always:-

- negative
- complex
- positive
- real

38 of 100
145 PU_2015_304
An index register in digital computer is used for:-

- Pointing to the stack address
- Performing arithmetic and logic operations
- Address modification
- Storing one of the operands

39 of 100
108 PU_2015_304
All MATLAB variables are:-

- one dimensional array
- multidimensional array
- three dimensional array
- two dimensional array

40 of 100
125 PU_2015_304
Which of the following is not uniformly distributed over all frequencies?

- Flicker noise
- White noise
- Thermal noise
- Shot noise

41 of 100

193 PU_2015_304

In a loss free RLC circuit the transient current is:-

- Sinusoidal
- Square wave
- Cosine wave
- Oscillating

42 of 100

203 PU_2015_304

The input impedance of short-circuited line of length *l* where $\lambda/4 < l < \lambda/2$, is:-

- inductive
- resistive
- complex
- capacitive

43 of 100

172 PU_2015_304

A message signal band limited to 5 kHz is sampled at the minimum rate as dictated by the sampling theorem. The number of quantization levels is 64. If the samples are encoded in binary form, the transmission rate is:-

- 60 kbps
- 32 kbps
- 52 kbps
- 10 kbps

44 of 100

212 PU_2015_304

A cascade amplifier will have a higher cut off frequency that is:-

- Equal to that of single stage amplifier
- Less than that of single stage amplifier
- More than that of single stage amplifier
- Becomes double

45 of 100

163 PU_2015_304

The number of bits used to denote the address of source and destination in IPV4:-

- 32 bits
- 128 bits
- 256 bits
- 64 bits

46 of 100

213 PU_2015_304

An oscillator that uses a tapped coil in the LC tuned circuit is the:-

- Armstrong oscillator
- Colpitts oscillator
- Hartley oscillator
- Pierce oscillator

47 of 100

149 PU_2015_304

Microprogramming is a technique:-

- Microprogramming is a technique
- for writing small programs efficiently
- for programming the control steps of computer
- for programming output/input

48 of 100

128 PU_2015_304

In delta modulation, the slope overload distortion can be reduced by:-

- Increasing step size
- Decreasing step size
- Decreasing sampling rate
- Increasing granular noise

49 of 100

124 PU_2015_304

In TDM system, different signals are distinguished from each other:-

- Only in frequency
- Only in amplitude
- Only in time
- Both in time and frequency

50 of 100

113 PU_2015_304

The amplitude spectrum of Gaussian pulse is:-

- Gaussian
- an impulse function
- a sine function
- uniform

51 of 100
201 PU_2015_304
The LVDT is primarily used for the measurement of:-

- displacement
- velocity
- acceleration
- humidity

52 of 100
151 PU_2015_304
8085 has _____ software restarts and _____ hardware restarts.

- 6, 6
- 10, 5
- 7, 5
- 8, 4

53 of 100
211 PU_2015_304
The typical turn off time of a transistor is:-

- 10 ns
- 70 ns
- 40 ns
- 60 ns

54 of 100
148 PU_2015_304
Which of the following interrupts in 8085 microprocessor has highest priority?

- RST 5.5
- INTR
- TRAP
- RST 6.5

55 of 100
143 PU_2015_304
Frequency stability in an oscillator is achieved by:-

- Controlling its gain
- Adjusting the phase shift
- Employing automatic biasing
- Incorporating tuned circuit

56 of 100
114 PU_2015_304
If a signal f(t) has energy E, the energy of the signal f(2t) is equal to:-

- 2E
- E
- E/2
- 4E

57 of 100
170 PU_2015_304
Which of the following requirements is necessary for fast communication,

- Higher transmitter power
- Higher channel Capacity
- Larger Bandwidth
- High S/N ratio

58 of 100
164 PU_2015_304
The IEEE 802.15.4 standard is used to specify_____ technology.

- WBAN
- Bluetooth
- ZigBee
- UWB

59 of 100
173 PU_2015_304

Consider a single error correcting (7,4) cyclic code with the generator matrix $g(x) = x^3 + x^2 + 1$ .What will be the transmitted data if received vector is 1101101?

- 1100
- 1010
- 1110
- 0001

60 of 100
106 PU_2015_304
The product of two complex numbers 1 + *i and* 2 - 5*i* is:-

- 7 + 3i
- -3 - 4i
- 3 - 4i
- 7- 3i

61 of 100

253 PU_2015_304

A 12bit ADC is operating with a 1μs clock period and the total conversion time is seen to be 14 μs. The ADC must be of the:-

- Successive Approximation Type
- Integrating Type
- Counting Type
- Flash Type

62 of 100

233 PU_2015_304

A transmitted using AM has in modulated carrier output power of 10 kW and can be modulated to a maximum depth of 90% by a sinusoidal modulating voltage without causing overloading. Find the value to which an modulated carrier power can be increased without resulting in overloading if the maximum permitted modulating index is 40%:-

- 14 kW
- 26.96 kW
- 2.96 kW
- 12.96 kW

63 of 100

251 PU_2015_304

A signal of maximum frequency of 10 kHz is sampled at Nyquist rate. The time interval between two successive samples is:-

- 100 μs
- 1000 μs
- 50 μs
- 500 μs

64 of 100

232 PU_2015_304

A 10 km long line has a characteristic impedance of 400 ohms. If line length is 100 km, the characteristic impedance is:-

- 400 Ω
- 40 Ω
- 4 Ω
- 4000 Ω

65 of 100

228 PU_2015_304

A (75 - j 40) Ω load is connected to a co-axial line of Z_0 = 75 Ω at 6 MHz. The load matching on the line can be accomplished by connecting:-

- an inductance at the load
- a short circuit stub at the load

- a short circuit stub at a specific distance from the load
- a capacitance at a specific distance from the load

66 of 100
252 PU_2015_304

An npn transistor with C=0.3 pF has a unity gain cut-off frequency f_T of 400 MHz at a dc bias current I_c=1 mA and V_T=26 mV. The value of its Cμ is approximately:-

- 50 pF
- 15 pF
- 30 pF
- 96 pF

67 of 100
250 PU_2015_304
The power content of a sideband of an AM wave with 60% modulation is 720 W. If the modulation is increased to 80%, then sideband power will become:-

- 1280 W
- 460 W
- 960 W
- 540 W

68 of 100
230 PU_2015_304
A transmission line is feeding 1 watt of power to a horn antenna having a gain of 10 dB. The antenna is matched to the transmission line. The total power radiated by the horn antenna into the free space is:-

- 75 W
- 100 W
- 10 W
- 1 W

69 of 100
222 PU_2015_304
If for a matrix, rank equals both the number of rows and number of columns, then the matrix is called:-

- singular
- minor
- non-singular
- transpose

70 of 100

249 PU_2015_304

If an 18 MHz band were to be considered for use with the same standards that apply to the 88 -108 MHz FM broadcast band, how many FM stations could be accommodated?

- 23
- 325
- 45
- 120

71 of 100

235 PU_2015_304

A loss less line of characteristic impedance Z_0 is terminated in pure reactance of $-jZ_0$ its VSWR is:-

- 0
- ∞
- 1.5
- 1

72 of 100

248 PU_2015_304

The auto correlation function for the function $x(t) = V \sin \omega t$ is given by:-

- $V^2 \cos^2 \omega t$
- $\frac{V^2 \cos \omega t}{2}$
- $V^2 \cos \omega t$
- $2V^2 \cos \omega t$

73 of 100

229 PU_2015_304

The depth of penetration of EM wave in medium having conductivity σ at a frequency of 1 MHz is 25 cm. The depth of penetration at a frequency of 4 MHz will be:-

- 12.5 cm
- 50 cm
- 25 cm
- 6.25 cm

74 of 100

254 PU_2015_304

The number of distinct Boolean expressions of 4 variables is:-

- 65536
- 256
- 16
- 1024

75 of 100

234 PU_2015_304

A 3 m long lossless air-filled transmission line has a characteristic impedance of 120 Ω, that is terminated by short circuit, and is excited with a frequency of 37.5 MHz. What is the nature of the input impedance (Zin)?

- Inductive
- Open
- Short
- Capacitive

76 of 100

231 PU_2015_304

A certain fiber-optic cable has the following characteristics: $n_1 = 1.82$ and $n_2 = 1.73$. What is the value of θ_c?

- 81.90°
- 71.90°
- 61.90°
- 91.90°

77 of 100

255 PU_2015_304

A 4 bit ripple counter and a 4 bit synchronous counter are made using flips flops having a propagation delay of 10 ns each. If the worst case delay in the ripple counter and the synchronous counter be R and S respectively, then:-

- R=10 ns ; S=40 ns
- R=20 ns ; S=30 ns
- R=30 ns ; S=20 ns
- R=40 ns ;S=10 ns

78 of 100

243 PU_2015_304

The library function used to find the last occurrence of a character in a string is:-

- strnstr( )
- laststr( )
- strrchr( )

- strstr( )

79 of 100

220 PU_2015_304

A body originally at 60^{o} cools down to 40^{o} in 15 minutes when kept in air at a temperature of 25^{o}C.What would be the temperature of the body at the end of 30 minutes?

- 35.2^{o}C
- 28.7^{o}C
- 31.5^{o}C
- 15^{o}C

80 of 100

227 PU_2015_304

The minimum required bandwidth for transmission of n signals, each band-limited to fm Hz is:-

- f_m /2n Hz
- f_mHz
- 2n f_m Hz
- f_m/2Hz

81 of 100

284 PU_2015_304

The noise figure of a radar receiver is 12 dB and its bandwidth is 2.5 MHz. The value of P_{min} for the radar will be:-

- $1.59x10^{-9}$ W
- $1.59x10^{-17}$ W
- $1.59x10^{-13}$ W
- $1.59x10^{-15}$ W

82 of 100

276 PU_2015_304

The radiation resistance of a circular loop of one turn is 0.01Ω. The radiation resistance of five turn of such a loop will be:-

- 0.52 Ω
- 0.05 Ω
- 0.15 Ω
- 0.25 Ω

83 of 100

265 PU_2015_304

A current of 2 A flows for 10 hour through a 100 ohm resistor. The energy consumed by the resistor is:-

- 2 kWh
- 0.5 kWh
- 4 kWh

- 0.02 kWh

84 of 100

275 PU_2015_304

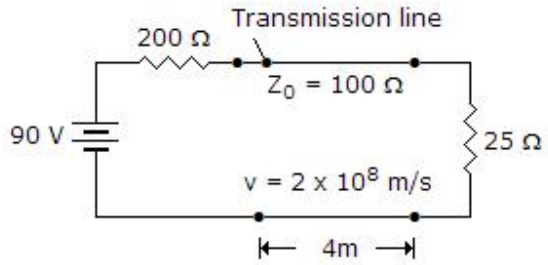
The bit rate of a digital communication system is R kbps. The modulation used is 32-QAM. The minimum bandwidth required for ISI free transmission is:-

- R/5 kHz
- R/5 Hz
- R/10 kHz
- R/10 Hz

85 of 100

274 PU_2015_304

In the given figure reflection coefficient at load is:-



- -0.5
- -0.6
- 0.6
- 0.5

86 of 100

269 PU_2015_304

For a series RLC circuit energized with a sinusoidal voltage source of frequency 4 rad / sec, the applied voltage lags the current by an angle of $\tan^{-1}2°$. Then the value of R for L = 1H and C = 0.05 F is:-

- 0.25 Ω
- 1 Ω
- 0.1 Ω
- 0.5 Ω

87 of 100

277 PU_2015_304

In BiCMOS inverters, the design approach is to use:-

- MOS - Logic BIPOLAR – Driving
- MOS – Logic & Driving BIPOLAR - Switching
- MOS - Driving BIPOLAR – Logic

- None of the above

88 of 100

273 PU_2015_304

A hollow rectangular waveguide has dimensions of *a* = *2b*. Calculate the amount of attenuation, if the frequency is 3 GHz, and b = 1 cm.

- 47.33 dB
- 50 dB
- 49 dB
- 50.33 dB

89 of 100

270 PU_2015_304

ZL = 200 Ω and it is desired that Zi = 50 Ω The quarter wave transformer should have a characteristic impedance of:-

- 75 Ω
- 100 Ω
- 50 Ω
- 25 Ω

90 of 100

290 PU_2015_304

Consider the following devices:-

1. RTL
2. High Speed TTL
3. ECL
4. CMOS

The correct sequence of their decrease in power dissipation is:-

- 1, 3, 2, 4
- 3, 1, 4, 2
- 3, 2, 4, 1
- 3, 1, 2, 4

91 of 100

294 PU_2015_304

The depth of penetration of electromagnetic wave in a medium having conductivity σ at a frequency of 1 MHz is 25 cm. The depth of penetration at a frequency of 4 MHz will be:-

- 6.25 cm
- 50 cm
- 100 cm
- 12.5 cm

92 of 100

292 PU_2015_304

The peak to peak input to an 8-bit PCM coder is 2 volts. The signals power-to- quantization noise power ratio (in dB) for an input of 0.5coswmt is:-

- 49.8
- 95.6
- 47.8
- 99.6

93 of 100

285 PU_2015_304

Determine the power content of the carrier of an AM signal that has a percent modulation of 85% and contains 1200 W total power:-

- 402.5 W
- 20.4 W
- 881.5 W
- 48.7 W

94 of 100

287 PU_2015_304

Consider a cellular system which has a total of S duplex channels available for use. If each cell is allocated a group of K channels (K < S) and if the S channels are divided among N cells then the total number of available radio channels can be expressed as:-

- $S = \frac{K}{N}$
- $S = \frac{N}{K}$
- S = KN
- S = K+N

95 of 100

268 PU_2015_304

A circuit of resistance R ohm and inductance L Hendry has a direct voltage applied to it. The current has a direct voltage applied to it. The current reaches 3.2% of its steady state value of 1 mA in 1 second. After the current has reached its final steady state value the circuit is suddenly short circuited. What will be the current after 2 seconds?

- 0.27 mA
- 0.47 mA
- 0.17 mA
- 0.37 mA

96 of 100

293 PU_2015_304

The skin depth at 10 MHz for a conductor is 1 cm. The phase velocity of an electromagnetic wave in the conductor at 1000 MHz is about:-

- $6x10^6$ m/sec
- $6x10^7$ m/sec
- $3x10^7$ m/sec
- $3x10^8$ m/sec

97 of 100

291 PU_2015_304

A zero mean white Gaussian noise passed through an idle low pass filter of bandwidth 10 kHz. The output is uniformly sampled with sampling period t_s=0.03m/sec. The samples so obtained would be:-

- Uncorrelated
- Statistically dependent
- Correlated
- Orthogonal

98 of 100

266 PU_2015_304

In a RLC series circuit consisting V_R = 3 V, V_C = 8 V and V_L = 4 V, Find the value of source excitation voltage?

- 4
- 3
- 9
- 5

99 of 100

286 PU_2015_304

A 5 kHz audio tone is used to modulate a 50MHz carrier causing a frequency deviation of 20 kHz. The modulation index of the FM signal is:-

- 5
- 3
- 6
- 4

100 of 100

267 PU_2015_304

An electric circuit consists a resistance 10 kΩ and a capacitor 1 μF. What is the transient voltage across the resistor and capacitor after 5 sec. if 200 V DC is applied to the circuit?

- 121.306 V, -121.306 V
- -242.612 V, 242.612 V
- 242.612 V, - 242.612 V
- -121.306 V, 121.306 V

304 PU M.Tech Electronics & Communication Engineering

1 of 100
212 PU_2016_304_E
TWT is _____.

- Wide band Amplifier
- Oscillator
- Tuned Amplifier
- Both amplifier and Oscillator

2 of 100
207 PU_2016_304_E
The current gain of a PNP transistor is:-

- The ratio of collector current to base current.
- The collector current divided by the emitter current.
- The negative of the NPN current gain.
- Near zero.

3 of 100
219 PU_2016_304_E
The maximum power efficiency of an AM modulator is:-

- 100%
- 50%
- 75%
- 25%

4 of 100
188 PU_2016_304_E
Which of the following layer is not in OSI layer?

- Data link layer
- Physical layer
- Transport layer
- Internet layer

5 of 100
198 PU_2016_304_E
In an electromagnetic wave, the phase difference between electric and magnetic field vectors E and B is:-

- π
- zero
- π/ 2

- π /4

6 of 100

218 PU_2016_304_E

A device used for coupling microwave energy is known as:-

- Loop
- Resonator
- Transmitter
- Waveguide

7 of 100

151 PU_2016_304_E

Which transmission media has the highest transmission speed in a network:-

- Electrical cable
- Coaxial cable
- Twisted pair cable
- Optical fibre

8 of 100

167 PU_2016_304_E

The impulse response of a LTI system is a unit step function, then the corresponding transfer function is:-

- $\frac{1}{s^2}$
- $\frac{1}{s}$
- s
- 1

9 of 100

138 PU_2016_304_E

Which of the following technology results in least power dissipation?

- ECL
- NMOS
- TTL
- CMOS

10 of 100

104 PU_2016_304_E

e^z is periodic with a period of:-

- iπ
- π

- 2π
- 2πi

11 of 100

176 PU_2016_304_E

The next number in the sequence 3, 6, 11, 18 ,27 is:-

- 40
- 36
- 34
- 38

12 of 100

191 PU_2016_304_E

In asymmetric key cryptography, the private key is kept by:-

- Sender
- Receiver
- All the connected devices to the network
- Sender and receiver

13 of 100

111 PU_2016_304_E

Thermal runaway will take place if the quiescent point is such that:-

- $V_{CE} > \frac{1}{2} V_{CC}$
- $V_{CE} < 0.25\ V_{CC}$
- $V_{CE} > 0.25\ V_{CC}$
- $V_{CE} < \frac{1}{2} V_{CC}$

14 of 100

142 PU_2016_304_E

In a microprocessor, the register which holds the address of the next instruction to be fetched is:-

- Instruction register
- Accumulator
- Program counter
- Stack pointer

15 of 100

148 PU_2016_304_E

The time required for a satellite to make a complete trip around the earth is determined by:-

- Kepler's law
- Faraday's law

- Newton's law
- Ohm's law

16 of 100

181 PU_2016_304_E

A radio communication link is to be established via the ionosphere. The virtual height at the midpoint of the path is 300Km and the critical frequency is 9MHz. the maximum usable frequency for the link between the stations of distance 800Km assuming flat earth is:-

- 25MHz
- 12MHz
- 25.5MHz
- 15MHz

17 of 100

146 PU_2016_304_E

In a TDM system each signal is allotted in a frame with a unique and fixed:-

- Phase slot
- Time slot
- Amplitude slot
- Frequency slot

18 of 100

211 PU_2016_304_E

Reflex Klystron is a _____.

- Oscillator
- Amplifier
- Filter
- Attenuator

19 of 100

172 PU_2016_304_E

If the Laplace transform of a signal y(t) is Y(s)= 1/(s(s-1)), then its final value is:-

- Unbounded
- 1
- -1
- 0

20 of 100

186 PU_2016_304_E

Which of the following is not applicable for IP?

- Error reporting

- Handle addressing conventions
- Packet handling conventions
- Datagram format

21 of 100

131 PU_2016_304_E

The power spectral density of white noise is:-

- Band limited
- Constant
- Band passed
- Impulse

22 of 100

197 PU_2016_304_E

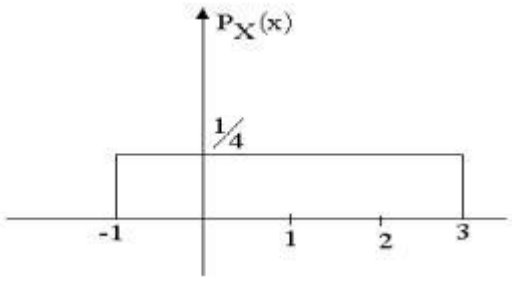
The intrinsic impedance of free space is:-

- 120 πohm
- 377ohm
- 75 ohm
- 73 ohm

23 of 100

217 PU_2016_304_E

For a random variable x having the PDF as shown in below Figure the mean and the variance are,



respectively:-

- 1 and 2/3
- 1 and 4/3
- 1/2 and 2/3
- 2 and 4/3

24 of 100

161 PU_2016_304_E

Simple Mail Transfer Protocol (SMTP) utilizes _____ as the transport layer protocol for electronic mail transfer.

- SCTP

- UDP
- DCCP
- TCP

25 of 100

171 PU_2016_304_E

A system with an input x(t) and output y(t) is described by the relation: y(t)=t x(t).This system is:-

- Linear and time varying
- Linear and time-invariant
- Non-linear and time-varying
- Non-linear and time-invariant

26 of 100

147 PU_2016_304_E

In _____ handoff, a mobile station communicates with one base station.

- Moving
- Medium
- Soft
- Hard

27 of 100

107 PU_2016_304_E

The expression curl(grad f) where f is a scalar function is:-

- A scalar of zero magnitude
- Equal to div (grad f)
- A vector of zero magnitude
- Equal to $\nabla^2 f$

28 of 100

141 PU_2016_304_E

An instruction used to set the carry flag in a computer can be classified as:-

- Data transfer
- Program control
- Logical
- Arithmetic

29 of 100

137 PU_2016_304_E

In PCM, the quantization noise depends on:-

- Bandwidth

- Sampling rate
- Number of quantization levels
- Signal power

30 of 100

132 PU_2016_304_E

The message signal contains three frequencies 5 KHz, 10 KHz and 20 KHz respectively. The bandwidth of the AM signal is:-

- 30KHz
- 10 KHz
- 20KHz
- 40 KHz

31 of 100

122 PU_2016_304_E

Which of the following is not bilateral:-

- Inductor
- Capacitor
- Diode
- Resistor

32 of 100

206 PU_2016_304_E

An SCR is considered to be a semi controlled device because:-

- Only during one half cycle of an alternating current wave.
- It can be turned ON only during one half cycle of an AC
- It can be turned ON but not OFF with a gate pulse.
- It can be turned OFF but not ON with a gate pulseit conducts.

33 of 100

126 PU_2016_304_E

When load impedance equals to Z_0 of the line, it means that the load _____ all the power.

- Reflects
- attenuates
- Absorbs
- radiates

34 of 100

216 PU_2016_304_E

Communication in the traditional cable TV network is:-

- omnidirectional
- bidirectional.
- No direction
- unidirectional

35 of 100

177 PU_2016_304_E

PDF in histogram equalization stands for:-

- Probability density function
- Partial density function
- Parametric density function
- Probability dual function

36 of 100

112 PU_2016_304_E

The upper cut-off frequencies f_{21} and f_{22} of the two stages of a cascaded amplifier are respectively 5 MHz and 3.3 MHz. The equivalent upper cut-off frequency of the cascaded amplifier would be:-

- 2 MHz
- 4.16 MHz
- 5 MHz
- 3.33 MHz

37 of 100

208 PU_2016_304_E

Voltage Series feedback (also called series-shunt feedback) results in:-

- Decreases in both input & output impedances.
- Increase in input impedance & decreases in output impedances.
- Decrease in input impedance & increase in output impedance.
- Impedance Increase in both input & output impedances.

38 of 100

106 PU_2016_304_E

The inverse Laplace transform of $\frac{1}{(s^2 + 2s)}$ is:-

- $(1 + e^{+2t}) / 2$
- $(1 - e^{+2t}) / 2$
- $(1 - e^{-2t}) / 2$
- $(1 - e^{-2t})$

39 of 100

152 PU_2016_304_E
Which layer links the network support layers and user support layers:-

- Network layer
- Session layer
- Data link layer
- Transport layer

40 of 100

201 PU_2016_304_E
The multivibrator characterized by one quasi-stable state is:-

- Astable multivibrator
- Monostable multivibrator
- Schmitt trigger
- Bistable multivibrator

41 of 100

166 PU_2016_304_E
Solar cell works based on:-

- Photo-conduction
- Thermal emission
- Tyndall effect
- Laser technology

42 of 100

102 PU_2016_304_E
A hydraulic structure has four gates which operate independently. The probability of failure of each gate is 0.2.Given that gate 1 has failed, the probability that both gates 2 and 3 will fail is:-

- 0.040
- 0.200
- 0.240
- 0.008

43 of 100

178 PU_2016_304_E
Let the peak power be 10,00,000 W and average power be 800 W. The duty cycle will be:-

- 8 %
- 0.008%
- 0.08%
- 0.8%

44 of 100

162 PU_2016_304_E

In a klystron amplifier the input cavity is called:-

- Buncher
- Catcher
- Collector
- Pierce gun

45 of 100

196 PU_2016_304_E

For a line of characteristic impedance, Z_o terminated in a load, Z_R such that $Z_R > Z_O$, the Voltage Standing Wave Ratio (VSWR) is given by:-

- $Z_R * Z_o$
- Z_R
- Z_R / Zo
- Zo / Z_R

46 of 100

103 PU_2016_304_E

X is uniformly distributed random variable that take values between 0 and 1.The value of E (X^3) will be:-

- ½
- 0
- 1/4
- 1/8

47 of 100

121 PU_2016_304_E

A branch of a network is said to be passive when it contains:-

- Current source
- Battery
- Voltmeter
- Voltage source

48 of 100

117 PU_2016_304_E

The minimum number of MOS transistors required to make dynamic RAM cell is:-

- 1
- 3
- 2
- 4

49 of 100
192 PU_2016_304_E
A _____ is a program that can infect other programs by modifying them, the modification includes a copy of the virus program, which can go on to infect other programs.

- Trap doors
- Zombie
- Worm
- Virus

50 of 100
168 PU_2016_304_E
If the transfer function of a first-order system is $G(s) = \frac{1}{(s+6)}$, then the time constant of the system is:-

- $\frac{1}{4}$
- $\frac{1}{8}$
- $\frac{1}{6}$
- $\frac{1}{2}$

51 of 100
187 PU_2016_304_E
Error detection at data link layer is achieved by:-

- Cyclic redundancy codes
- Hamming code
- Equalization
- Bit stuffing

52 of 100
156 PU_2016_304_E
Which of the following is not applicable to IP protocol:-

- Datagram format
- Handling address conventions
- Packet handling conventions
- Error reporting

53 of 100
127 PU_2016_304_E
The energy that neither radiated into space nor completely transmitted is:-

- Incident waves

- Standing waves
- Reflected waves
- Captured waves

54 of 100

157 PU_2016_304_E

What should be the flag value to indicate the last fragment:-

- 2
- 3
- 1
- 0

55 of 100

158 PU_2016_304_E

The size of IP address in IPv6 is:-

- 8 bits
- 100 bits
- 128 bits
- 4 bits

56 of 100

136 PU_2016_304_E

The PDM signal is converted into PPM with the help of a:-

- Flip-flop
- Astable
- Timer
- Monostable

57 of 100

202 PU_2016_304_E

In 8255, under the I/O mode of operation, we have _____ modes.

- 3
- 2
- 1
- 4

58 of 100

105 PU_2016_304_E

The value of the expression $\frac{-5+i10}{3+4i}$

- 1 + 2i
- 2 + i
- 2 - i
- 1 - 2i

59 of 100

116 PU_2016_304_E

The number of distinct Boolean expressions of 4 variables is:-

- 16
- 65536
- 1024
- 256

60 of 100

182 PU_2016_304_E

For global communication, minimum number of satellite required is _____.

- seven
- three
- eleven
- one

61 of 100

258 PU_2016_304_M

ALE line of an 8085 microprocessor is used to_____.

- Execute the instruction supplied by external device
- Execute a NOP
- Execute RST by a hardware
- Execute an instruction from a memory location 20H

62 of 100

254 PU_2016_304_M

Write the Output for the program given below:

```
void main()
{
int a ,b;
a=1,b=2;
if(a++<=1&&b++>2)
printf ("hello a=%d b=%d", a, b);
else
printf (" welcome a=%d b=%d", a, b);
}
```

- hello a = 2 b = 3
- welcome a = 2 b = 3
- a = 3 b = 4
- a = 2 b = 3

63 of 100

257 PU_2016_304_M

For the 8085 assembly language program given below, the content of the accumulator after the execution of the program is

```
3000 MVI   A, 54H
3002 MOV   B, A
3003 STC
3004 CMC
3005 XRA   B
```

- 7EH
- 44H
- E7H
- 54H

64 of 100

224 PU_2016_304_M

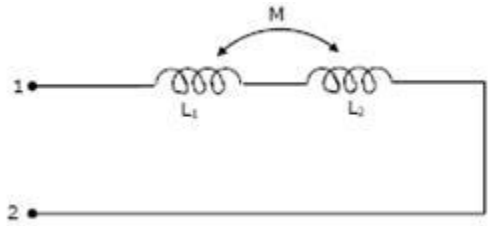
The voltages across R and L in a series RL circuit are found to be 200 V and 150 V respectively. The rms value of the voltage across the series combination is:-

- 250
- 360
- 200
- 450

65 of 100

242 PU_2016_304_M

The equivalent inductance measured between the terminals 1 and 2 for the circuit shown in figure, is:-



- $L_1 + L_2 - 2M$
- $L_1 + L_2 + 2M$
- $L_1 + L_2 + M$
- $L_1 + L_2 - M$

66 of 100

253 PU_2016_304_M

Predict the output for the program given below.

```
main()
{
    float me = 1.1;
    double you = 1.1;
    if(me==you)
            printf("Welcome to C");
    else
            printf("Welcome to C++");
}
```

- C++
- C
- Welcome to C++
- Welcome to C

67 of 100

237 PU_2016_304_M

Light is confined within the core of simple optical fibre by:-

- Total internal reflection at the core cladding boundary
- Refraction

- Total internal reflection at the outer edge of the cladding
- Reflection from fibre's plastic coating

68 of 100

228 PU_2016_304_M

A long wire composed of a smooth round conductor runs above and parallel to the ground. A high voltage exists between the conductor and the ground. The maximum electric stress occurs at:-

- The lower surface of the conductor
- The ground surface
- Midway between the conductor and the ground
- The upper surface of the conductor

69 of 100

222 PU_2016_304_M

The system $y(n) = 2x(2^n)$ is _____.

- Time - variant and non-causal
- Time -invariant and non-causal
- Time -invariant and causal
- Time -variant and causal

70 of 100

232 PU_2016_304_M

The bandwidth required for transmitting 4KHz signal using PCM with 128 quantizing levels is:-

- 24 KHz
- 28 KHz
- 8 KHz
- 16 KHz

71 of 100

248 PU_2016_304_M

If $f(x, y) = x^2+y^2 + 6x + 12$ then minimum value f(x, y) is:-

- -3
- 3
- 0
- 6

72 of 100

238 PU_2016_304_M

The type of light source and the fibre chosen for FDDI networks are:-

- Single mode fibre and 1550 nm lasers

- Multi mode fibre and 1300 nm lasers
- Single mode fibre and 1300 nm lasers
- Multi mode fibre and 1300 nm LED's

73 of 100

244 PU_2016_304_M

An independent voltage source in series with an impedance $Z_s = R_s + jX_s$ delivers a maximum average power to a load impedance Z_L when:-

- $Z_L = R_s + jX_s$
- $Z_L = R_s - jX_s$
- $Z_L = R_s$
- $Z_L = jX_s$

74 of 100

233 PU_2016_304_M

The noise margin of a TTL gate is about:-

- 0.4 V
- 0.2 V
- 0.8 V
- 0.6 V

75 of 100

223 PU_2016_304_M

A system with an input x(t) and output y(t) is described by the relation: y(t)=t x(t).This system is:-

- Non-linear and time-varying
- Linear and time varying
- Non-linear and time-invariant
- Linear and time-invariant

76 of 100

252 PU_2016_304_M

Predict the output for the program given below:

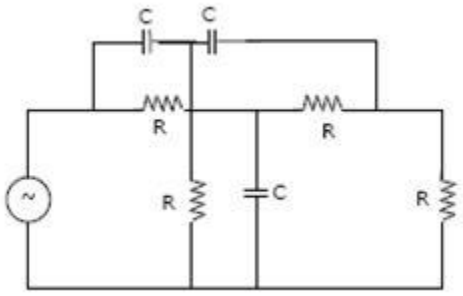
```
void main()
{
        Int a.b;
        a=10, b=5;
        a=a++ + ++b;
        b=b++ + ++a;
        printf ("a=%d b=%d", a, b);
}
```

- a = 16 b = 22
- a = 25 b = 18
- a = 17 b = 24
- a = 18 b = 25

77 of 100

243 PU_2016_304_M

The minimum number of equations required to analyze the circuit shown in figure is:-



- 4
- 7
- 6
- 3

78 of 100

247 PU_2016_304_M

The value of 'c' of Rolle's theorem for $f(x) = \frac{sinx}{e^x}$ in (0, π) is:-

- π

- $\frac{\pi}{3}$
- $\frac{\pi}{2}$
- $\frac{\pi}{4}$

79 of 100

227 PU_2016_304_M

The internal impedance of a source is 3 + j4Ω .It is desired to supply maximum power to a resistive load. The load resistance should be:-

- 5 Ω
- 4 Ω
- 3 Ω
- 7 Ω

80 of 100

234 PU_2016_304_M

What is the frequency range of 802.11a standard:-

- 5 Gbps
- 2.4 Gbps
- 2.4 GHz
- 5 GHz

81 of 100

284 PU_2016_304_D

A graded index fibre has a core with a parabolic refractive index profile which has a diameter of 50 μm. The fibre has a numerical aperture of 0.2. Estimate the total number of guided modes propagating in the fibre when it is operating at a wavelength of 1 μm.

- 256
- 125
- 147
- 247

82 of 100

266 PU_2016_304_D

A step voltage E is applied to an R-L series circuit. At t = 0, the current in the circuit is:-

- E/R
- E/L
- Zero
- Infinity

83 of 100

298 PU_2016_304_D

Maximum gain of antenna using an illuminated 6 feet parabolic reflector used at 6MHz will be:-

- 1008
- 8050
- 950
- 428

84 of 100

290 PU_2016_304_D

Radiation resistance of a monopole of height h=1/2 approximately equals:-

- $400(h\lambda)^2$
- $100\ (h/\lambda)^2$
- $400\ (h/\lambda)^2$
- $400(\lambda/h)^2$

85 of 100

268 PU_2016_304_D

An 8-bit microcontroller has an external RAM with memory map from 8000H to 9FFFH.The number of bytes this RAM can store is:-

- 8192
- 8000
- 8193
- 8191

86 of 100

278 PU_2016_304_D

The bit rate of a digital communication system is X Kbits/s. The modulation used is 32-QAM. The minimum bandwidth required for ISI free transmission is:-

- $\frac{X}{32}$
- $\frac{X}{5}$
- $\frac{X}{10}$
- $\frac{X}{2}$

87 of 100

295 PU_2016_304_D

The pinch off voltage for a n-channel JFET is 4 V, when V_{GS} = 1V,the pinch off occurs for V_{DS} equals to:-

- 5 V

- 3 V
- 4 V
- 1 V

88 of 100

288 PU_2016_304_D

The radiation resistance of a λ/16 wire dipole in free space will be nearly:-

- 3Ω
- 30Ω
- 13Ω
- 1Ω

89 of 100

276 PU_2016_304_D

If E_b, the energy per bit of a binary digital signal is10^{-5} watt-sec and the one-sided power spectral density of the white noise, $N_0 = 10^{-6}$W/Hz, then the output SNR of the matched filter is:-

- 20 dB
- 26 dB
- 10 dB
- 13 dB

90 of 100

274 PU_2016_304_D

c(t) and m(t) are used to generate an AM signal. The modulation index of generated AM signal is 0.5. Then the total quantity $\frac{\text{side band power}}{\text{carrier power}}$ is:-

- 1/6
- 1/8
- 1/4
- 1/2

91 of 100

293 PU_2016_304_D

The frequency of a continuous time signal x (t) changes on transformation from x (t) to x (a, t), a > 0 by a factor:-

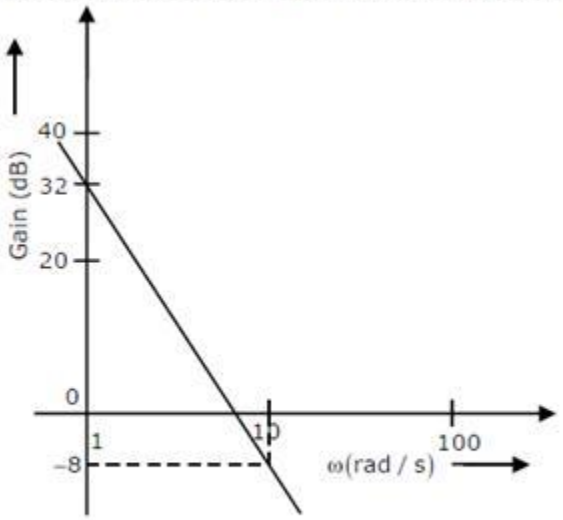
- α
- 1-α
- 1/α

- α^2

92 of 100

283 PU_2016_304_D

The Bode plot of a transfer function G (s) is shown in the figure below.



The gain (20 log G(s)) is 32 dB and −8 dB at 1 rad /s and 10 rad /s respectively, The phase is negative for all w. The G(s) is

- $\frac{32}{s}$
- $\frac{39.8}{s}$
- $\frac{39.8}{s^2}$
- $\frac{32}{s^2}$

93 of 100

273 PU_2016_304_D

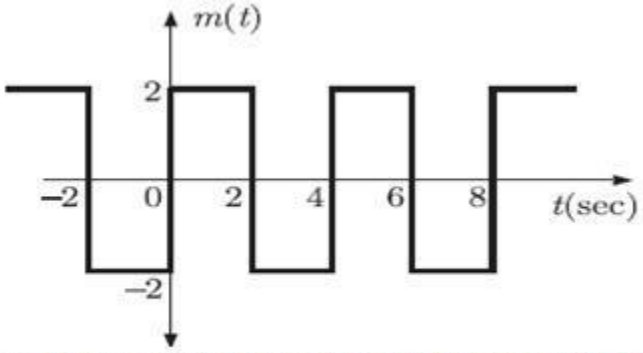
Four signals each band limited to 5 KHz, 10KHz, 10KHz, 10KHz are transmitted to a channel simultaneously after modulation the modulation used as AM,DSB-SC,SSB-SC and SSB-SC respectively assume the guard period 2KHz. Determine the bandwidth of multiplexed signal.

- 60KHz
- 50KHz
- 56KHz
- 40KHz

94 of 100

280 PU_2016_304_D

The signal m(t) as shown is applied to both a phase modulator (with $k_p$as the phase constant) and a frequency modulator (with $k_f$as the frequency constant) having the same carrier frequency.



The ratio k_p/k_f(in rad/Hz) for the same maximum phase deviation is

- π
- 8π
- 2π
- 4π

95 of 100

264 PU_2016_304_D

A recursive filter is described by $y(n) = 0.7\,y[n-1] - 0.3\,y[n-2] - 6x[n-1]$.

The static gain of the filter is:-

- 0
- 10
- 20
- 1

96 of 100

270 PU_2016_304_D

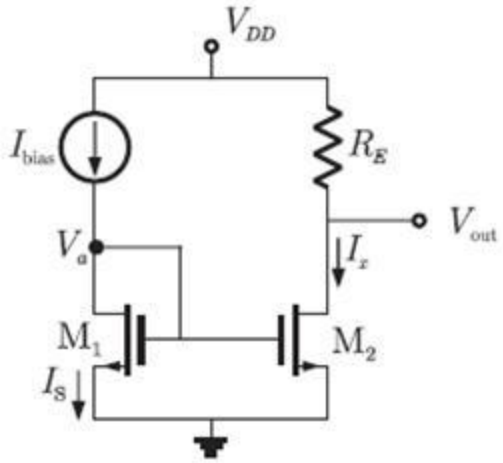
The number of comparators in a 4-bit flash ADC is:-

- 5
- 16
- 15
- 4

97 of 100

286 PU_2016_304_D

For the circuit shown in the following figure, transistor M_1 and M_2 are identical NMOS transistors. Assume the M2 is in saturation and the output is unloaded.



The current I_x is related to I_{bias} as _____.

- $I_x = I_{bias} - I_S$
- $I_x = -I_{bias}$
- $I_x = I_{bias}$
- $I_x = I_{bias} + I_S$

98 of 100

294 PU_2016_304_D

A quarter wave transformer matches a 100 ohm load to a transmission line with L=1.35 μH/m and C=60 pFm. The characteristic impedance of matching transformer is:-

- 122.5 Ω
- 150 Ω
- 275 Ω
- 300 Ω

99 of 100

275 PU_2016_304_D

A signal is sampled at 8 kHz and is quantized using 8 - bit uniform quantizer Assuming SNR_q for a sinusoidal signal, the correct statement for PCM signal with a bit rate of R is:-

- R = 32 kbps, SNR_q = 49.76 dB
- R = 64 kbps, SNR_q = 49.76 dB
- R = 64 kbps, SNR_q = 49.8 dB

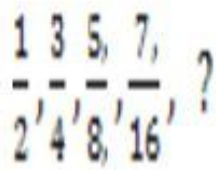
- R = 32 kbps, SNR_q = 25.8 dB

100 of 100

260 PU_2016_304_D

The fundamental period of $x(n) = e^{j0.2n\pi} + e^{-j0.3n\pi}$ is:-

- 30
- 10
- 20
- 40

Sr No.	MTech Electronics & Communication Engineering
1	Which fraction comes next in the sequence
	
Alt1	9/32
Alt2	10/17
Alt3	11/34
Alt4	12/35

2	Choose the missing term out of the given options: Ac__cab__baca__aba__acac
Alt1	aacb
Alt2	acbc
Alt3	babb
Alt4	bcbb

3	Leaf is related to Sap in the same way as Bone is related……?.....
Alt1	Fluid
Alt2	Blood
Alt3	Marrow
Alt4	Calcium

4	Select the lettered pair that has the same relationship as the original pair of words: Rotate: Gyrate
Alt1	Putrefy: Reject
Alt2	Anachronism: Cubism
Alt3	Accolade: Criticism
Alt4	Absolve: Exonerate

5	Choose the alternative, which is similar to the given words: Liver : Heart : Kidney
Alt1	Blood
Alt2	Nose
Alt3	Lung
Alt4	Urine

6	Spot the defective segment from the following:
Alt1	The more you read
Alt2	the more will you
Alt3	get to know
Alt4	about more things

7	Choose the meaning of the idiom/phrase from among the options given: A rainy day
Alt1	a holiday
Alt2	a difficult time
Alt3	a fine day
Alt4	a wet day

8	The villagers plan to ------- the elections in protest.
Alt1	avoid
Alt2	ignore
Alt3	neglect
Alt4	boycott

9	Choose the option closest in meaning to the given word: PUERILE
Alt1	vulgar
Alt2	perverse
Alt3	childish
Alt4	young

10	Choose the antonymous option you consider the best: OBTUSE
Alt1	fast
Alt2	sharp
Alt3	reliable
Alt4	lucid

11	In a Cricket tournament, each of the six teams will play every other term exactly once during the league phase. How many matches will be played during the league phase in total ?
Alt1	12
Alt2	36
Alt3	15
Alt4	24

12	A walks 10 metres in front and 10 metres to the right. The every time turning to his left, he waks 5, 15 and 15 metres respectively. How far is he now from the starting point ?
Alt1	15 metres
Alt2	5 metres
Alt3	10 metres
Alt4	30 metres

13	The sum of the income of A and B is more than that of C and D taken together. The sum of the income of A and C is the same as that of b and D taken together. Moreover, A earns half as much as the sum of the income of b and D. Whose income is he highest ?
Alt1	A
Alt2	B

Alt3	C
Alt4	D

14	Five boys A, B, C, D and E are seated on a bench. A is to the left of C. b is to the immediate right of D and there are two people between C and D. E is to the extreme right of the row. Who is exactly at the middle of this group ?
Alt1	A
Alt2	B
Alt3	C
Alt4	E

15	A man is facing south. He turns 1350 in the anticlockwise direction and then 1800 in the clockwise direction. Which direction is he facing now?
Alt1	North East
Alt2	North West
Alt3	South East
Alt4	South West

16	Find the number which when added to itself 17 times becomes 126.
Alt1	13
Alt2	7
Alt3	9
Alt4	18

17	Ravi is exactly 9999 days old today. How old is he?
Alt1	27
Alt2	28
Alt3	26
Alt4	29

18	A Maths teacher usually has 21 students in his class. A,B & C are asleep. D&E are in the bathroom and the teacher has sent F&G to the principal's office. How many students are left in the classroom?
Alt1	18
Alt2	19
Alt3	15
Alt4	17

19	JIPMER is coded as 589142; AIPMT is coded as 78910; Then JEE is coded as
Alt1	910
Alt2	544
Alt3	789
Alt4	914

20	Mr. Arvind drove 90 km at 30 kmph and then an additional 90 km at 45 kmph. What is his average speed over his 180 km ?
Alt1	37.5 kmph
Alt2	35 kmph
Alt3	36 kmph
Alt4	38 kmph

21	A PLA can be used:-
Alt1	As a microprocessor
Alt2	To realize a combinational logic
Alt3	To realize a sequential logic
Alt4	As a dynamic memory

22	The most commonly used filters in SSB generation are _____.
Alt1	Low pass
Alt2	RC
Alt3	LC
Alt4	High pass

23	What determines antenna polarization?
Alt1	The direction of the magnetic field vector
Alt2	The direction of the electric field vector
Alt3	The frequency of the radiated wave
Alt4	The direction of the radiated wave

24	The input $x(t)$ and output $y(t)$ of a system are related as $y(t) = \int_{-\infty}^{t} x(\tau)\cos(5\tau)\,d\tau$. The system is:-
Alt1	stable and not time-invariant
Alt2	not time-invariant and not stable
Alt3	time-invariant and stable
Alt4	time-invariant and not stable

25	If E is the Electric field intensity ,then what is the value of divergence of (curl of E):-
Alt1	Zero
Alt2	E
Alt3	I E I
Alt4	Null vector

26	The amplitude spectrum of a Gaussian pulse is:-
Alt1	a sine function
Alt2	Uniform
Alt3	Gaussian
Alt4	an impulse function

27	Device that provides the connectivity to a WiMAX network is known as:-
Alt1	Gateway
Alt2	Firewall
Alt3	Subscriber stations
Alt4	Base stations

28	The first six points of the 8- point DFT of a real valued sequence are 5, 1+j3, 0, 3-j4, 0, and 3+j4. The last two points of the DFT are respectively:-
Alt1	0, 1+j3
Alt2	0, 1-j3
Alt3	1+j3, 5
Alt4	1-j3, 5

29	The periodic convolution of x(n)={1, 2, 0, 1}and h(n)={2, 2, 3, 0} is:-
Alt1	{ 4,9,7,8}
Alt2	{ 9,6,8,2}
Alt3	{3,6,8,4}
Alt4	{2,5,8,4}

30	Which multiple access technique is used by IEEE 802.11 standard for wireless LAN?
Alt1	ALOHA
Alt2	CDMA
Alt3	CA
Alt4	CSMA/CA

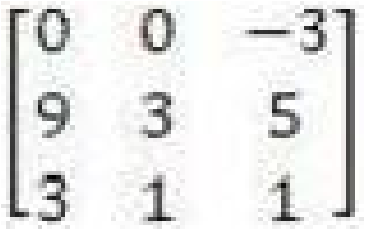
31	Medium Earth Orbit satellites are located at altitudes between:-
Alt1	5000 and 15000 Km
Alt2	5000 and 10000 Km
Alt3	1000 and 5000 Km
Alt4	3000 and 5000 Km

32	When the PLL is being used as a frequency multiplier or a frequency divider, the output is taken from:-
Alt1	the output of phase comparator
Alt2	the VCO input
Alt3	LPF output
Alt4	the VCO output

33	By default a real number is treated as a:-
Alt1	Long double
Alt2	Far double
Alt3	Float
Alt4	Double

34	A device which converts a balanced line to an unbalanced line of a transmission line is:-
Alt1	Balun

Alt2	Stub
Alt3	Directional coupler
Alt4	Hybrid

35	The rank of matrix Shown in Image is:-
	
Alt1	1
Alt2	2
Alt3	0
Alt4	3

36	For transmission line, open circuit and short circuit impedances are 20 Ω and 5Ω respectively. Then the characteristic impedance is:-
Alt1	25 Ω
Alt2	100 Ω
Alt3	10 Ω
Alt4	50 Ω

37	How many bits are needed to address 64K memory location:-
Alt1	10
Alt2	3
Alt3	32
Alt4	16

38	Why is a digital network preferred over an analogue network?
Alt1	It has lower power consumption
Alt2	It is newer
Alt3	It has higher capacity for the same bandwidth
Alt4	It is smaller

39	The gray code decimal equivalent to 6 is _____.
Alt1	1000
Alt2	110
Alt3	101
Alt4	1001

40	Viterbi decoding is one of the most commonly used technique in modern systems that are used to decode the data encoded by _____.
Alt1	Hamming coding
Alt2	Block coding
Alt3	Convolutional coding

Alt4	CRC coding

41	The impedance measured at the input of the transmission line when its length is infinity:-
Alt1	Open circuit impedance
Alt2	Input impedance
Alt3	Short circuit impedance
Alt4	Characteristic impedance

42	An amplifier with mid-band gain, A= 500 is provided with 1% of negative feedback. If the upper cut-off frequency without feedback is 60 KHz ,with feedback it becomes:-
Alt1	300 KHz
Alt2	360 KHz
Alt3	12 KHz
Alt4	10 KHz

43	What is another name for a one-shot?
Alt1	Tristable
Alt2	Monostable
Alt3	Bistable
Alt4	Astable

44	Standard GSM systems support a data rate of:-
Alt1	12kbps
Alt2	9.6kbps
Alt3	256kbps
Alt4	128kbps

45	Snell's law relates:-
Alt1	Light absorption
Alt2	Light refraction
Alt3	Light Transmission
Alt4	Light reflection

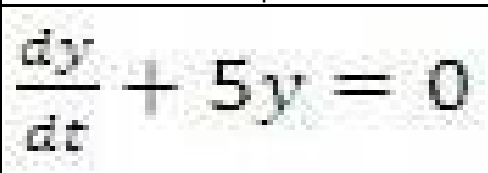
46	An RL impedance function can also be realized as:-
Alt1	RC admittance function
Alt2	LC impedance function
Alt3	RC impedance function
Alt4	LC admittance function

47	The standing wave ratio is equal to _____ if the load is properly matched with the transmission line.
Alt1	1
Alt2	-1
Alt3	Infinity
Alt4	0

48	Source encoding in a data communication system is done in order to:-

Alt1	Conserve the transmitted power
Alt2	Facilitate clock recovery in the receiver
Alt3	Enhance the information transmission rate
Alt4	Reduce the transmission errors

49	Transmission efficiency increases as _____.
Alt1	Voltage increases but power factor decreases
Alt2	Voltage and power factor both increase
Alt3	Voltage decreases but power factor increase
Alt4	Voltage and power factor both decrease

50	For the differential equation shown in image with y(0)=1 ,the general solution is:-
	
Alt1	e5t
Alt2	
Alt3	e(-5t)
Alt4	5e(-5t)

51	Whenever current is applied by a source its terminal voltage
Alt1	Fluctuates
Alt2	Increases
Alt3	Decreases
Alt4	Remains constant

52	The type of signalling that have the same circuit and is used for both signalling and voice communication is called:-
Alt1	out-band
Alt2	signal points
Alt3	in-band
Alt4	signal transport ports

53	The number of flip-flops required to construct a MOD-10 counter that counts from zero to decimal 9 is:-
Alt1	8
Alt2	32
Alt3	4
Alt4	16

54	One of the following Op-Amp type number is used as a comparator:-
Alt1	LM710

Alt2	LM748
Alt3	LM741
Alt4	747

55	SDMA makes use of:-
Alt1	Different codes
Alt2	Different frequencies
Alt3	Different radiation patterns
Alt4	Different time slots

56	The 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 above statements are correct?
Alt1	Q and R
Alt2	P and R
Alt3	Q and S
Alt4	P and S

57	A radar receives an echo from a target 20 microseconds after sending the signal. The approximate range of the target is:-
Alt1	300m
Alt2	600m
Alt3	3000m
Alt4	6000m

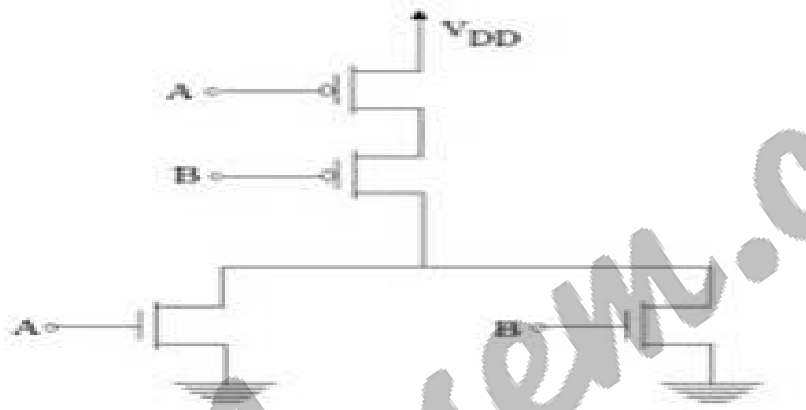
58	Figure of merit is always unity in:-
Alt1	PM
Alt2	SSB-SC
Alt3	AM-SC
Alt4	AM

59	A dynamic RAM consists of:-
Alt1	2 transistors and 2 capacitors
Alt2	6 transistors only
Alt3	1 transistor and 1 capacitor
Alt4	2 capacitors only

60	The semiconductor diode which can be used in switching circuit in microwave range is:-
Alt1	PIN diode
Alt2	Tunnel diode
Alt3	Varactor diode
Alt4	Gunn diode

61	The main advantage of microwave is that_____.
Alt1	High penetration power
Alt2	Highly Directive
Alt3	S/N ratio grater
Alt4	Moves at the speed of light

62	Which topology contains a central controller or hub:-
Alt1	Bus
Alt2	Star
Alt3	Ring
Alt4	Mesh

63	The below circuit represent _____ Gate
	
Alt1	OR Gate
Alt2	NAND Gate
Alt3	NOR Gate
Alt4	AND Gate

64	In a cellular communication system, the noise is best described as:-
Alt1	Exponential
Alt2	Rayleigh
Alt3	Gaussian
Alt4	Uniform

65	Find the bandwidth of SSB-SC technique when message signal has combination of two frequencies i.e. 200 Hz and 400Hz.
Alt1	800Hz
Alt2	600Hz
Alt3	200Hz
Alt4	400Hz

66	If for a control system, the Laplace transform of error e (t) is as shown in image as then the steady state value of the error works out as:-

	$\frac{8(s+4)}{s(s+10)}$
Alt1	2.4
Alt2	3.6
Alt3	3.2
Alt4	1.2

67	Analyze the output for the program given below:
	`void main()`
	`{`
	`Static int i=5;`
	`if(--i){`
	`main ();`
	`printf ("%d ",i);`
	`}`
	`}`

Alt1	1 1 0 0
Alt2	0 0 0 0
Alt3	1 1 1 1
Alt4	0 1 0 1

68	How many different three-member teams can be formed from six students?
Alt1	240
Alt2	120
Alt3	360
Alt4	20

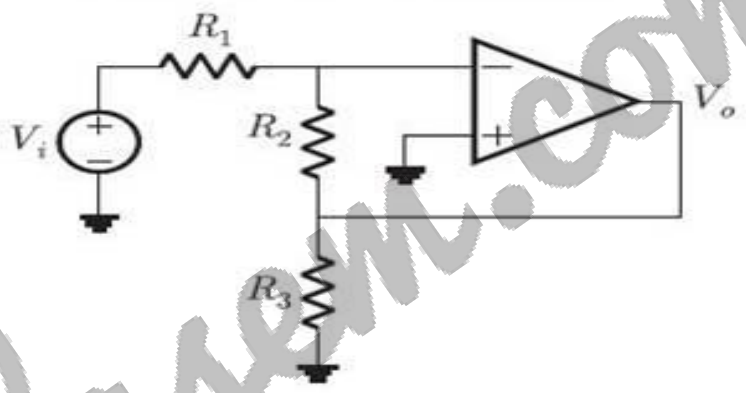
69	What is the electrical wavelength of a 500 MHz signal?
Alt1	0.6 meters
Alt2	0.06 meters
Alt3	600 centimeters
Alt4	60 meters

70	The z- Transform of the function $\sum_{k=0}^{\infty} \delta(n-k)$ is
Alt1	z/(z-1)2
Alt2	z/(z-1)
Alt3	(z-1)2/z

Alt4	(z-1)/z

71	For an air dielectric two-wire line, the minimum characteristic impedance value is:-
Alt1	90 Ω
Alt2	88 Ω
Alt3	85 Ω
Alt4	95 Ω

72	To couple a coaxial line to a parallel wire line it is best to use:-
Alt1	λ/4 transformer
Alt2	Directional Coupler
Alt3	Balun
Alt4	Slotted line

73	Assuming the OP-AMP to be ideal, the voltage gain of the amplifier shown below is 
Alt1	– (R2+ R3)/R1
Alt2	– R3/R1
Alt3	– R2/R1
Alt4	– (R2|| R3)/R1

74	A 4 bit modulo-16 ripple counter uses JK flip-flops. If the propagation delay of each FF is 50 ns, the maximum clock frequency that can be used is equal to:
Alt1	10 MHz
Alt2	4 MHz
Alt3	5 MHz
Alt4	20 MHz

75	The state-variable description of a linear autonomous system is $\dot{\bar{X}} = A\bar{X}$, where $\bar{X}$ is a two-dimensional state vector and A is a matrix given by $\begin{bmatrix} 0 & 3 \\ 3 & 0 \end{bmatrix}$ The poles of the system are located at:-
Alt1	3j and -3j
Alt2	-2j and 2j

Alt3	-2 and +2
Alt4	+3 and -3

76	What is the loss of the circuit in dB if the power ratio of output to input is 0.01.
Alt1	40
Alt2	-20
Alt3	20
Alt4	-40

77	In an AM wave, the total power content is 600 W and that of each sideband is 75 W. The modulation index is:-
Alt1	0.403
Alt2	0.607
Alt3	0.535
Alt4	0.816

78	A series circuit consist of R = 20 Ω, L= 20 mH and AC supply of 60 V with f = 100 Hz. The voltage drop across R is:-
Alt1	50.8
Alt2	24.4
Alt3	40.8
Alt4	30.6

79	How many non-overlapping channels are available with 802.11h standard?
Alt1	40
Alt2	3
Alt3	12
Alt4	23

80	To solve x3+ x – 1 =0 by Iteration method, the equation is written as x =Φ(x) where Φ(x) = ?
Alt1	(1 – x)1/3
Alt2	$\frac{1}{1+x^2}$
Alt3	1 – x3
Alt4	0

81	The residue of equation shown below is:-
	$\frac{e^z-1}{z^4}$ at $z=0$
Alt1	1/2

Alt2	1/6
Alt3	1/4
Alt4	0

82	Find the phase velocity of dielectric medium with refractive index 2.2.
Alt1	2.12*108
Alt2	3*108
Alt3	1.21*108
Alt4	2*108

83	The radiation resistance of a circular loop of one turn is 0.01 ohm. For 5 turn loop the radiation resistance is:-
Alt1	0.25Ω
Alt2	$0.002\ \Omega$
Alt3	$0.01\ \Omega$
Alt4	$0.05\ \Omega$

84	The Power Spectral Density of a WSS process with autocorrelation function $R_x(\tau) = 4\,e^{-2\|\tau\|}$ is given by:- A: $\frac{4}{\omega^2+16}$ B: $\frac{16}{\omega^2+16}$ C: $\frac{4}{\omega^2+4}$ D: $\frac{16}{\omega^2+4}$
Alt1	A
Alt2	B
Alt3	C

Alt4	D

85	Hilbert Transform of sinw1t + cosw2t is:-
Alt1	sinw1t- cosw2t
Alt2	-cosw1t + sinw2t
Alt3	cosw1t – sinw2t
Alt4	sinw1t + sinw2t

86	A quarter wave transformer matches a 100 ohm load to a transmission line with L=1.35 H/m and C=60 pFm. The characteristic impedance of matching transformer is:-
Alt1	300 Ω
Alt2	150 Ω
Alt3	275 Ω
Alt4	122.5 Ω

87	In a flag register of 8086,which bit number is used for overflow flag and zero flag:-
Alt1	11 and 0
Alt2	10 and 9
Alt3	11 and 6
Alt4	9 and 0

88	A signal is transmitted through a 10 Km coaxial line channel which exhibits a loss of 2 dB/Km. the transmitted signal power is PTdB= -30dBW(-30dBW means 30 dB below 1W or , simply , 1mW). Determine the received signal power (dB) and power at the output of an amplifier which has a gain of LdB=15dB
Alt1	-30
Alt2	-35
Alt3	35
Alt4	-50

89	The Fourier series expansion of a real periodic signal with fundamental frequency f_0 is given by $g_{p(t)}=\sum_{n=-\infty} c_n e^{j2\pi f_0 t}$ is given that $c_3 = 3 + j5$. Then c_{-3} is:-
Alt1	3 - j5
Alt2	-1
Alt3	-5
Alt4	5 + j3

90	Two cards are drawn at random from a standard deck of 52 cards, without replacement. What is the probability of drawing a 7 and a king in that order?
Alt1	4/1/1951
Alt2	4/663

Alt3	4/1/1952
Alt4	4/256

91	In order to radiate 100W from a circular loop of circumference equal to 0.1λ,the current required will be:-
Alt1	100 A
Alt2	200 A
Alt3	400 A
Alt4	0.416666667

92	The Fourier transform of $\delta[\frac{[t-t_0]}{a}]$ is A: $\lvert a\rvert e^{-j\omega t_0}$ B: $\frac{1}{\lvert a\rvert e^{-j\omega t_0}}$ C: $e^{-j\omega t_0}$ D: $\delta\ (\omega-\omega_0)e^{-j\omega t_0}$
Alt1	A
Alt2	B
Alt3	C
Alt4	D

93	Convolution of e-2tu(t - 2) with δ (t + 2) is:-
Alt1	$e^{-2t}\,u(t)$
Alt2	$e^{-2t}\,u(t+2)$
Alt3	$e^{-2(t+2)}\,u(t)$
Alt4	$e^{-2\,(t+2)}\,u(t+2)$

94	The resolution of a 4-bit counting ADC is 0.5 volts. For an analog input of 6.6 volts, the digital output of the ADC will be:-
Alt1	1011

Alt2	1101
Alt3	1100
Alt4	1110

95	A BPSK scheme operating over an AWGN channel with noise power spectral density of $N_0/2$, uses equiprobable signals $S_1(t) = \sqrt{\frac{2E}{T}}\sin(w_c(t))$ and $S_2(t) = -\sqrt{\frac{2E}{T}}\sin(w_c(t))$ over the symbol interval $(0,T)$. If the local oscillator in a coherent receiver is ahead in phase by 45^c with respect to the received signal, the probability of error in the resulting system is:- A: $Q\left(\sqrt{\frac{4E}{N_o}}\right)$ B: $Q\left(\sqrt{\frac{E}{2N_o}}\right)$ C: $Q\left(\sqrt{\frac{2E}{N_o}}\right)$ D: $Q\left(\sqrt{\frac{E}{N_o}}\right)$
Alt1	A
Alt2	B
Alt3	C
Alt4	D

96	The initial and final values of $X(z) = \left[2z\left(z-\frac{5}{12}\right)\right] / \left[\left(z-\frac{1}{2}\right)\left(z-\frac{1}{3}\right)\right]; \lvert z\rvert > \frac{1}{2}$ is respectively:-
Alt1	2 & 0
Alt2	1 & 0
Alt3	0 & 1
Alt4	0 & 2

97	The height of a transmitting antenna is 225m above the ground level. Its radio horizon will be:-
Alt1	60 km

Alt2	120 km
Alt3	76 km
Alt4	225 km

98	An analog signal is band-limited to 4 kHz .Sampled at the Nyquist rate and the samples are quantized into 4 levels. The quantized levels are assumed to be independent and equally probable.
Alt1	1 bit/sec
Alt2	3 bits/sec
Alt3	4 bits/sec
Alt4	2 bits/sec

99	Given $y(t) = \|x(t)\|$ where $x(t) = \cos t$. Then amplitude of d .c component of $y(t)$ is:-
Alt1	0
Alt2	1
Alt3	$\frac{2}{\pi}$
Alt4	$\frac{1}{2\pi}$

100	Plane y=0 carries a uniform current of 30 $\vec{a_z}$mA/m. At (1, 10, −2), the magnetic field intensity is:- A: $477.5\, a_y \mu A/m$ B: $15\, a_z mA/m$ C: $-15\, a_z mA/m$ D: $18.85\, a_y nA/m$
Alt1	A
Alt2	B
Alt3	C

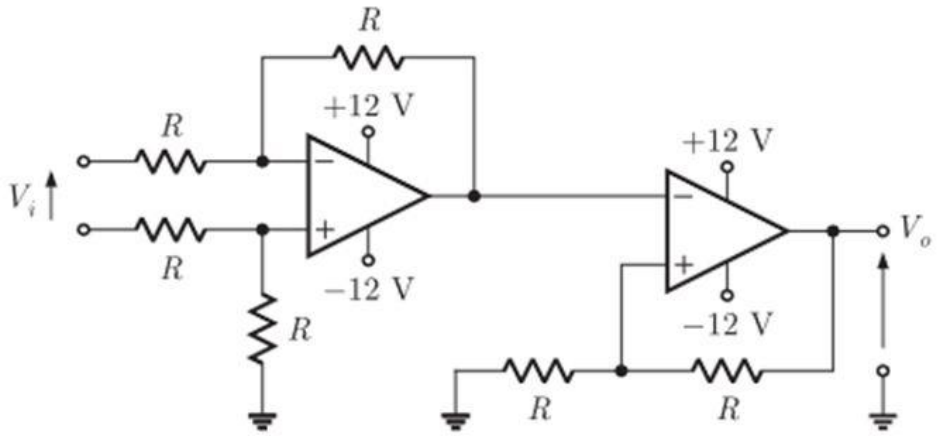
Alt4	D

Examination: **M.Tech. Electronics and Communication Engineering**

Section 1 - Section 1

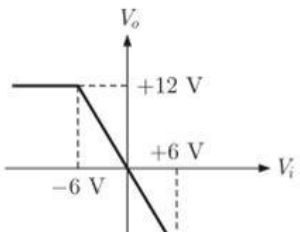
Question No.1 4.00

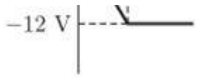
Bookmark

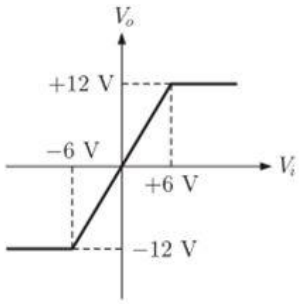


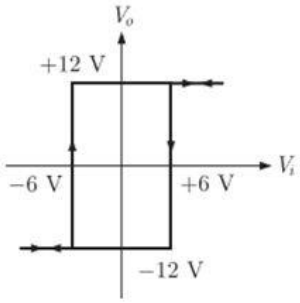
The correct transfer characteristics is

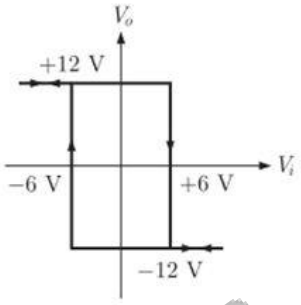
C











Question No.2 4.00

Bookmark

Two coils have self inductances of 0.09H and 0.01H and a mutual inductance of 0.015H. The coefficient of coupling between the coils is

- 0.05
- 1
- 0.5
- 0.06

Question No.3 4.00

Bookmark

A man makes 150 pots per minute. If 30 pots are packed in a case how many cases will be made ready by the Man in one hour?

- 250
- 300
- 1000
- 200

Question No.4 4.00

Bookmark

A parallel plate air-filled capacitor has plate area of 10^{-4} m^2 and plate separation of 10^{-3} m. It is connected to a 0.5 V, 3.6 GHz source. The magnitude of the displacement current is ($\varepsilon_0 = 1/36\pi \times 10^{-9} F/m$)

- 10 mA
- 1.59 mA
- 100 mA
- 10 A

Question No.5 4.00

Bookmark

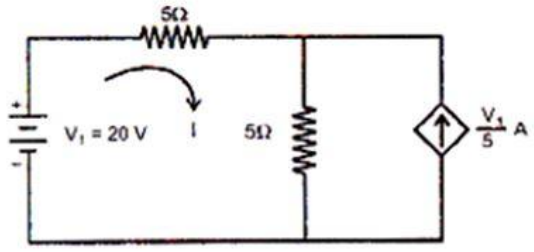
How many registers can be utilized to write the programs by an effective selection of register bank in program status word (PSW)?

- 16
- 64
- 32
- 8

Question No.6 4.00

Bookmark

The dependent current source shown in figure:



- Absorbs 40 W
- Delivers 80 W
- Delivers 40 W

- Absorbs 80 W

Question No.7 4.00

Bookmark

A four variable Karnaugh map has

- 32 min terms
- 16 min terms
- 24 min terms
- 8 min terms

Question No.8 4.00

Bookmark

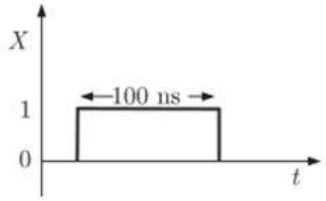
General solution of the differential equation $(D^2 - m^2)y = 0$ is

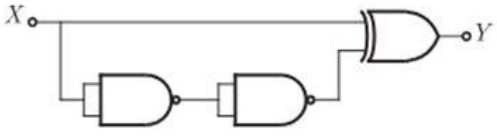
- $y = (C_1 + C_2 x)e^{mx}$
- $y = C_1 \cosh x + C_2 x \sinh x$
- $y = C_1 \sin x + C_2 \cos x$
- $y = C_1 \cosh x + C_2 \sinh x$

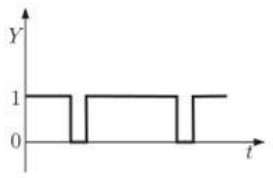
Question No.9 4.00

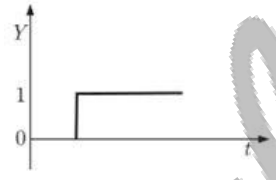
Bookmark

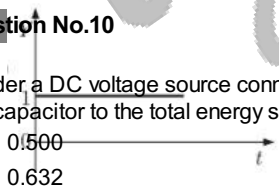
The TTL circuit shown in the figure is fed with the waveform X (also shown). All gates have equal propagation delay of 10 ns. The output Y of the circuit is

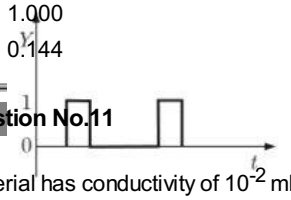












Question No.10 4.00

Bookmark

Consider a DC voltage source connected to a series R–C circuit. When the steady state reaches, the ratio of the energy stored in the capacitor to the total energy supplied by the voltage source is equal to:

- 0.500
- 0.632
- 1.000
- 0.144

Question No.11 4.00

Bookmark

A material has conductivity of 10^{-2} mho/m and a relative permittivity of 4. The frequency at which the conduction current in the medium is equal to the displacement current is

- 90 MHz
- 900 MHz
- 45 MHz
- 450 MHz

Question No.12 4.00

Bookmark

Find the odd one out?

- Bees : Apiculture
- Fish : Pisiculture
- Silkworm: Serculture
- Birds : Horticulture

Question No.13 4.00

Bookmark

Twelve $1\,\Omega$ resistances are used as edges to form a cube. The resistance between two diagonally opposite corners of the cube is

- $1\,\Omega$
- $\frac{3}{2}\Omega$
- $\frac{5}{6}\Omega$
- $\frac{6}{5}\Omega$

Question No.14 4.00

Bookmark

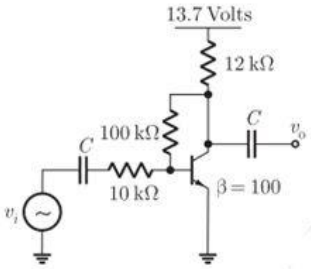
The incoming solar radiation at a place on the surface of the earth is 1.2 KW/m^2. The amplitude of the electric field corresponding to this incident power is nearly equal to

- 2.5 V / m
- 950 V / m
- 80 mV / m
- 30 V /m

Question No.15 4.00

Bookmark ☐

The voltage gain Av of the circuit shown below is

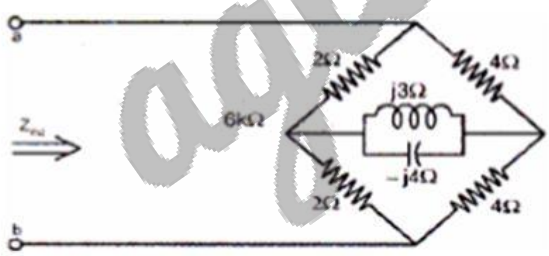


- $|A_V|=20$
- $|A_V|=10$
- $|A_V|=100$
- $|A_V|=200$

Question No.16 4.00

Bookmark ☐

In the given circuit, the equivalent impedance seen across terminals a, b is:



- 8/3+12j
- 8/3-12j
- 16/3
- 8/3

Question No.17 4.00

Bookmark ☐

Statement: The Company has recently announced a series of incentives to the employees who are punctual and sincere.
Assumptions:
I.Those who are punctual will get motivated.
II. The Productivity of the company may increase.

- If neither I nor II is implicit
- If only assumption I is implicit
- If only assumption II is implicit
- If both I and II are implicit

Question No.18 4.00

Bookmark

Exhausted: Tired

- Arrogant: Docile
- Progressive: Regressive
- Considerate: Rude
- Depressed : Sad

Question No.19 4.00

Bookmark

In an experiment, a coin is tossed 4 times. What is the size of the sample space?

- 16
- 12
- 14
- 20

Question No.20 4.00

Bookmark

ROC for the signal $x[n] = -(0.5)^n u(n-1)$ is

- $|z| > -0.5$
- $|z| > 0.5$
- $|z| < 1$
- $|z| < 0.5$

Question No.21 4.00

Bookmark

The upper 128 bytes of an internal data memory from 80H through FFH usually represent _____.

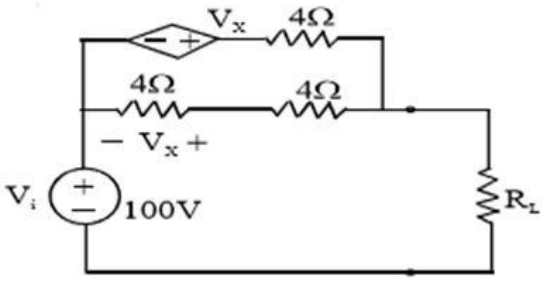
- stack pointers
- program counters
- special function registers
- general-purpose registers

Question No.22 4.00

Bookmark

In the circuit shown, what value of RL maximizes the power delivered to RL (in ohms)?

ohms)?



- 6
- 8/3
- 2.4
- 4

Question No.23 4.00

Bookmark

A 8kHz communication channel has an SNR of 30dB. If the channel bandwidth is doubled, keeping the signal power constant, the SNR for the modified channel will be (in dB)

- 27
- 60
- 33
- 30

Question No.24 4.00

Bookmark

Study the following information carefully and answer the question below it:

P, Q, R, S T went on a picnic. P is son of Q but Q is not the father of P. R is the son of S, who is the brother of P. T is the wife of S.

How is P related to S?

- Brother
- Father
- Nephew
- None of these

Question No.25 4.00

Bookmark

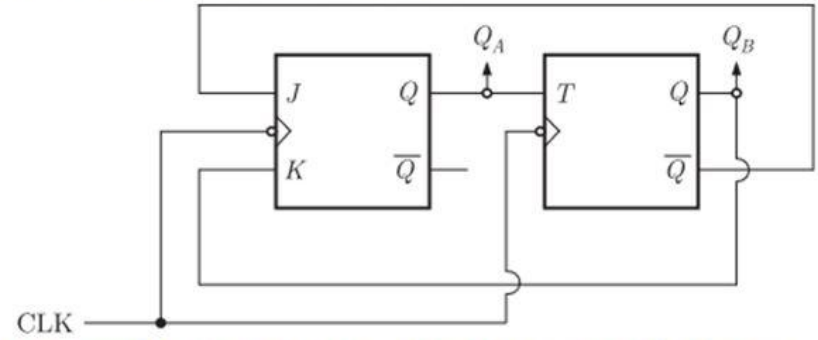
Which timer is attributed to the register pair of RCAP2H & RCAP2L for capture mode operation?

- Timer 1
- Timer 2
- Timer 0
- Timer 3

Question No.26 4.00

Bookmark

A two bit counter circuit is shown below



It the state QQ AB of the counter at the clock time t_n is '10' then the state QQ AB of the counter at t_n+ 3 (after three clock cycles) will be

- 00
- 01
- 10
- 11

Question No.27 4.00

Bookmark

What will be output of the following program?

#include int main() {int a=2, b=7, c=10; c=a==b; printf("%d",c); return 0;}

- 0
- 10
- 7
- 2

Question No.28 4.00

Bookmark

The system function $H(z)$ for the difference equation

$y[n] = -\frac{1}{2}y[n-1] + x[n]$ is

- $\frac{1}{1 + \frac{1}{2}z^{-1}}$

$1+z^{-1}$

- $\frac{1}{1+z^{1}}$
- $-\frac{1}{1+z^{-1}}$
- $\frac{1}{1-z^{-1}}$

Question No.29 4.00

Bookmark

A channel has SNR of 63 and bandwidth of 1.2kHz. The maximum data rate that can be sent through the channel with arbitrary low probability of error is (In bps)

- 7200
- 600
- 1200
- 4800

Question No.30 4.00

Bookmark

If the reflection co efficient of a 2 port network is 0.5 then the return loss in the network is:

- 0.15 dB
- 6.020 dB
- 6.5 dB
- 10 dB

Question No.31 4.00

Bookmark

Eigen vectors of a real symmetric matrix corresponding to different Eigen values are

- Non-orthogonal
- Non-singular
- Orthogonal
- Singular

Question No.32 4.00

Bookmark

The Fourier Transform of a Gaussian time pulse is

- Rayleigh
- A pair of impulse
- Uniform
- Gaussian

Question No.33 4.00

Bookmark

When the bus was at full speed, its brakes failed and an accident was _____

- essential
- undeniable
- inevitable

- infallible

Question No.34 4.00

Bookmark

This pup is very naughty. It is always _____some mischief or the other.

- in for
- out for
- up at
- up to

Question No.35 4.00

Bookmark

The channel capacity under the Gaussian noise environment of a discrete memoryless channel with a bandwidth of 4MHz and SNR of 31 is

- 4 Kbps
- 8 Kbps
- 20Mbps
- 4 Mbps

Question No.36 4.00

Bookmark

A source of angular frequency 1 rad/sec has source impedance consisting of 1 Ω resistance in series with 1H inductance. The load that will obtain the maximum power transfer is

- 1 Ω resistance in parallel with 1 F capacitor
- 1 Ω resistance in parallel with 1H inductance
- 1 Ω resistance in series with 1 F capacitor
- 1 Ω resistance

Question No.37 4.00

Bookmark

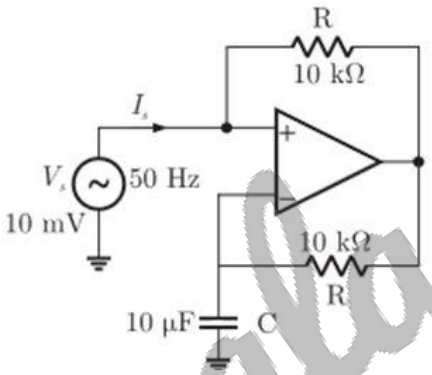
The range of values of a and b for which the linear time invariant systemwith impuse response $h(n) = \begin{cases} a^n, & n \geq \\ b^n & n < 0 \end{cases}$ is stable

- $|a| < 1, |b| > 1$
- $|a| < 1, |b| < 1$
- $|a| > 1, |b| > 1$
- $|a| > 1, |b| < 1$

Question No.38 4.00

Bookmark ☐

The following circuit has R=10 kΩ ,C=10μF. The input voltage is a sinusoidal at 50 Hz with an rms value of 10 V. Under ideal conditions, the current Is from the source is



- 10π mA lagging by 90%
- 20π mA leading by 90%
- 10π mA leading by 90%
- 20π mA lagging by 90%

Question No.39 4.00

Bookmark ☐

For designing a multirate LPF with passband 0 to 50 Hz, stopband 60 to 280 Hz, stopband deviation 0.001, passband deviation 0.01 and sampling frequency (f_S) = 400 Hz, what would be the value of normalized transition width?

- 1.50 Hz
- 0.025 Hz
- 1.25 Hz
- 2.6 Hz

Question No.40 4.00

Bookmark ☐

The maximum symmetrical output voltage swing from a common emitter circuit depends upon

- Input capacitor
- The Q point portion on dc load line
- The characteristics of CE
- Input signal

Question No.41 4.00

Bookmark

The value of the integral of the function $g(x,y) = 4x^3 + 10\ y^4$ along the straight line segment from the point (0,0) to the point (1,2) in the x-y plane is

- 40
- 33
- 35
- 56

Question No.42 4.00

Bookmark

The computational procedure for Decimation in frequency algorithm takes

- $Log_2 N^2$ stages
- $Log_2 N$ Stages
- $Log_2 N/2$ stages
- $2Log_2 N$ stages

Question No.43 4.00

Bookmark

A video transmission system transmits 625 picture frames per second. Each frame consists of a 400x400 pixel grid with 64 intensity levels per pixel. The data rate of the system is (in Mbps)

- 600
- 16
- 100
- 6400

Question No.44 4.00

Bookmark

The gain of a MOSFET amplifier reduces at high frequency due to

- Parasitic capacitor
- Oxide capacitor
- Bypass capacitor
- Coupling capacitor

Question No.45 4.00

Bookmark

If Road is coded as WTFI, what is the code for BEAT

- HIGZ
- DEFG
- GJFY
- ABCD

Question No.46 4.00

Bookmark

The period of the function $\cos \frac{\pi}{4}(t-1)$ is

- 8
- 1/4
- 4
- 1/8

Question No.47 4.00

Bookmark ☐

$\overline{A}\overline{B}\overline{C}\overline{D} + B\overline{C}D + \overline{A}\overline{C} + A$ is equivalent to

- $A + \overline{C}$
- $\overline{A} + C$
- $\overline{C}$
- 1

Question No.48 4.00

Bookmark ☐

MOV A, @ R1 will:

- copy the accumulator to R1
- copy the accumulator to the contents of memory whose address is in R1
- copy the contents of memory whose address is in R1 to the accumulator
- copy R1 to the accumulator

Question No.49 4.00

Bookmark ☐

A 10MHz clock frequency is applied to a cascaded counter consisting of a MOD-5 Counter, a MOD-8 Counter and two MOD-10 counters. The lowest output frequency possible is

- 2.5 kHz
- 25 kHz
- 10 kHz
- 5 kHz

Question No.50 4.00

Bookmark ☐

The order of error is the Simpson's rule for numerical integration with a step size, h is

- h^3
- h^2
- h
- h^4

Question No.51 4.00

Bookmark ☐

Evaluate

$\lim_{x\to\infty}\left[\frac{x-1}{x-2}\right]^x$

- 1/4
- 1/2
- 1
- 1/3

Question No.52 4.00

Bookmark ☐

Why is the speed accessibility of external data memory slower than internal on-chip RAM?

- Due to multiplexing of lower order byte of address-data bus
- Due to multiplexing of higher order byte of address-data bus
- Due to demultiplexing of higher order byte of address-data bus
- Due to demultiplexing of lower order byte of address-data bus

Question No.53 4.00

Bookmark

Given the z-transforms

$X(z)=\frac{z(8z-7)}{4z^2-7z+3}$, Then its final value is

- 7/3
- 0
- Unbounded
- 1

Question No.54 4.00

Bookmark

Residue of the function $\frac{1-e^{2z}}{z^4}$ at its poles is

- $-2/3$
- $4/3$
- $-4/3$
- $2/3$

Question No.55 4.00

Bookmark

What will be the output of the program?

```
# include int main() {int a[5]={5,1,15,20,25}; int i, j, m; i=++a[1]; j=a[1]++;
m=a[i++]; printf("%d, %d, %d", i,j,m); return0;}
```

- 3, 2, 15
- 1, 2, 5
- 2, 1, 15
- 2, 3, 20

Question No.56 4.00

Bookmark

The input to a matched filter is given by

$S(t)=\begin{cases}10sin(2\pi*10^6t & 0<1<10^{-4}\\ 0 & otherwise\end{cases}$

The peak amplitude of the filter output is

- 10mV
- 10V

- 10V
- 5V
- 5mV

Question No.57 4.00

Bookmark

We must always try to adapt ourselves _____ our circumstances.

- with
- by
- to
- in

Question No.58 4.00

Bookmark

The internal RAM memory of the 8051 is:

- 256 bytes
- 128 bytes
- 64 bytes
- 32 bytes

Question No.59 4.00

Bookmark

A multipath fading channel has a multipath spread of 1 msec and the signal bandwidth is 10 kHz. Compute the number of taps that can be used in the RAKE receiver

- 10
- 11
- 110
- 111

Question No.60 4.00

Bookmark

Vector potential is a vector

- whose curl is equal to the electric field intensity
- which is equal to the vector product E x H
- whose curl is equal to the magnetic flux density
- whose divergence is equal to the electric potential

Question No.61 4.00

Bookmark

For a fast communication, which of the following requirements have to be met

- Large bandwidth
- High SNR
- High channel capacity
- None of these

Question No.62 4.00

Bookmark

Choose the best antonym of the italicized word.
There has always been a feeling of *rancour* between the two families.

- rivalry
- suspicion
- competition
- friendliness

Question No.63 4.00

Bookmark

An energy meter connected to an immersion heater (resistive) operating on an AC 230 V,50Hz, AC single phase source reads 2.3 units(kWh) in 1 hour. The heater is removed from the supply and now connected to a 400V peak to peak square wave source of 150Hz. The power in KW dissipated by the heater will be

- 1.739
- 0.87
- 1.54
- 3.478

Question No.64 4.00

Bookmark

IC (instruction cycle), FC (fetch cycle) and EC (execution cycle) are related as

- IC = FC - EC
- EC = IC + EC
- IC = FC + 2EC
- IC = FC + EC

Question No.65 4.00

Bookmark

In the following question, the first two words (given in italics) have a definite relationship. Choose one word out of the given four alternatives which will fill the blank space and showthe same relationship with the third word as between the first two.

Hear is to *Deafas* as *Speak* is to ……?…….

- Talkative
- Dumb
- Silent
- Listen

Question No.66 4.00

Bookmark

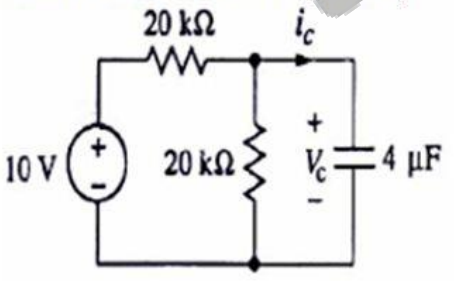
Correct the error in the italicized part of the sentence by choosing the most appropriate option.
Leaving aside little room for misinterpretation, the senior politician offered clarifications about his role in the party elections.

- Leaving less room for
- Having left less room for
- Leaving for little room to
- Leaving little room for

Question No.67 4.00

Bookmark

In the circuit shown, Vc is 0 volts at t = 0 sec. For t > 0, the capacitor current $i_c(t)$ where t is in seconds, is given by



- 0.50 exp (–12.5 t) mA
- 0.25 exp (–25 t) mA
- 0.25 exp (–6.25 t) mA
- 0.50 exp (–25 t) mA

Question No.68 4.00

Bookmark

People in the age group of 40 to 50 years are more likely to purchase ice cream and are more likely to purchase it in large amounts than are members of any other age group. The general perception that teenagers eat more ice cream than adults must, therefore, be incorrect.

The argument is flawed primarily because the author

The argument is flawed primarily because the author

- depends on popular belief rather than on documented research findings
- does not specify the precise amount of ice cream purchased by any demographic group
- discusses ice cream rather than more nutritious and healthful foods
- fails to distinguish between purchasing and consuming

Question No.69 4.00

Bookmark

Which register usually store the output generated by ALU in several arithmetic and logical operations?

- Stack Pointer
- Special Function Register
- Accumulator
- Timer Register

Question No.70 4.00

Bookmark

The cascade amplifier is a multistage configuration of

- CC-CB
- CE-CC
- CB-CC
- CE-CB

Question No.71 4.00

Bookmark

Choose the synonym of the italicized word. Many cities were *incinerated* during the war.

- bombed
- burnt
- destroyed
- attacked

Question No.72 4.00

Bookmark

A 20 m antenna gives a certain uplink gain at frequencies of 4/6 GHz. For getting same gain in the 20/30 GHz band, antenna size required is metre.

- 10
- 100
- 1
- 4

Question No.73 4.00

Bookmark

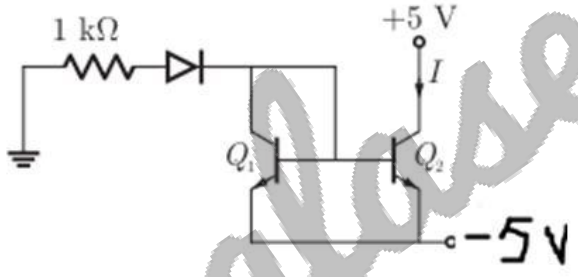
In a half adder having two inputs (A and B) and two outputs (Sum (S) and carry (C), the Boolean expression for S and C in terms of A and B are

- $S = \overline{A}\overline{B} + AB,$ $C = A + \overline{B}$
- $S = AB + \overline{A}B,$ $C = A + B$
- $S = \overline{A}B + A\overline{B},$ $C = AB$
- $S = \overline{A}B + A\overline{B},$ $C = \overline{A} + B$

Question No.74 4.00

Bookmark ☐

Two perfectly matched silicon transistor are connected as shown in the figure assuming the β of the transistors to be very high and the forward voltage drop in diodes to be 0.7 V, the value of current I is



- 3.6 mA
- 4.3 mA
- 5.7 mA
- 0 mA

Question No.75 4.00

Bookmark ☐

We're late again for the test, _____?

- are we?
- is it?
- aren't we?
- isn't it?

Question No.76 4.00

Bookmark ☐

A 3V DC supply with an internal resistance of $2\,\Omega$ supplies a passive non linear resistance characterized by the relation $V_{NL} = I_{NL}^{\,2}$ The power dissipated in the non linear resistance is

- 3.0W
- 1.0W
- 1.5W
- 2.5W

Question No.77 4.00

Bookmark ☐

Two small diameter 5g dielectric balls can slide freely on a vertical non conducting thread. Each ball carries a negative charge of $2\mu C$. If the lower ball is restrained from moving, then separation between the two balls will be

- 8.57mm
- 85.7mm
- 857mm
- 8570mm

Question No.78 4.00

Bookmark ☐

Statement: Warning: Cigarette smoking is injurious to Health
Assumptions:
I. Non-Smoking Promotes Health
II. This warning is not necessary

- If only assumption I is implicit
- If only assumption II is implicit
- If both I and II are implicit
- If neither I nor II is implicit

Question No.79 4.00

Bookmark ☐

The bit rate of a digital communication system is 34Mbps. The modulation scheme is QPSK. The baud rate is (in Mbps)

- 17
- 8.5
- 68
- 34

Question No.80 4.00

Bookmark ☐

In a broadcast superheterodyne receiver

- the local oscillator operates above the signal frequency
- local oscillator frequency is normally double the IF
- the local oscillator operates below the signal frequency
- RF amplifier normally works at kHz above the carrier frequency

Question No.81 4.00

Bookmark ☐

The Laplace transform of the square wave $x(t) = \begin{cases} 1 & for\ 0 < t < T \\ -1 & for\ T < t < 2T \end{cases}$ Is

- $\frac{1}{S}(1 - e^{-sT})^2$
- $\frac{1}{S}(1 + e^{-sT})^2$
- $\frac{1}{S^2}(1 - e^{-sT})^2$
- $(1 - e^{-sT})^2$

Question No.82 4.00

Bookmark ☐

The average DC power of Manchester coding is given by

- $A^2T/2$

- $A^2T/2$
- A^2T
- $A^2T/4$
- $2A^2T$

Question No.83 4.00

Bookmark

The number of bits in a binary PCM system is increased from n to n+1. As a result, the signal to quantization noise ratio will improve by a factor

- $2^{2(n+1)/n}$
- $(n+1)/n$
- Independent of n
- $2^{(n+1)/n}$

Question No.84 4.00

Bookmark

The electric field on the surface of a perfect conductor is 2 V/m. The conductor is immersed in water $\varepsilon = 80\ \varepsilon_0$. The surface charge density on the conductor is (in C/m^2)

- 1.8×10^{-11}
- 1.41×10^{-9}
- 2
- 0

Question No.85 4.00

Bookmark

Total number of words formed by 2 vowels and 3 consonants taken from 4 vowels and 5 consonants is equal to

- 60
- 1400
- 120
- 7200

Question No.86 4.00

Bookmark

Find the odd one out?

- Flourish
- Thrive
- Blossom
- Renovate

Question No.87 4.00

Bookmark

I don't care if she comes to my house or not.
The underlined word is a

- pronoun
- conjunction
- gerund
- verb

Question No.88 4.00

Bookmark

What will be the output of the following program?

```
main( ) { int i=5; printf("%d", i=++i==6); }
```

- 7
- 1
- 0
- 6

Question No.89 4.00

Bookmark

The Z-transform of the signal $x(n) = na^n u(n)$ is

- $\frac{az^{-1}}{(1-az^{-1})}$
- $\frac{z^{-1}}{(1-az^{-1})^2}$
- $\frac{az^{-1}}{(1-az^{-})^3}$
- $\frac{az^{-1}}{(1-az^{-1})^2}$

Question No.90 4.00

Bookmark

Select the Pair that best respresents the relationship that is given in the question:
Slapstick:Laughter

- Satire: Sarcasm
- Horror:Fear
- Mimicry:Laughter
- Clown: Comical

Question No.91 4.00

Bookmark

Let $x(t) = sin^3(27\ \pi t)$, the fundamental period of $x(t)$ is

- $1/27$
- $2/81$
- $2/27$
- $1/54$

Question No.92 4.00

Bookmark

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

- 25
- 100
- 200

- 50

Question No.93 4.00

Bookmark

Determine the order of a type I Low pass Chebyshev filter that has a 1 dB ripple in the passband, a cutoff frequency $\Omega_p = 1000\pi$, a stopband frequency of 2000π, and an attenuation of 40 dB.

- 2
- 5
- 3
- 4

Question No.94 4.00

Bookmark

Study the following information carefully and answer the question below it

The Director of an MBA college has decided that six guest lectures on the topics of Motivation, Decision Making, Quality Circle, Assessment Centre, Leadership and Group Discussion are to be organised on each day from Monday to Sunday.
(i) One day there will be no lecture (Saturday is not that day), just before that day Group Discussion will be organised.
(ii) Motivation should be organised immediately after Assessment Centre.
(iii) Quality Circle should be organised on Wednesday and should not be followed by Group Discussion
(iv) Decision Making should be organised on Friday and there should be a gap of two days between Leadership and Group Discussion

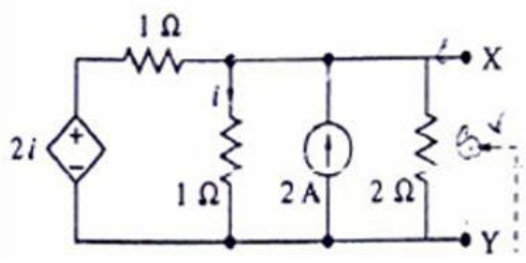
On which day the lecture on Leadership will be organised?

- Saturday
- Thursday
- Tuesday
- Monday

Question No.95 4.00

Bookmark

For the circuit shown in the figure, the Thevenin voltage and resistance looking into X – Y are



- 4V, 2/3Ω
- 4/3 V, 2/3Ω
- 4/3 V, 2Ω
- 4 V, 2Ω

Question No.96 4.00

Bookmark

In Barlett window, the triangular function resembles the tapering of rectangular window sequence _____ from the middle to the ends.

- elliptically
- hyperbolically
- linearly
- parabolically

Question No.97 4.00

Bookmark

Determine the final value of x(t), if its Laplace transform is given by

$X(s)=\frac{2s^2+3}{s^2+5s+1}$

- 1/5
- 3
- 2
- 0

Question No.98 4.00

Bookmark

The Nyquist sampling frequency (in Hz) of a signal given by $6 \times 10^4 \, sinc^2(400t) * 10^6 \, sinc^3(100t)$ is

- 1000
- 200
- 1500
- 300

Question No.99 4.00

Bookmark

The system of linear equations
$(4d - 1)x + y + z = 0$
$-y + z = 0$
$(4d - 1)z = 0$
has a non-trivial solution, if d equals

- 1
- 2
- 0
- 3

Question No.100 4.00

Bookmark

An electrostatic is said to be conservative when

- The curl of the field is equal to zero
- The curl of the field is equal to $-\partial B/\partial t$
- The Laplacian of the field is equal to $\mu\varepsilon \, \partial^2 E/\partial t^2$
- The divergence of the field is equal to zero