

Rajasthan Public Service Commission - 2016
Paper : VPITI-Electronic-and-Communications

Ques # :1

An intrinsic semiconductor at absolute zero temperature:

- 1) has only a few holes and few electrons.
 - 2) has very large number of holes and electrons
 - 3) behaves like a good conductor
 - 4) behaves like a good insulator
-

Ques # :2

In a P-N diode, with the increase of reverse bias, the current :-

- 1) increase
 - 2) decrease
 - 3) remains constant
 - 4) may increase or decrease depending upon doping
-

Ques # :3

In a BJT, the $I_c = 30\text{mA}$. If $\beta = 100$, the base current approximately equals

- 1) 0.03 mA
 - 2) 300 mA
 - 3) 0.3 mA
 - 4) 30 mA
-

Ques # :4

The value of $V_{BE,sat}$ in pnp Ge transistor typically equals

- 1) -0.1 Volt
 - 2) -0.3 Volt
 - 3) -0.8 Volt
 - 4) +0.8 Volt
-

Ques # :5

Transistor is usually encapsulated in

- 1) graphite powder
 - 2) enamel paint
 - 3) epoxy resin
 - 4) Any of these
-

Ques # :6

The JFET can operate in

- 1) depletion mode only
 - 2) enhancement mode only
 - 3) either depletion or enhancement mode at a time
 - 4) both depletion or enhancement modes simultaneously
-

Ques # :7

The following constitutes an active circuit element

- 1) FET
 - 2) BJT
 - 3) Diode
 - 4) a current source
-

Ques # :8

In the fabrication of a buried layer n-p-n transistor, the processes involved are

1. diffusion 2. oxidation 3. epitaxy 4. lithography

The correct sequence in which these processes are to be carried out, is

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

Ques # :9

The output current versus input voltage transfer characteristic of an n-channel JFET is such that there is

- 1) zero current flow at zero input voltage bias
 - 2) current flow only when a positive input threshold voltage is crossed.
 - 3) current flow only when a negative input cut-off voltage bias is crossed.
 - 4) no cut-off input voltage
-

Ques # :10

An SCR triggered by a current pulse through its gate can be turned off by

- 1) giving another pulse of the same polarity to the gate
 - 2) by giving pulse to the cathode
 - 3) by giving pulse to the anode
 - 4) by reversing the polarity of anode and cathode voltage
-

Ques # :11

An operational amplifier is a

- 1) high gain CE amplifier
 - 2) cascaded CE amplifier
 - 3) high gain direct coupled amplifier
 - 4) high gain CB amplifier
-

Ques # :12

Gain of an Op Amp inverting amplifier with an input of 0.25 V and output of 17.5 V is

- 1) 4.375
 - 2) 17.75
 - 3) 17.25
 - 4) 70
-

Ques # :13

MOS transistor

- 1) has only one p-n junction
- 2) conduct when sufficient voltage is applied to gate electrode
- 3) has only two electrodes
- 4) has gate electrode in direct contact with the silicon

Ques # :14

Consider the following circuit configurations

1. Common emitter 2. Common base
3. Emitter follower 4. Emitter follower using Darlington pair.

The correct sequence in increasing order of the input resistances of these configuration is

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

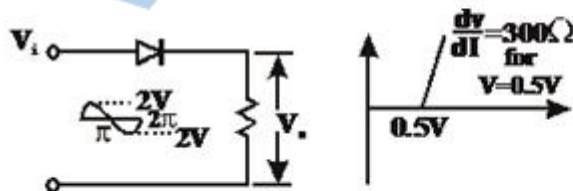
Ques # :15

The cascade amplifier is a multistage configuration of

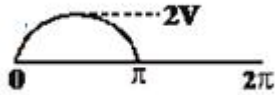
- 1) CC-CB
- 2) CE-CB
- 3) CB-CC
- 4) CE-CC

Ques # :16

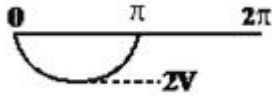
Consider the circuit shown in the figure. If the diodes used here has the V-I characteristic as in the figure, then the output wave form v_o is



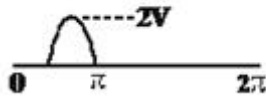
- 1)



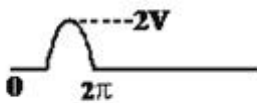
2)



3)



4)



 Ques # :17

Which one of the following circuits is most suitable as an oscillator at a frequency of 100 Hz?

- 1) Hartley oscillator
 - 2) Colpitts oscillator
 - 3) Crystal oscillator
 - 4) Twin-T oscillator
-

Ques # :18

The power input to an amplifier is $2 \mu\text{W}$. The power gain of the amplifier is 40dB. The output power of the amplifier is

- 1) $80 \mu\text{W}$
- 2) $200 \mu\text{W}$

- 3) **20 μ W**
- 4) 80 MW

Ques # :19

Which one of the following sets of circuits can be obtained by using a 555 timer ?

- 1) Pulse modulator and amplitude demodulator
- 2) Pulse modulator and astable multivibrator
- 3) Amplifier demodulator and a.c. to d.c. converter
- 4) a.c. to d.c. converter and astable multivibrator

Ques # :20

The common mode error voltage in a DVM can be eliminated by using at its input

- 1) a differential amplifier
- 2) a wide band amplifier
- 3) a tuned amplifier
- 4) a low pass filter

Ques # :21

An OR gate may be imagined as

- 1) switches connected in series
- 2) switches connected in parallel
- 3) MOS transistors connected in series
- 4) None of these

Ques # :22

Which of the following logic gates dissipates minimum power

- 1) RTL
- 2) TTL
- 3) MOS
- 4) ECL

Ques # :23

The fan out TTL logic gate is about

- 1) 5
- 2) 10
- 3) 20
- 4) 50

Ques # :24

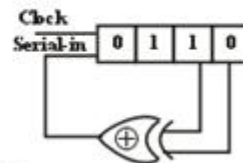
Consider the following statements regarding registers and latches: 1. Registers are made of edge-triggered FFs, whereas latches are made from level-triggered FFs. 2. Registers are temporary storage devices whereas latches are not. 3. A latch employs cross-coupled feedback connections. 4. A register stores a binary word whereas a latch does not. Which of the statements given above are correct

- 1) 1 and 2
- 2) 1 and 3
- 3) 2 and 3
- 4) 3 and 4

Ques # :25

Consider the following shift right register :

The initial contents of the 4-bit serial-in parallel-out, shift right register shown are 0110. What will be the contents of the register after 3 clock pulses are applied



- 1) 0000
- 2) 0101
- 3) 1010
- 4) 1111

Ques # :26

The output voltage of a 5-bit DAC that has a digital input of 11010 (Assuming 0 = 0V and 1 = +10V) is

- 1) 3.4375V
- 2) 6.0V
- 3) 8.125V
- 4) 9.6875V

Ques # :27

The $\frac{54}{74164}$ chip is an 8-bit serial- in -parallel-output shift register. The clock is 1 MHz. The time needed to shift a 8-bit binary number into the chip is

- 1) $1\mu s$
- 2) $2\mu s$
- 3) $8\mu s$
- 4) $16\mu s$

Ques # :28

The essential blocks of a phase lock loop (PLL) are phase detector, amplifier,

- 1) high-pass filter and crystal controlled oscillator
- 2) low-pass filter and crystal controlled oscillator
- 3) high-pass filter and voltage controlled oscillator
- 4) low-pass filter and voltage controlled oscillator

Ques # :29

In the 8421 BCD code the decimal number 125 is written as

- 1) 1111101
- 2) 7 D
- 3) 00010010 0101
- 4) None of these

Ques # :30

Consider the following instructions of 8085 μP 1. MOV M, A 2. ADD C 3. MVI A, FF 4. CMP M Which of these cause change in the status of flag (s) ?

- 1) 1 and 2
- 2) 1, 2 and 3
- 3) 3 and 4
- 4) 2 and 4

Ques # :31

A popular method of increasing the range of an ac instrument is use of

- 1) shunt
 - 2) multiplier
 - 3) ac potentiometer
 - 4) instrument transformer
-

Ques # :32

A dc voltage of 1V is applied to the X-plates of a CRO and an ac voltage $2 \sin 100 t$ is applied to the Y-plates. The resulting display on the CRO screen will be a

- 1) vertical straight line
 - 2) horizontal straight line
 - 3) sine wave
 - 4) slant line
-

Ques # :33

The equations under balance condition for a bridge are $R_1 = \frac{R_2 R_3}{R_4}$ and

$$L_1 = R_2 R_3 R_4$$

Where R_1 and L_1 are unknown quantities.

Which one of the following sets of parameters should be chosen as variables in order to achieve converging balance

- 1) R_1 and R_3
 - 2) R_2 and C_4
 - 3) R_4 and C_4
 - 4) R_3 and C_4
-

Ques # :34

The function of the reference electrode in a pH meter is to

- 1) produce a constant voltage
 - 2) provide temperature compensation
 - 3) provide a constant current
 - 4) measure average pH value
-

Ques # :35

Pirani gauge is used for the measurement of pressure in the range of

- 1) 10^{-8} mm to 10^{-5} mm of Hg
 - 2) 10^{-3} mm to 10^{-1} mm of Hg
 - 3) 10 mm to 10^3 mm of Hg
 - 4) 10^5 mm to 10^8 mm of Hg
-

Ques # :36

The most light sensitive transducer for conversion of light into electrical power is the

- 1) Photodiode
 - 2) solar cell
 - 3) Photoconductive cell
 - 4) photovoltaic cell
-

Ques # :37

Rochelle salt is a crystalline material used in producing

- 1) velocity transducer
 - 2) photoelectric transducer
 - 3) piezoelectric transducer
 - 4) differential transformer transducer
-

Ques # :38

The gauge factor of the material of strain gauge is such that the resistance changes from 1000 ohms to 1009 ohms when subjected to a strain of 0.0015. The Poisson's ratio for the material of the gauge wire is

- 1) 1.75

- 2) 2
- 3) 2.5
- 4) 6

Ques # :39

Consider the following statements in connection with the null or balance condition in a bridge circuit 1. It is always independent of the magnitude of the source voltage or its impedance. 2. It is independent of the sensitivity of the detector or its impedance. 3. It is unchanged if the impedances of one set of adjacent arms are interchanged. 4. It is unchanged if the source and the detector are interchanged.

Which of these statements are correct ?

- 1) 1, 2 and 3
- 2) 1, 2 and 4
- 3) 2, 3 and 4
- 4) 1, 3 and 4

Ques # :40

Consider the following statements regarding a moving coil instruments : 1. The sensitivity of a moving coil voltmeter is specified in terms of ohms per volt. 2. A higher range moving coil voltmeter has higher sensitivity. 3. A higher current moving coil instrument has higher sensitivity. 4. Higher sensitivity meters give more reliable results. Which of these statements are correct ?

- 1) 1, 2 and 3
- 2) 1, 3 and 4
- 3) 1, 2 and 4
- 4) 2, 3 and 4

Ques # :41

In a linear network, when the a.c. input is doubled, the a.c. output becomes

- 1) two times
- 2) four times
- 3) half
- 4) one-fourth.

Ques # :42

Three bulbs 100 watt each, are connected across 220 V, 50 Hz supply. If one bulb burns out

- 1) remaining two will not operate
- 2) all the three will operate

- 3) there will be heavy current from the supply
- 4) only remaining two bulbs will operate.

Ques # :43

Energy needed to move 4 coulombs of charge is 4 joules. The potential difference is

- 1) 2 Volt
- 2) 1 Volt
- 3) 0.1 Volt
- 4) 0.2 Volt

Ques # :44

In an electrical network, the number of nodes is N. Then number of branches B equals

- 1) N
- 2) $N + 1$
- 3) $N - 1$
- 4) $N - 2$

Ques # :45

The first and the last critical frequency of an RC-driving point impedance function must respectively be

- 1) a zero and 2 pole
- 2) a pole and a pole
- 3) a zero and a zero
- 4) a pole and a zero

Ques # :46

In a linear system, several sources acting simultaneously produce an effect which is sum of the separate effects caused by individual sources at a time. This is

- 1) Reciprocity theorem
- 2) Superposition theorem
- 3) Millman theorem
- 4) Norton's theorem

Ques # :47

A two port network is symmetrical if

- 1) $Z_{12} = Z_{21}$
- 2) $AD - BC = 1$
- 3) $Z_{11} = Z_{22}$
- 4) $h_{11} = -h_{21}$

Ques # :48

In a series RLC circuit at resonance with $Q_0 = 10$ and with applied voltage of 100 mV at resonance frequency, voltage across capacitor is

- 1) 100 mV
- 2) 1 Volt
- 3) 10 mV
- 4) 10 Volt

Ques # :49

Network function $4s/(s+1)(s+3)$ has

- 1) one zero and two poles
- 2) one zero and one pole
- 3) two zeroes and one pole
- 4) one zero and no pole

Ques # :50

The signal $x(t) = A \cos(\omega_0 t + \phi)$ is

- 1) an energy signal
- 2) a power signal
- 3) an energy as well as a power signal
- 4) neither an energy nor a power signal

Ques # :51

Which one of the following is NOT a correct Maxwell equation

$$1) \nabla \times \vec{H} = \frac{\partial \vec{D}}{\partial t} + \vec{J}$$

$$2) \nabla \times \vec{E} = \frac{\partial \vec{H}}{\partial t}$$

$$3) \nabla \cdot \vec{D} = \rho$$

$$4) \nabla \cdot \vec{B} = 0$$

Ques # :52

A solid cylindrical conductor of radius 'R' has a uniform current density. The magnetic field 'H' inside the conductor at a distance 'r' from the axis of the conductor is

$$1) \frac{1}{2\pi}$$

$$2) \frac{1}{4\pi}$$

$$3) \frac{r}{2\pi R^2}$$

$$4) \frac{r}{4\pi R^2}$$

Ques # :53

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

$$1) 0.06$$

$$2) 0.5$$

$$3) 1.0$$

$$4) 0.05$$

Ques # :54

The equation $\nabla \cdot \vec{j} = 0$ is known as

1) Poisson's equation

2) Laplace equation

3) Continuity equation

4) Maxwell equation

Ques # :55

A transmission line has primary constants R , L , G and C , and secondary constants Z_0 and $\gamma(=\alpha+j\beta)$. If the line is lossless, then

- 1) $R=0$, $G \neq 0$ and $\alpha=0$
- 2) $R=0$, $G=\alpha$, 0 and $\beta=|\gamma|$
- 3) $G=0$ and $\alpha=\beta$
- 4) $R=0$, $G=0$, $\alpha=0$ and $\beta=|\gamma|$

Ques # :56

A transmission line having 50Ω impedance is terminated in a load of $(40+j30)\Omega$. The VSWR is

- 1) $j0.033$
- 2) $0.8+j0.6$
- 3) 1
- 4) 2

Ques # :57

The depth of penetration of wave in a lossy dielectric increases with increasing

- 1) conductivity
- 2) permeability
- 3) wavelength
- 4) permittivity

Ques # :58

The normalized frequency of a step index fibre is 28 at 1300 nm wavelength. What is the total number (approx) of guided modes that can be supported by the fibre

- 1) 50
- 2) 200

- 3) 400
- 4) 800

Ques # :59

A cylindrical cavity resonator has diameter of 24 mm and length 20 mm. The dominant mode and the lowest frequency band are operated as

- 1) TE_{111} and X-band
- 2) TM_{111} and C-band
- 3) TM_{011} and Ku-band
- 4) TM_{010} and X-band

Ques # :60

For producing circularly polarized beams in microwave communication field, the type of antenna ideally suited is

- 1) helical antenna
- 2) parabolic disc with circular aperture
- 3) pyramidal horn with symmetrical beam shapes in E and H plane
- 4) circular loop antenna

Ques # :61

The discrete time system described by $y(n) = x(n^2)$ is

- 1) causal, linear and time varying
- 2) causal, non-linear and time-varying
- 3) non-causal, linear and time-invariant
- 4) non-causal, non-linear and time-variant

Ques # :62

The Fourier transform of a double-sided exponential signal $x(t) = e^{-b|t|}$

- 1)

is $\frac{2b}{(b^2 + \omega^2)}$

2) is $\frac{e^{-j \tan^{-1} \left(\frac{\omega}{b} \right)}}{(b^2 + \omega^2)}$

3) does not exist

4) exist only when it is single sided

Ques # :63

If a function $f(t)u(t)$ is shifted to right side by t_0 , then the function can be expressed as

1) $f(t-t_0)u(t)$

2) $f(t)u(t-t_0)$

3) $f(t-t_0)u(t-t_0)$

4) $f(t+t_0)u(t+t_0)$

Ques # :64

If $x_1(t) = 2 \sin \pi t + \cos 4\pi t$ and $x_2(t) = \sin 5\pi t + 3 \sin 13\pi t$, then

1) x_1 and x_2 both are periodic

2) x_1 and x_2 both are not periodic

3) x_1 is periodic, but x_2 is not periodic

4) x_1 is not periodic, but x_2 is periodic

Ques # :65

If the initial conditions in a system are zero, it means that system is

- 1) working with zero reference input
- 2) working but does not store energy
- 3) at rest and has no energy stored in any of its parts
- 4) at rest but stores energy

Ques # :66

The region of convergence of the z-transform of a unit step function is

- 1) $|z| > 1$
- 2) $|z| < 1$
- 3) (Real part of z) > 0
- 4) (Real part of z) < 0

Ques # :67

What is the inverse Laplace transform of $\frac{e^{-as}}{s}$

- 1) e^{-at}
- 2) $\delta(t-a)$
- 3) $u(t-a)$
- 4) $(t-a)u(t-a)$

Ques # :68

Convolution of $x(t+5)$ with impulse function $\delta(t-7)$ is equal to

- 1) $x(t-12)$
- 2) $x(t+12)$
- 3) $x(t-2)$
- 4) $x(t+2)$

Ques # :69

The minimum number of delay elements required in realizing a digital filter with the transfer function $H(z) = \frac{1 + az^{-1} + bz^{-2}}{1 + cz^{-1} + dz^{-2} + ez^{-3}}$ is

- 1) 2
- 2) 3
- 3) 4
- 4) 5

Ques # :70

Consider the compound system shown in the figure. Its output is equal to input with a delay of two units. If the transfer function of the first system is given by $H_1(z) = \frac{z - 0.5}{z - 0.8}$, then the transfer function of the second system would be



- 1) $H_2(z) = \frac{z^{-2} - 0.2z^{-3}}{1 - 0.4z^{-1}}$
- 2) $H_2(z) = \frac{z^{-2} - 0.8z^{-3}}{1 - 0.5z^{-1}}$
- 3) $H_2(z) = \frac{z^{-1} - 0.2z^{-3}}{1 - 0.4z^{-1}}$
- 4) $H_2(z) = \frac{z^{-2} + 0.8z^{-3}}{1 + 0.5z^{-1}}$

Ques # :71

The system response of a system can be best tested with

- 1) unit impulse input signal
 - 2) ramp input signal
 - 3) sinusoidal input signal
 - 4) exponentially decaying input signal
-

Ques # :72

In a feedback system, feedback factor of 0.1 is used with forward gain of 10. The sensitivity of the system with respect to the feedback element is

- 1) -0.5
 - 2) 0.5
 - 3) -0.9
 - 4) 0.9
-

Ques # :73

If a transfer function of a system is $1/(\tau s - 1)$, the steady state error to unit step input is

- 1) τ
 - 2) Zero
 - 3) Infinite
 - 4) None of these
-

Ques # :74

The number of the integrators in the transfer function $G(s) = (s+3)/s^2(s+5)$ are

- 1) zero
 - 2) one
 - 3) two
 - 4) four
-

Ques # :75

If a system is critically damped and gain is increased, the system

- 1) becomes overdamped
- 2) becomes underdamped
- 3) becomes oscillatory
- 4) remains critically underdamped

Ques # :76

A system has characteristic equation as $s^2+2s+8 = 0$. The damping ratio and the natural frequency of oscillation of the system respectively are

- 1) $2*(2)^{0.5}, 0.5$
- 2) $0.5, 2*(2)^{0.5}$
- 3) $0.353, 2*(2)^{0.5}$
- 4) $2, 0.353$

Ques # :77

For small value of gain k, the root must be

- 1) at origin
- 2) at infinity
- 3) far away from the poles of the loops transfer functions
- 4) near the poles of the transfer function

Ques # :78

For the transfer function $G(s) = 2/(s^3+8s^2+5s+11)$, the size of state matrix A will be

- 1) 3×3
- 2) 3×4
- 3) 2×3
- 4) 2×2

Ques # :79

Which one of the following transfer functions represents the critically damped system?

1) $H_1(s) = \frac{1}{s^2 + 4s + 4}$

2) $H_2(s) = \frac{1}{s^2 + 3s + 4}$

3) $H_3(s) = \frac{1}{s^2 + 2s + 4}$

4) $H_4(s) = \frac{1}{s^2 + s + 4}$

Ques # :80

Two linear time-invariant discrete time systems s_1 and s_2 are cascaded as shown in the given figure. Each system is modeled by a second order difference equation. The difference equation of the overall cascaded system can be of the order of



- 1) 0,1,2,3 or 4
- 2) either 2 or 4
- 3) 2
- 4) 4

Ques # :81

In a BPSK signal detector, the local oscillator has a fixed phase error of 20° . By what factor does this phase error deteriorate the SNR at the output ?

- 1) $\cos^2 20^\circ$
- 2) $\cos 20^\circ$
- 3) $\cos 40^\circ$
- 4) $\cos 70^\circ$

Ques # :82

The frequency range 30MHz - 300MHz is:

- 1) medium frequency
 - 2) very high frequency
 - 3) super high frequency
 - 4) Infrared frequency
-

Ques # :83

Which one of the following statements is correct ? In a ratio detector,

- 1) linearity is worse than that of a phase discriminator.
 - 2) Stabilization is provided against signal strength variations
 - 3) The output is twice of that obtainable from a similar phase discriminator
 - 4) The circuit is same as that in a discriminator, except that the diode connections are reversed
-

Ques # :84

An AM signal is detected using envelope detector. The carrier frequency and modulating signal frequency are 1 MHz and 2 KHz respectively. The appropriate value for the time constant of envelope detector is

- 1) 500 μsec
 - 2) 0.2 μsec
 - 3) 20 μsec
 - 4) 1 μsec
-

Ques # :85

Heterodyne principle is used in

- 1) Transmitter
 - 2) Receiver
 - 3) Oscillator
 - 4) Power amplifier
-

Ques # :86

For an AM wave, the maximum voltage was found to be 10 V and the minimum voltage was found to be 5V. The modulation index of the wave would be

- 1) 0.33
- 2) 0.52
- 3) 0.40
- 4) 0.1

Ques # :87

The FM telemetry as compared with AM telemetry requires a channel that is

- 1) equal to that of AM telemetry
- 2) smaller than what is required for AM telemetry
- 3) 100 times of that required for AM telemetry
- 4) 10 times of that required for AM telemetry

Ques # :88

An angle-modulated signal is expressed by $f_a(t) = \cos(2 \times 10^8 \pi t + 75 \sin 2 \times 10^3 \pi t)$. The peak frequency deviation of the carrier is then

- 1) 1kHz
- 2) 7.5kHz
- 3) 75kHz
- 4) 100MHz

Ques # :89

For 10-bit PCM system, the signal to quantization noise ratio is 62dB. If the number of bits are increased by 2, then the signal to quantization noise ratio will

- 1) increase by 6dB
- 2) increase by 12 dB
- 3) decrease by 6dB
- 4) decrease by 12 dB

Ques # :90

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

- 1) 27 dB
- 2) 30 dB
- 3) 33 dB
- 4) 60 dB

Ques # :91

What is the SNR improvement with FSK over ASK in most types of noise environment ?

- 1) 200 to 300 dB
- 2) 3 to 4 dB
- 3) 10 to 12 dB
- 4) 0 dB

Ques # :92

Consider minimum shift keying (MSK) also known as fast FSK with frequency spacing $2 f_d$ between the state frequencies. r_b is the data rate. Which one of the following correctly relates r_b and f_d ?

- 1) $f_d = r_b/4$
- 2) $f_d = r_b /2$
- 3) $f_d = 3r_b/4$
- 4) $f_d = r_b$

Ques # :93

For a given rate, the bandwidth β_p of a BPSK signal and the bandwidth β_o of the OOK signal are related as

- 1)

$$\beta_p = \frac{\beta_0}{2}$$

2) $\beta_p = 2\beta_0$

3) $\beta_p = \frac{2\beta_0}{4}$

4) $\beta_p = \beta_0$

Ques # :94

The bandwidth of an n-bit binary coded PCM signal for an original signal bandwidth of B Hz is

1) B Hz

2) n B Hz

3) $\frac{B}{n}$ Hz

4) n^2 B Hz

Ques # :95

In a PCM system each quantization level is encoded into 8 bits. The signal to quantization noise ratio is equal to

1) $\frac{1}{12} \left(\frac{1}{256} \right)^2$

2) 48dB

3) 64 dB

4) 256 dB

Ques # :96

Which of the following pulse modulation is analog ?

1) PCM

2) Differential PCM

3) PWM

4) Delta

Ques # :97

Random satellite moves in

- 1) random paths
- 2) polar orbits
- 3) geostationary orbits
- 4) equatorial plane

Ques # :98

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

- 1) f
- 2) f^2
- 3) f^4
- 4) $f^{1/2}$

Ques # :99

In a cellular communications system, path loss between transmitter and receiver is due to

- 1) scattering from building, trees, vehicles, and other structures only.
- 2) scattering from building, trees, vehicles, and other structures and due to reflections from ground only
- 3) scattering from building, trees, vehicles, and other structures and due to reflections from ground along with reflections from ionosphere only.
- 4) scattering from building, trees, vehicles, and other structures and due to reflections from ground along with reflections from ionosphere along with loss due to surface wave phenomenon.

Ques # :100

Match List I with List II and select the correct answer using the codes given below the list : List I A. Television B. Radio C. Radar D. Data communication List II 1. Either AM or FM used 2. Both AM and FM are used 3. PCM is used 4. Digital system

- 1) A(4) B(3) C (1) D (2)
- 2) A(2) B(1) C (3) D (4)
- 3) A(4) B(1) C (3) D (2)
- 4) A(2) B(3) C (1) D (4)

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