Section 1 - Section 1

Question No.1
4.00

Bookmark ☐

A speech signal occupying the bandwidth of 300Hz to 3kHz is converted into PCM format for use in digital communication. If the sampling frequency is 8kHz and each sample is quantized into 256 levels, then the output bit rate would be

- ○ 3kb/s
- ○ 256kb/s
- ○ 64kb/s
- ○ 8kb/s

Question No.2
4.00

Bookmark ☐

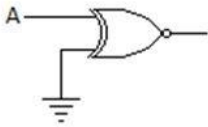We must always try to adapt ourselves _____ our circumstances.

- ○ in
- ○ by
- ○ to
- ○ with

Question No.3
4.00

Bookmark ☐

For the gate in the given figure the output will be

- ○ A
- ○ 1
- ○ A'
- ○ 0

Question No.4
4.00

Bookmark ☐

A DAC 0808 has a maximum full scale error of +0.19%. If the converter has full scale current output as 2mA, then what will be the percentage of full scale error?

- ○ $7.6\,\mu A$
- ○ $3.8\,\mu A$
- ○ $5.7\,\mu A$
- ○ $1.9\,\mu A$

Question No.5
4.00

Bookmark ☐

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

- ○ $1/54$
- ○ $2/81$
- ○ $1/27$

Question No.6   4.00

$Z_L = 200\ \Omega$ and it is desired that $Z_i = 50\ \Omega$ The quarter wave transformer should have a characteristic impedance of

○ $4\ \Omega$

○ $10000\ \Omega$

○ $100\ \Omega$

○ $40\ \Omega$

Question No.7   4.00

A 10-bit A/D converter is used to digitize an analog signal in the 0 to 5V range. The maximum peak ripple voltage that can be allowed in the D.C. is

○ Nearly $25mV$

○ Nearly $50mV$

○ Nearly $10mV$

○ Nearly $5mV$

Question No.8   4.00

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

○ ABCD

○ HIGZ

○ GJFY

○ DEFG

Question No.9   4.00

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

○ 1 cm

○ 4 cm

○ 2 cm

Question No.10   4.00

If $\operatorname{cov}(x, y) = 0$, then two lines of the regression are

○ Non Orthogonal

○ Coincident

○ At right angles

○ Parallel

Question No.11   4.00

If an isolated conducting sphere in air has radius $\dfrac{1}{4\pi\varepsilon_o}$ its capacitance will be

- ○ 1F
- ○ $4\pi F$
- ○ Zero
- ○ 0F

Question No.12   4.00

Bookmark ☐

Equation $x_{10} = 11001001_2$ when solved for x gives the value of x as

- ○ 111
- ○ 8
- ○ 152
- ○ 201

Question No.13   4.00

Bookmark ☐

Standard deviation for 7,9,11,13,15 is

- ○ 2.8
- ○ 2.5
- ○ 2.7
- ○ 2.4

Question No.14   4.00

Bookmark ☐

A periodic signal $x(t)$ of period T_0 is given by $x(t) = \begin{cases} 1, & |t| < T_1 \\ 0, & T_1 < |t| < \dfrac{T_0}{2} \end{cases}$. The d.c component of

$x(t)$ is

- ○ $\dfrac{T_1}{2T_0}$
- ○ $\dfrac{2T_1}{T_0}$
- ○ $\dfrac{T_1}{T_0}$
- ○ $\dfrac{T_0}{T_1}$

Question No.15   4.00

Bookmark ☐

An n-channel JFET has I_{DSS}=2mA and V_p=-4V. Its transconductance g_m (in millimho) for an applied gate-to-source voltage V_{GS} of -2 V is

- ○ 0.25
- ○ 0.5
- ○ 1
- ○ 0.75

Question No.16   4.00

Bookmark ☐

DFT of the four point sequence

$x(n) = \{0, 1, 2, 3\}$ is

- ○ $[1, -1, -2, -2]$

- ○ $[1, 1, -2, -2]$

- ○ $[6 \quad -2+2j \quad -2 \quad -2-2j]$

- ○ $[6 \quad -2-2j \quad 2 \quad -2+2j]$

Question No.17   4.00

Bookmark ☐

What about the stability of system in $H(z) = \dfrac{z(3z-4)}{(z-0.4)(z-2)}$

- ○ stable at 0.6
- ○ unstable
- ○ stable at 0.4
- ○ system is stable

Question No.18   4.00

Bookmark ☐

The minority carrier life-time and diffusion constant in a semiconductor material are respectively 100 micro seconds and 100cm^2/s. The diffusion length of the carriers is,

- ○ 1 cm
- ○ 0.01 cm
- ○ 0.0141 cm
- ○ 0.1 cm

Question No.19   4.00

Bookmark ☐

Let $x(t) = e^{-4t}u(t)$ where u(t) is unit step function. The energy of the signal is

- ○ $1/24$

- ○ $1/4$

- ○ $1/8$

- ○ $1/16$

Question No.20   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?

- ○ 300

Question No.21   4.00

Bookmark ☐

An exclusive OR function is expressed as

○ $(\bar{A} + B)(A + \bar{B})$

○ $\bar{A}B + \bar{A}B$

○ $(\bar{A} + \bar{B}) + (A + B)$

○ $\bar{A}\bar{B} + AB$

Question No.22   4.00

Bookmark ☐

A quarter-wave transformer is used for matching a load of 225 ohms connected to a transmission line of 256 ohms in order to reduce the SWR along the line to 1. The characteristic impedance (in ohms) of the transformer is

○ 225
○ 273
○ 256
○ 240

Question No.23   4.00

Bookmark ☐

Find the radiation resistance of an antenna of length $\lambda/10$ meter?

○ $0.78 \ \Omega$

○ $78 \ \Omega$

○ $780 \ \Omega$

○ $7.8 \ \Omega$

Question No.24   4.00

Bookmark ☐

If the functions w, x, y, z are as follows.

$w = R + PQ + RS$,

$x = PQR\ S + PQR\ S + PQ\ R\ S$

$y = RS + \overline{PR + P\bar{Q} + \overline{PQ}}$

$z = R + S + PQ + PQ \cdot R + PQ \cdot S$

Then

○ w = y

○ w = z x = z

○ w = z, x = y

○ w = y = z

Question No.25　　　　　　　　　　　　　　　　　　　　　4.00

Bookmark ☐

Given: $n = 10, \sum x = 4, \sum y = 3,$

$\sum x^2 = 8, \sum y^2 = 9$ and $\sum xy = 3,$ then the Coefficient of Correlation is

○ $15/4$

○ $7/12$

○ $1/4$

○ $14/13$

Question No.26　　　　　　　　　　　　　　　　　　　　　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.27　　　　　　　　　　　　　　　　　　　　　4.00

Bookmark ☐

For M equally likely messages, the average amount of information H is

○ $\log_2 M$

○ $\log_{10} M$

○ $\log_{10} M^2$

○ $2\log_{10} M$

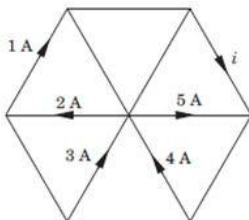
Question No.28   4.00

Bookmark ☐

The ramp signal $m(t) = at$ is applied to a delta modulator with the sampling period T_s and step size δ. The slope overload distortion would occur if

○ $\delta < a$

○ $\delta > a$

○ $\delta < aT_s$

○ $\delta > aT_s$

Question No.29   4.00

Bookmark ☐

$i = ?$

○ 2 A

○ 4 A

○ 1 A

○ 3 A

Question No.30   4.00

Bookmark ☐

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

○ 30dB

○ 27dB

○ 60dB

○ 33dB

Question No.31   4.00

Bookmark ☐

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

○ friendliness

○ competition

○ rivalry

○ suspicion

Question No.32   4.00
Bookmark ☐

The probability of getting a number between 1 and 100. Which is divisible by one and itself only is

○ $25/100$

○ $23/97$

○ $27/185$

○ $25/98$

Question No.33   4.00
Bookmark ☐

A spread spectrum communication system has information bit duration of 4.095ms and the Chip duration of PN sequence is $1\mu s$. The processing gain is

○ 409.5

○ 40.95

○ 4095

○ 40950

Question No.34   4.00
Bookmark ☐

A Parallel plate capacitor has an electrode area of 100mm², with a spacing of 0.1mm between the electrodes. The dielectric between the plates is air with a permittivity of 8.85×10^{-12} F/m. The charge on the capacitor is 100V. The stored energy in the capacitor is

○ 8.85pJ

○ 22.1nJ

○ 440pJ

○ 44.3nJ

Question No.35   4.00
Bookmark ☐

We're late again for the test, _____?
○ are we?

○ is it?

○ isn't it?

○ aren't we?

Question No.36   4.00
Bookmark ☐

Polystyrene has a relative permittivity of 2.7. If wave is incident at an angle, θ_i of 30° from air onto polystyrene, then angle of transmission will be nearly

○ 2°

○ 0.2°

○ 18°

○ 48°

Question No.37 — 4.00

A differential Amplifier has a differential gain of 20,000, CMMR=80 dB. The Common mode gain is given by

- ○ 0
- ○ 1
- ○ 2
- ○ 0.5

Question No.38 — 4.00

For a 400 kHz transmission line having L = 0.5 mH/km, C = 0.08 mF and negligible R and G, the value of propagation constant P will be

- ○ 63.6 radians/km
- ○ 105.4 radians/km
- ○ 31.8 radians/km
- ○ 15.9 radians/km

Question No.39 — 4.00

In FM signal with a modulation index m_f is passed through a frequency Tripler. The wave in the output of the Tripler will have a modulation index of

- ○ $3m_f$
- ○ $m_f/9$
- ○ m_f
- ○ $m_f/3$

Question No.40 — 4.00

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

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

Question No.41 — 4.00

The bandwidth required for transmitting 4 kHz signal using PCM with 128 quantization levels is

- ○ 16 kHz
- ○ 24kHz
- ○ 8 kHz
- ○ 28kHz

Question No.42 — 4.00

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

○ inevitable

○ undeniable

$$380.0\,\Omega$$

○ infallible

○ essential

Question No.43   4.00

Bookmark ☐

In CMOS logic circuit, the switching operation occurs because:

○ Both n-MOSFET and p-MOSFET turns ON simultaneously for input '1' and turns OFF simultaneously for input '0'

○ Both n-MOSFET and p-MOSFET turns ON simultaneously for input '0' and turns OFF simultaneously for input '1'

○ N-MOSFET transistor turns ON, and p-MOSFET transistor turns OFF for input '1' and N-MOS transistor turns OFF, and p-MOS transistor turns ON for input '0'

○ Both n-MOSFET and p-MOSFET turns OFF simultaneously for input '0' and turns ON simultaneously for input '1'

Question No.44   4.00

Bookmark ☐

A man alternately tosses a coin and throws a dice, beginning with the coin. Then the probability that he will get a head before he gets a 5 or 6 on dice is

○ $3/4$

○ $4/5$

○ $4/7$

○ $1/4$

Question No.45   4.00

Bookmark ☐

Calculate the directivity of an antenna for $\theta_E = 30°$, $\theta_H = 60°$

○ 100

○ 46

○ 50

○ 23

Question No.46   4.00

Bookmark ☐

Two infinite parallel metal plates are charged with equal surface charge density of the same polarity. The electric field in the gap between the plates is

○ The same as that produced by one plate

○ Double of the field produced by one plate

○ Dependent on coordinates of field point

○ zero

Question No.47   4.00

Bookmark ☐

A source produces 26 symbols with equal probability. What is the average information produced by this source?

○ < 4 bits/symbol

○ Between 4 and 6 bits/symbol

○ 8 bits/symbol

○ 6 bits/symbol

Question No.48   4.00

Bookmark ☐

Find the odd one out?

○ Thrive

○ Blossom

○ Renovate

○ Flourish

Question No.49　　　　　　　　　　　　　　　4.00

A solid copper sphere, 10 cm in diameter is deprived of 10^{20} electrons by a charging scheme. The charge on the sphere is
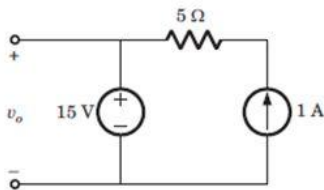
○ -16.02 C
○ -160.2 C
○ 16.02 C
○ 160.2 C

Question No.50　　　　　　　　　　　　　　　4.00

For the circuit shown in figure. The value of voltage v_o is

○ 25 V
○ 15 V
○ 10 V
○ 20 V

Question No.51　　　　　　　　　　　　　　　4.00

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

Question No.52　　　　　　　　　　　　　　　4.00

If 120 C of charge passes through an electric conductor in 60 sec, the current in the conductor is

○ 0.3 mA
○ 3.33 mA
○ 2 A
○ 0.5 A

Question No.53　　　　　　　　　　　　　　　4.00

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

○ Resistive
○ Inductive
○ Capacitive
○ None of these

Question No.54　　　　　　　　　　　　　　　4.00

Bookmark ☐

The electric field of the incident wave is $\vec{E_i} = E_0 \cos(\omega t - \beta_z)\hat{a}_y$, where $\omega = 3 \times 10^9 p$ and $\beta = 10$ p. The electric field of the transmitted wave E_t is given by

- ○ $\frac{1}{2} E_0 \cos(\omega t - \beta_z)\hat{a}_y$

- ○ $\frac{1}{2} E_0 \cos(\omega t - 3\beta_z)\hat{a}_y$

- ○ $\frac{2}{3} E_0 \cos(\omega t - \beta_z)\hat{a}_x$

- ○ $\frac{2E_0}{3} \cos(\omega t - 2\beta_z)\hat{a}_x$

Question No.55   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 for little room to
- ○ Leaving little room for
- ○ Leaving less room for
- ○ Having left less room for

Question No.56   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?

- ○ Thursday
- ○ Monday
- ○ Tuesday
- ○ Saturday

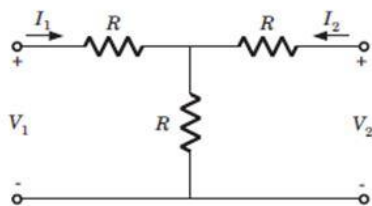**Question No.57**   4.00

Bookmark ☐

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

- ○ conjunction
- ○ gerund
- ○ verb
- ○ pronoun

Question No.58 4.00

Bookmark ☐

$h_{21}=?$

○ -0.5
○ 1.5
○ -1.5
○ 0.5

Question No.59 4.00

Bookmark ☐

Arrivals at a telephone booth are considered to be Poisson, with an average time of 10 minutes between successive intervals. The length of a phone call is distributed exponentially with mean 3 minutes. The probability that an arrival does not have to wait before service is

○ 0.3
○ 0.7
○ 0.5
○ 0.9

Question No.60 4.00

Bookmark ☐

The minimum number of NAND Gates required to implement the Boolean function

$A + \overline{A}B + A\overline{B}C$ is

○ Three
○ Two
○ Zero
○ One

Question No.61 4.00

Bookmark ☐

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

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

Question No.62	4.00
	Bookmark ☐

An AM broadcast station operates at its maximum allowed total output of 50 kW with 80% modulation. The power in the intelligence part is

- ○ 12.12 kW
- ○ 6.42 kW
- ○ 31.12 kW
- ○ 21.21 kW

Question No.63	4.00
	Bookmark ☐

Exhausted: Tired

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

Question No.64	4.00
	Bookmark ☐

The probability that two friends share the same birth - month is

- ○ $\frac{1}{12}$
- ○ $\frac{1}{24}$
- ○ $\frac{1}{6}$
- ○ $\frac{1}{144}$

Question No.65	4.00
	Bookmark ☐

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

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

Question No.66	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 show the same relationship with the third word as between the first two.

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

- ○ Silent
- ○ Listen
- ○ Dumb
- ○ Talkative

Question No.67	4.00
	Bookmark ☐

In standard TTL, the totem- pole stage refers to

- ○ The output buffer
- ○ The open collector output stage
- ○ The phase-splitter
- ○ The multi-emitter input stage

Question No.68	4.00
	Bookmark ☐

Find the odd one out?

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

Question No.69 4.00

Bookmark ☐

The resolution of a D/A converter is approximately 0.4% of its full-scale range. It is

- An 16-bit converter
- An 8-bit converter
- An 10-bit converter
- An 12-bit converter

Question No.70 4.00

Bookmark ☐

If two lines regression are $3x - y - 5 = 0$ and $2x - y - 4 = 0$, then $\bar{x}$ and $\bar{y}$ are respectively

- 2 and -1
- -2 and -1
- -1 and 2
- 1 and -2

Question No.71 4.00

Bookmark ☐

An analog voltage is in the range of 0 to 8V is divided into eight equal intervals for conversion to 3-bit digital output. The maximum quantization error is

- 1V
- 0V
- 2V
- 0.5V

Question No.72 4.00

Bookmark ☐

$$\int_{-\infty}^{\infty} g(t)\delta(t - t_0)dt =$$

- $g(t_0)$
- $\delta(t - t_0)$
- $g(t - t_0)$
- $g(t)$

Question No.73 4.00

Bookmark ☐

In a binomial distribution, mean is 4 and variance is 3. Then, its mode is

- 8
- 4
- 5
- 6

Question No.74 4.00

Bookmark ☐

There are two bags one of which contains 3 black and 4 white balls while other contains 4 black and 3 white balls. A die is cast, if a face 1 or 3 turns up, a ball is taken from first bag and if any other face turns up, a ball is chosen from second bag. The probability of choosing of black ball is

○ $21/11$

○ $12/21$

○ $11/21$

○ $21/12$

Question No.75 4.00

Bookmark ☐

Fourier transform of the signal $x(t) = e^{-4}|t|$ is

○ $\dfrac{-4}{16+\omega^2}$

○ $\dfrac{8}{16+\omega^2}$

○ $\dfrac{4}{16+\omega^2}$

○ $\dfrac{-8}{16+\omega^2}$

Question No.76 4.00

Bookmark ☐

A zener diode has a zener resistance of 5 ohms. If the current through the zener diode changes from 10 mA to 20 mA, the change of voltage across the zener diode will be

○ 0.05V

○ 0.5V

○ 0.075V

○ 0.1 V

Question No.77 4.00

Bookmark ☐

Consider a transmission line of characteristic impedance 50 ohm. Let it be terminated at one end by $j50$ ohm. The VSWR produced by it in the transmission line will be

○ 1

○ ∞

○ 0

○ $+j$

Question No.78 4.00

Bookmark ☐

A p-n junction has built-in potential of 0.8 V. The depletion layer width at a reverse bias of 1.2V of 2 μm. for a reverse bias of 7.2V, the depletion layer width will be

○ 4.9 μm

○ 12 μm

○ 8 μm

○ 4 μm

Question No.79 4.00

Bookmark ☐

In CMOS circuits, which type of power dissipation occurs due to switching of transient current and charging & discharging of load capacitance?

○ Leakage dissipation
○ Both Static and Dynamic dissipations
○ Static dissipation
○ Dynamic dissipation

Question No.80	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
○ fails to distinguish between purchasing and consuming
○ discusses ice cream rather than more nutritious and healthful foods
○ depends on popular belief rather than on documented research findings
○ does not specify the precise amount of ice cream purchased by any demographic group

Question No.81	4.00

Bookmark ☐

The hexadecimal number $(3E8)_{16}$ is equal to decimal number

○ 768
○ 982
○ 323
○ 1000

Question No.82	4.00

Bookmark ☐

In Frequency Modulation system, the modulating signal frequency is increased from 10 kHz to 20 kHz. Then, the bandwidth of the FM system is
○ Halved
○ Doubled
○ Decreased by 20kHz
○ Increased by 20 kHz

Question No.83	4.00

Bookmark ☐

If a counter having 10 Flip Flops is initially at 0, what count will if hold after 2060 pulses?
○ 000 000 1100
○ 000 001 1000
○ 000 000 1110
○ 000 001 1100

Question No.84	4.00

Bookmark ☐

A 10 kW carrier is sinusoidally modulated by two carriers corresponding to a modulation index of 30% and 40% respectively. The total radiated power is
○ 11.25 kW
○ 12.5 kW
○ 17 kW
○ 15 kW

Question No.85	4.00

Bookmark ☐

A network has 8 nodes and 5 independent loops. The number of branches in the network is
○ 12
○ 11
○ 8
○ 6

An N-P-N transistor has a beta cut-off frequency f_β of $1MHz$, and emitter short circuit low-frequency current gain β_0 of 200. The unity gain of frequency f_T and the alpha cut-off frequency f_α respectively are
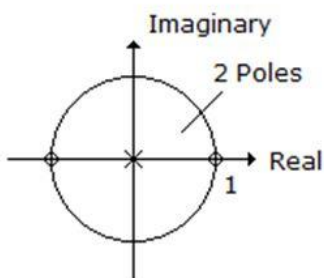
○ 199 MHz,
   200 MHz

○ 200 MHz,
   199 MHz

○ 200 MHz,
   201 MHz

○ 201 MHz,
   200 MHz

Consider Pole zero diagram as shown, If two Poles are moved in opposite direction towards ω = p/2 and -p/2, the filter will be

○ change to Band Pass filter
○ remains same
○ change to high pass filter
○ change to LPF

The value of $\oint dI$ along a circle of radius 2 units is

○ 4π

- 8π
- Zero
- 2π

Question No.89

4.00

Bookmark ☐

The VSWR can have any value between

- $1\text{and }\infty$
- $0\text{ and }\infty$
- -1 and +1
- 0 and 1

Question No.90

4.00

Bookmark ☐

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

- $0.3\ mA$
- $30\ mA$
- $3000\ mA$
- $0.03\ mA$

Question No.91

4.00

Bookmark ☐

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

- attacked
- burnt
- destroyed
- bombed

Question No.92

4.00

Bookmark ☐

In a certain application four inputs A,B,C,D are fed to logic circuit, producing an output which operates a relay. The relay turns ON when $f(A,B,C,D)=1$ for the following states of the inputs (A,B,C,D): 0000, 0010, 0101, 0110, 1101 and 1110.

States 1000 and 1001 do not occur, and for the remaining states the relay is OFF. The minimized Boolean expression f is

- $\overline{A}\overline{B}\overline{D} + B\overline{C}D + BC\overline{D}$

- $ABD + \overline{B}C\overline{D} + \overline{B}\overline{C}D$

$\overline{A}\,C\overline{D} + BC\overline{D} + B\overline{C}D$

$\overline{B}\,\overline{C}D + BC\overline{D} + \overline{A}\,C\overline{D}$

Question No.93   4.00

Bookmark ☐

The average information of the source which delivers symbols X_1, X_2, X_3 and X_4 with probabilities[0.5, 0.25, 0.125, 0.125] is

○ 1.75 symbols per bit

○ 1.75 symbols per second

○ 1.75 bits per symbol

○ 1.75 bits per second

Question No.94   4.00

Bookmark ☐

In frequency distribution, mid value of a class is 15 and class interval is 4. The lower limit of the class is

○ 12

○ 13

○ 14

○ 10

Question No.95   4.00

Bookmark ☐

The signal having the Fourier Transform $X\left(e^{j\Omega}\right) = \dfrac{1 - \dfrac{1}{3}e^{-j\Omega}}{1 - \dfrac{1}{4}e^{-j\Omega} - \dfrac{1}{8}e^{-2j\Omega}}$

○ $\left(\dfrac{2}{9}\left(\dfrac{1}{2}\right)^{n} + \dfrac{7}{9}\left(-\dfrac{1}{4}\right)^{n}\right)u[n]$

○ $\left(\dfrac{2}{9}\left(-\dfrac{1}{2}\right)^{n} - \dfrac{7}{9}\left(\dfrac{1}{4}\right)^{n}\right)u[n]$

○ $\left(\dfrac{2}{9}\left(-\dfrac{1}{2}\right)^{n} + \dfrac{7}{9}\left(\dfrac{1}{4}\right)^{n}\right)u[n]$

○ $\left(\dfrac{2}{9}\left(\dfrac{1}{2}\right)^{n} - \dfrac{7}{9}\left(-\dfrac{1}{4}\right)^{n}\right)u[n]$

Question No.96   4.00

Bookmark ☐

Which of the following is the indirect way of FM generation?

○ Reactance bipolar transistor modulator

○ Armstrong modulator

○ Varactor diode modulator

○ Reactance FM modulator

Question No.97   4.00
Bookmark ☐

Assertion (A): A demultiplexer cannot be used as a decoder Reason (R): A multiplexer selects one of many outputs whereas a decoder selects on output corresponding to coded input.

○ Both A and R are correct and R is correct explanation of A

○ Both A and R are correct but R is not correct explanation of A

○ A is false, R is true

○ A is true, R is false

Question No.98   4.00
Bookmark ☐

$Vc(t)=?$

○ $0.89 \cos \left(10^3 t - 63.43°\right)$ V

○ $0.89 \cos \left(10^3 t + 63.43°\right)$ V

○ $0.45 \cos \left(10^3 t - 26.57°\right)$ V

○ $0.45 \cos \left(10^3 t + 26.57°\right)$ V

Question No.99   4.00
Bookmark ☐

A JK flip flop has t_{pd}= 12 ns. The largest modulus of a ripple counter using these flip flops and operating at 10 MHz is

A JK flip flop has t_{pd}= 12 ns. The largest modulus of a ripple counter using these flip flops and operating at 10 MHz is
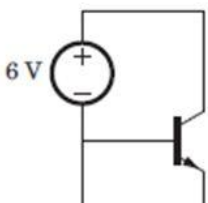
○ 256

○ 64

○ 16

○ 128

Question No.100   4.00
Bookmark ☐

Determine the region of operation for the transistor shown in circuit in question.

○ Cutoff
○ Reverse-Active
○ Saturation
○ Forward-Active