TGGENCO ASSISTANT ENGINEERS AND CHEMISTS RECRUITMENT EXAMINATION 14 July 2024

Hall Ticket Number	2432990122
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Test Date	14/07/2024
Test Time	5:00 PM - 6:40 PM
Subject	Assistant Engineer Electronics

Section : **Section A**

Q.1 Consider the self-bias circuit where Vcc = 12 V, R_C = 5 kΩ, R_E = 1 kΩ, R_2 = 10 KΩ, R_1 = 90 kΩ and h_{fe} = 99. Find its stability factor

Ans
✔ 1. 9.17
✘ 2. 16.32
✘ 3. 100
✘ 4. 10.01

Question ID : **170527522**
Chosen Option : **3**

Q.2 An n-bit binary counter consist of _____ flip-flops, and can count in binary from 0 to _____

Ans
✘ 1. $n-1,\ 2^n$
✘ 2. $n,\ 2^n$
✔ 3. $n,\ 2^n-1$
✘ 4. $n-1,\ 2^n-1$

Question ID : **170527537**
Chosen Option : **3**

Q.3 A superheterodyne receiver with an IF of 450 kHz is tuned to a signal at 1200 kHz. The image frequency is

Ans
✘ 1. 2850 kHz
✔ 2. 2100 kHz
✘ 3. 1650 kHz
✘ 4. 900 kHz

Question ID : **170527554**
Chosen Option : **3**

Q.4 Consider a transmission line of characteristic impedance 50Ω. Let it be terminated at one end by +j50 ohm. The VSWR produced by it in the transmission line will be

Ans
✔ 1. ∞
✘ 2. +j
✘ 3. 0
✘ 4. +1

Question ID : **170527562**
Chosen Option : **2**

Q.5 The value of feedback resistance for an op-amp with a gain of −10 and input resistance equal to 10 kΩ is

Ans
- ✔ 1. 100 kΩ
- ✘ 2. 90 kΩ
- ✘ 3. 1 kΩ
- ✘ 4. 10 kΩ

Question ID : **170527527**
Chosen Option : **4**

Q.6 Convert the given expression in standard POS form

$$Y = A \cdot (A + B + C)$$

Ans
- ✘ 1. $(A + B + C)(A + \bar{B} + C)(A + B + \bar{C})$
- ✔ 2. $(A + B + C)(A + \bar{B} + C)(A + B + \bar{C})(A + \bar{B} + \bar{C})$
- ✘ 3. $(A + B \cdot \bar{B} + C\bar{C})(A + B + C)$
- ✘ 4. $(A + B + C)(\bar{A} + \bar{B} + C)(\bar{A} + B + \bar{C})(A + \bar{B} + \bar{C})$

Question ID : **170527532**
Chosen Option : **1**

Q.7 As electromagnetic waves travel in free space, only one of the following can happen to them.

Ans
- ✘ 1. Absorption
- ✘ 2. Refraction
- ✔ 3. Attenuation
- ✘ 4. Reflection

Question ID : **170527560**
Chosen Option : **1**

Q.8 For a closed-loop system with loop transfer function L(s) is of _____ type, the system is _____ if the L(s) plot that corresponds to the Nyquist path does not enclose the (-1, j0) point.

Ans
- ✘ 1. Maximum-phase, unstable
- ✘ 2. Maximum-phase, stable
- ✘ 3. Minimum-phase, unstable
- ✔ 4. Minimum-phase, stable

Question ID : **170527544**
Chosen Option : **2**

Q.9 The equation for frequency of oscillations of Wein Bridge oscillator using op-amp is

Ans

✗ 1. $\frac{1}{2\pi RC\sqrt{6}}$

✗ 2. $2\pi RC$

✗ 3. $\frac{1}{\sqrt{2\pi RC}}$

✓ 4. $\frac{1}{2\pi RC}$

Question ID : **170527529**
Chosen Option : **3**

Q.10 A quantum dot is an example of

Ans

✓ 1. 3 – D Nano structure

✗ 2. 1 – D Nano structure

✗ 3. 2 – D Nano structure

✗ 4. Zero – Dimensional Nano structure

Question ID : **170527567**
Chosen Option : **4**

Q.11 Which one is correct with respect to a simple AGC in a radio receiver?

Ans

✗ 1. The audio stage gain is normally controlled by the AGC

✗ 2. The faster the AGC time constant the more accurate the output

✓ 3. An increase in signal strength produces more AGC

✗ 4. The highest AGC voltage is produced

Question ID : **170527553**
Chosen Option : **2**

Q.12 The Avalanche breakdown occurs in lightly doped diodes where the depletion layer is _____ and electric field is _____

Ans

✗ 1. Very low, very high

✗ 2. Very low, very low

✓ 3. Very wide, very low

✗ 4. Very wide, very high

Question ID : **170527514**
Chosen Option : **1**

Q.13 Which one of the following statement is false?

Ans

✗ 1. Conductors are formed using metallic bonding and has positive temperature coefficient

✗ 2. Insulators are formed due to ionic bonding and has negative temperature coefficient

✓ 3. Semiconductors are formed due to metallic bonding and has low resistance

✗ 4. Semiconductors are formed due to covalent bonding and has negative temperature coefficient

Question ID : **170527511**
Chosen Option : **4**

Q.14 The standard reference antenna for the directive gain is

Ans

✓ 1. Isotropic antenna

✗ 2. Infinitesimal dipole

✗ 3. Half-wave dipole

✗ 4. Elementary doublet

Question ID : **170527563**
Chosen Option : **3**

Q.15 Laser diode has a threshold level of current, above which the laser action occurs and below which the laser diode behaves like a

Ans

✗ 1. LCD emitting coherent light

✓ 2. LED emitting incoherent light

✗ 3. PN junction diode

✗ 4. Highly doped Zener diode

Question ID : **170527515**
Chosen Option : **2**

Q.16 A Ge (Germanium) diode has a saturation current of 10 μA at 27°C. Find the saturation current at 127°C?

Ans

✗ 1. 1.27 mA

✓ 2. 10.24 mA

✗ 3. 20 μA

✗ 4. 10 μA

Question ID : **170527517**
Chosen Option : **1**

Q.17 How can a D flip-flop be converted into a T flip-flop?

Ans

✗ 1. $D = T \oplus \bar{Q}$

✓ 2. $D = T \oplus Q$

✗ 3. $D = T\bar{Q}$

✗ 4. $D = TQ$

Question ID : **170527536**
Chosen Option : **1**

Q.18 Which of the following powerplants results into comparatively less carbon foot print?

Ans
- ✗ 1. Diesel power plant
- ✓ 2. Hydroelectric plant
- ✗ 3. Gas Turbine plant
- ✗ 4. Steam power plant

Question ID : **170527572**
Chosen Option : **1**

Q.19 For a dual slope ADC type $3\frac{1}{2}$ digit DVM, the reference voltage is 100 mV and the first integration time is set to 300 ms. For some input voltage, the "disintegration" period is 370.2 ms. The DVM will indicate _____

Ans
- ✗ 1. 100.0 mV
- ✗ 2. 1.414 V
- ✗ 3. 199.9 mV
- ✓ 4. 123.4 mV

Question ID : **170527538**
Chosen Option : **1**

Q.20 A hydroelectric power plant generates

Ans
- ✗ 1. Solar energy from the water reflection currents
- ✗ 2. Electrical energy from the stored temperature of water
- ✓ 3. Electrical energy from the moving water currents
- ✗ 4. Chemical energy from the stagnant water currents

Question ID : **170527570**
Chosen Option : **3**

Q.21 The modulation index of an Amplitude Modulated wave is changed from 0 to 1. The transmitted power is

Ans
- ✓ 1. Increased by 50 percent
- ✗ 2. Decreased by 75 percent
- ✗ 3. Decreased by 50 percent
- ✗ 4. Increased by 75 percent

Question ID : **170527551**
Chosen Option : **1**

Q.22 Given the autocorrelation function for a stationary process is $R_{XX}(\tau) = 25 + \frac{4}{1+6\tau}$.

Find the variance of the process X(t)

Ans
- ✗ 1. 14.28
- ✗ 2. 25
- ✓ 3. 4
- ✗ 4. 29

Question ID : **170527547**
Chosen Option : **4**

Q.23 In free space $\bar{E}(z,t) = 50\cos(\omega t - \beta z)\bar{a}_x$ (V/m), then average power crossing a circular area of radius 2.5 m in the plane z = constant is

Ans

✗ 1. 64.2 W

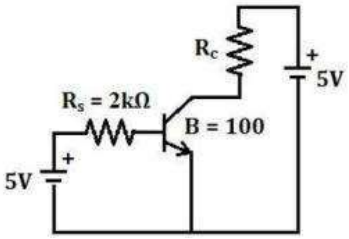
✗ 2. 32.5 W

✗ 3. 130.2 W

✓ 4. 65.1 W

Question ID : **170527561**
Chosen Option : **4**

Q.24 The transistor in the given circuit should always be in the active region. Take $V_{CE(sat)} = 0.2V$, $V_{BE} = 0.7V$. The range of R_C in Ω, which can be used is



Ans

✗ 1. $28 < R_C < 29$

✗ 2. $19 < R_C < 21$

✓ 3. $22 < R_C < 23$

✗ 4. $30 < R_C < 32$

Question ID : **170527523**
Chosen Option : **3**

Q.25 For the equation $\ddot{x}(t) + 3\dot{x}(t) + 2x(t) = 5$, the solution $x(t)$ approaches which of the following values as $t \to \infty$?

Ans

✗ 1. 0

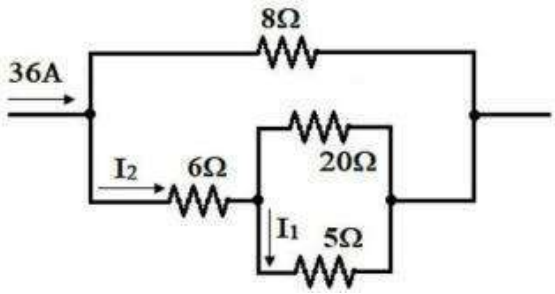
✗ 2. 10

✓ 3. $\frac{5}{2}$

✗ 4. 5

Question ID : **170527507**
Chosen Option : **3**

Q.26 Find current I_1 in the following circuit



Ans
1. 2 A
2. 4.2 A
3. 12.8 A
4. 16 A

Question ID : **170527501**
Chosen Option : **1**

Q.27 In which of the following modulation technique, two or more bits are made for transmitting at once on a single signal?

Ans
1. ASK
2. PSK
3. M-ary ASK
4. FSK

Question ID : **170527556**
Chosen Option : **3**

Q.28 Match the following:

(a)	Linear	(i)	$y(n)=\sum_{k=-\infty}^{\infty}x(k)$
(b)	Non- linear	(ii)	$y(n)=x^2(n)$
(c)	Causal	(iii)	$y(n)=x(-n)$
(d)	Non-causal	(iv)	$y(n)=x(n^2)$

Ans
1. a – iv, b- ii , c- i, d-iii
2. a – i, b- ii , c- iii, d-iv
3. a – iv, b- i , c-ii, d-iii
4. a – ii, b-i, c-iii, d-iv

Question ID : **170527510**
Chosen Option : **3**

Q.29 The hole concentration in p-type GaAs is given by $P=10^{16}\left(1-\frac{x}{L}\right)cm^{-3}$ for $0\le x\le L$ where $L=10\ \mu m$. If hole diffusion coefficient is $10\ cm^2/s$ then hole diffusion current density at $x=5\ \mu m$ is

Ans
1. $16\ A/cm^2$
2. $20\ A/cm^2$
3. $30\ A/cm^2$
4. $24\ A/cm^2$

Question ID : **170527513**
Chosen Option : **2**

Q.30 The Hot wire anemometers are used to measure

Ans
- ✗ 1. Temperature
- ✗ 2. Humidity
- ✗ 3. Weight
- ✓ 4. Fluid flow

Question ID : **170527580**
Chosen Option : **4**

Q.31 A Wheatstone bridge requires a change of 7 Ω in the unknown arm of the bridge to produce a change in deflection of 3 mm of the galvanometer. Determine the sensitivity.

Ans
- ✗ 1. 2.67 Ω/mm
- ✗ 2. 1.15 Ω/mm
- ✗ 3. 21 mm.Ω
- ✓ 4. 0.429 mm/Ω

Question ID : **170527574**
Chosen Option : **2**

Q.32 Match the following:

(a)	Pitot tube	(i)	velocity to pressure
(b)	Hydrometer	(ii)	Temperature to electric current
(c)	Thermocouple	(iii)	pressure to displacement
(d)	Bourdon tube	(iv)	specific gravity to displacement

Ans
- ✗ 1. a – iii, b – ii, c – i, d – iv
- ✗ 2. a – iv, b – i, c – iii, d – ii
- ✓ 3. a – i, b – iv, c – ii, d – iii
- ✗ 4. a – ii, b – iii, c – iv, d – i

Question ID : **170527579**
Chosen Option : **2**

Q.33 $y(n) = x(n) - 2x(n-1) + x(n-2)$ is a good approximation to

Ans
- ✗ 1. BSF passing $\frac{\pi}{8} \le |w| \le \frac{\pi}{4}$
- ✗ 2. LPF
- ✓ 3. HPF
- ✗ 4. BPF passing $\frac{\pi}{8} \le |w| \le \frac{\pi}{4}$

Question ID : **170527508**
Chosen Option : **4**

Q.34 A wide-band pass active filter having a gain of 4, $f_l = 20$ Hz and $f_h = 2$ KHz. Find the value of Q of the filter?

Ans

✗ 1. 0.0001

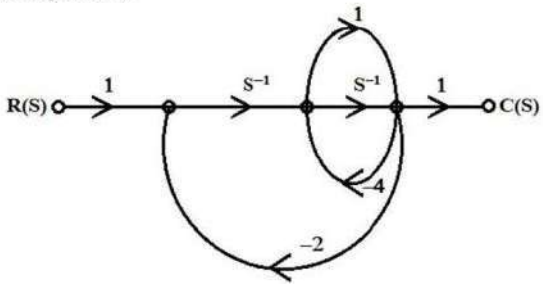
✗ 2. 0.0101

✓ 3. 0.1010

✗ 4. 10000

Question ID : **170527530**
Chosen Option : **3**

Q.35 The signal flow graph of a system is shown in figure. The transfer function $\frac{C(s)}{R(s)}$ of the system is



Ans

✗ 1. $\frac{S(S+2)}{S^2+29S+6}$

✗ 2. $\frac{6S}{S^2+29S+6}$

✓ 3. $\frac{(S+1)}{5S^2+6S+2}$

✗ 4. $\frac{6}{S^2+29S+6}$

Question ID : **170527545**
Chosen Option : **4**

Q.36 What is the unit of permeability in magnetic materials?

Ans

✗ 1. Weber/m

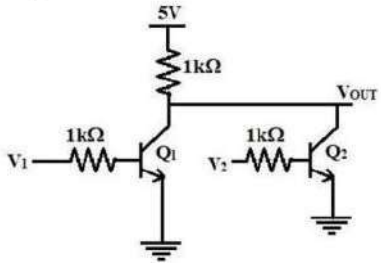
✗ 2. Ampere-turns/weber

✓ 3. Henry/m

✗ 4. Ampere-turns/m

Question ID : **170527568**
Chosen Option : **1**

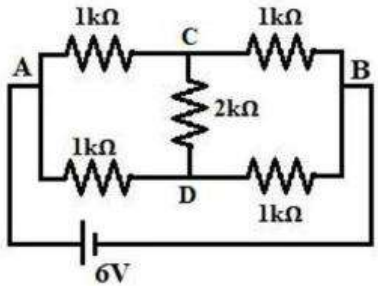
Q.37 Which of the following logical gate is implemented using the circuit shown below where V_1 and V_2 are inputs (with 0 V as digital 0 and 5 V as digital 1) and V_{OUT} is the output?



Ans
✗ 1. XOR
✓ 2. NOR
✗ 3. NOT
✗ 4. NAND

Question ID : **170527531**
Chosen Option : **1**

Q.38 The current through the 2kΩ resistance in the circuit shown in figure is



Ans
✗ 1. 1 mA
✗ 2. 3 mA
✗ 3. 6 mA
✓ 4. 0 mA

Question ID : **170527504**
Chosen Option : **1**

Q.39 A 10 kΩ variable resistance has a linearity of 0.1% and the movement of contact is 320°. If the instrument is to be used as a potentiometer with a linear scale of 0 to 1.6 V. Determine the maximum voltage error.

Ans
✗ 1. 1.0 V
✓ 2. 1.6 mV
✗ 3. 3.2 V
✗ 4. 0.1 mV

Question ID : **170527575**
Chosen Option : **2**

Q.40 Consider a characteristic equation given by $S^4+3S^3+5S^2+6S+k+10=0$. The condition for stability is

Ans
✗ 1. $-10<k$
✗ 2. $k>-4$
✗ 3. $k>5$
✓ 4. $-10<k<-4$

Question ID : **170527546**
Chosen Option : **4**

Q.41 The power spectrum $S_{XX}(w)$ for the random process that has the autocorrelation function of $R_{XX}(\tau)=(A^2/2)\cos(w_0\tau)$ is

Ans
✗ 1. $2\pi\delta(w+w_0)$
✗ 2. $\frac{A^2\pi}{2}[\delta(w-w_0)-\delta(w+w_0]$
✓ 3. $\frac{A^2\pi}{2}[\delta(w-w_0)+\delta(w+w_0]$
✗ 4. $2\pi\delta(w-w_0)$

Question ID : **170527548**
Chosen Option : **3**

Q.42 Identify the wrong answer with the properties of ceramics.

Ans
✗ 1. Good thermal insulator
✗ 2. Low tensile strength
✗ 3. High hardness
✓ 4. High mass density

Question ID : **170527569**
Chosen Option : **3**

Q.43 The dc load line on the output characteristics of a transistor gives the following information except

Ans
✓ 1. Thermal runaway
✗ 2. Active region
✗ 3. Cutoff point
✗ 4. Saturation point

Question ID : **170527519**
Chosen Option : **2**

Q.44 The Power density of white noise is
(η is a real positive constant)

Ans

✔ 1. $\frac{\eta}{2}$

✗ 2. 2η

✗ 3. η

✗ 4. η^2

Question ID : **170527549**
Chosen Option : **1**

Q.45 The motion of charge carrier from region of higher concentration to lower concentration leads to a current called

Ans

✗ 1. Cut off current

✗ 2. Drift current

✗ 3. Pinch off current

✔ 4. Diffusion current

Question ID : **170527512**
Chosen Option : **2**

Q.46 Which of the following is used to reduce the number of data lines required for transmission of occurrences of events?

Ans

✗ 1. Adder

✗ 2. Seven segment decoder

✗ 3. Decoder

✔ 4. Encoder

Question ID : **170527533**
Chosen Option : **4**

Q.47 The complex frequency $s = \sigma + jw$ is the general case; then which of the following is correct?

Ans

✗ 1.
$s = \infty \rightarrow sinusoidal;\ w = \infty \rightarrow exponential;\ \sigma = 0 \rightarrow dc$

✗ 2.
$s = 0 \rightarrow exponential,\ w = \infty \rightarrow sinusoidal;\ \sigma = 0 \rightarrow dc$

✔ 3.
$s = 0 \rightarrow dc,\ w = 0 \rightarrow exponential;\ \sigma = 0 \rightarrow sinusoidal$

✗ 4.
$s = \infty \rightarrow exponential;\ w = 0 \rightarrow dc;\ \sigma = \infty \rightarrow sinusoidal$

Question ID : **170527506**
Chosen Option : **2**

Q.48 The ratio of current of injected carriers into the base to the total emitter current is called

Ans

✗ 1. DC current gain

✓ 2. Emitter efficiency

✗ 3. Base transport factor

✗ 4. Large signal current gain

Question ID : **170527518**
Chosen Option : **2**

Q.49 Consider a linear DM system designed to accommodate analog message signals limited to bandwidth of 3.5 kHz. A sinusoidal test signals of amplitude $A_{max} = 1\,V$ and frequency $f_m = 800\,Hz$ is applied to the system. The sampling rate of the system is 64kHz. Minimum value of the step size to avoid overload is

Ans

✗ 1. 240 mV

✗ 2. 120 mV

✓ 3. 78.5 mV

✗ 4. 67.25 mV

Question ID : **170527557**
Chosen Option : **3**

Q.50 Power consumed by a balanced 3-phase, 3-wire load is measured by the two wattmeter method. The first wattmeter reads twice that of the second. Then the load impedance angle in radians is

Ans

✗ 1. $\pi/3$

✓ 2. $\pi/6$

✗ 3. $\pi/2$

✗ 4. $\pi/8$

Question ID : **170527576**
Chosen Option : **2**

Q.51 Match the following with respect to the characteristics of actual signals which severely strain a control system and their models

(a)	sudden shock	(i)	ramp function
(b)	sudden change	(ii)	parabolic function
(c)	linear change with time	(iii)	impulse function
(d)	faster changes with time	(iv)	step function

Ans

✗ 1. a – iv, b – i, c – iii, d – ii

✗ 2. a – ii, b – i, c – iv, d – iii

✓ 3. a – iii, b – iv, c – i, d – ii

✗ 4. a – i, b – ii, c – iv, d – iii

Question ID : **170527542**
Chosen Option : **3**

Q.52 An industrial consumer has a daily load pattern of 2000 kW, 0.8 lag for 12 hours and 1000 kW unity power factor for 12 hours. The load factor is

Ans
✔ 1. 0.75
✘ 2. 0.6
✘ 3. 2.0
✘ 4. 0.5

Question ID : **170527571**
Chosen Option : **2**

Q.53 The unilateral z-transform is restricted only to the analysis of

Ans
✔ 1. Causal systems with causal inputs
✘ 2. Causal systems with non-causal inputs
✘ 3. Non-causal systems with non- causal inputs
✘ 4. Non-causal systems with causal inputs

Question ID : **170527509**
Chosen Option : **4**

Q.54 How can a decoder be converted into a demultiplexer?

Ans
✘ 1. By adding subtractor
✘ 2. With Ex-OR gate
✘ 3. By adding one inverter
✔ 4. With enable input

Question ID : **170527534**
Chosen Option : **3**

Q.55 Good voice reproduction via PCM requires 128 quantization levels. Its bandwidth of voice channel is 4kHz, then data rate is

Ans
✘ 1. 256 kbps
✘ 2. 28 kbps
✔ 3. 56 kbps
✘ 4. 128 kbps

Question ID : **170527555**
Chosen Option : **4**

Q.56 The bandwidth required for transmitting binary FSK signal is

Ans
✘ 1. $2\ f_b$
✘ 2. $f_b/2$
✔ 3. $4\ f_b$
✘ 4. f_b

Question ID : **170527558**
Chosen Option : **4**

Q.57 When identical amplifier stages are cascaded, then the overall value of

Ans

✗ 1. bandwidth is higher than of an individual stage

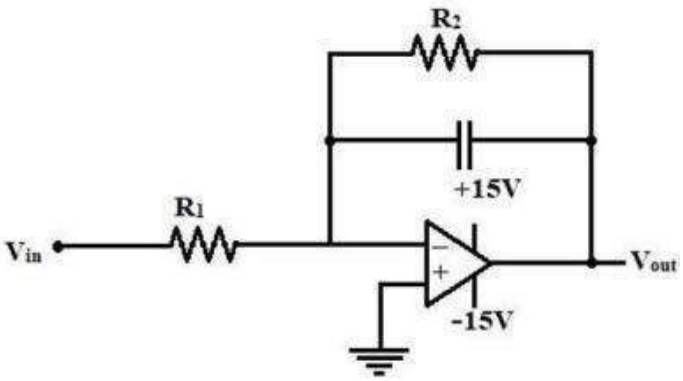
✗ 2. higher cut off frequency is higher than of an individual stage

✓ 3. lower cut off frequency is higher than of an individual stage

✗ 4. lower cut off frequency is lower than of an individual stage

Question ID : **170527524**
Chosen Option : **1**

Q.58 The circuit shown below is an example of a



Ans

✗ 1. High pass filter

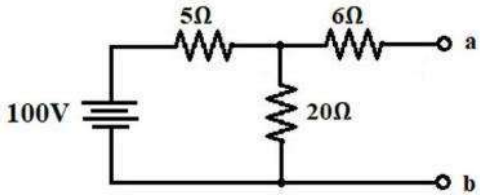
✗ 2. Band pass filter

✗ 3. Notch filter

✓ 4. Low pass filter

Question ID : **170527528**
Chosen Option : **2**

Q.59 Identify the resistor that draws a current of 5A when connected across terminals 'a' and 'b' of the circuit shown in figure below?



Ans

✗ 1. 20 Ω

✓ 2. 6 Ω

✗ 3. 5 Ω

✗ 4. 4 Ω

Question ID : **170527502**
Chosen Option : **1**

Q.60 The simultaneous application of signals x(t) and y(t) to the horizontal and vertical plates, respectively of an oscilloscope, produces a vertical figure of 8 display. If P and Q are equal and $x(t) = P\sin(4t)$ then y(t) is equal to

Ans
✗ 1. $Q\sin(6t)$
✗ 2. $Q\sin(4t)$
✓ 3. $Q\sin(2t)$
✗ 4. $Q\sin(8t)$

Question ID : **170527577**
Chosen Option : **2**

Q.61 Which of the following motor produces constant speed throughout the process?

Ans
✗ 1. Stepper motor
✓ 2. Synchronous motor
✗ 3. DC series motor
✗ 4. Universal motor

Question ID : **170527566**
Chosen Option : **2**

Q.62 The instrument used to measure relative amplitudes of single frequency components in a complex waveform is

Ans
✗ 1. CRO
✓ 2. Wave analyzer
✗ 3. Instrumentation amplifier
✗ 4. Ratio meter

Question ID : **170527578**
Chosen Option : **1**

Q.63 Find the result of the following program?

```
MOV R0, A
XOR A, #3Fh
XOR A, R0
```

Ans
✓ 1. 3Fh = A XOR N
✗ 2. N= A XOR 3Fh
✗ 3. A = 3Fh XOR N
✗ 4. A = 3Fh XOR A XOR R0

Question ID : **170527541**
Chosen Option : **2**

Q.64 Consider a parallel RLC circuit having an inductance of 10mH and a capacitance of 100μF. Determine the resistor value that would lead to overdamped response.

Ans
✗ 1. $R > 5\Omega$
✗ 2. $R > 10\Omega$
✓ 3. $R < 5\Omega$
✗ 4. $R > 100\Omega$

Question ID : **170527505**
Chosen Option : **2**

Q.65 The restorer is a

Ans
✔ 1. Clamper
✘ 2. Clipper
✘ 3. Rectifier
✘ 4. Summer

Question ID : **170527525**
Chosen Option : **3**

Q.66 Two 100 μA full scale PMMC meters are employed to construct a 10 V and a 100 V full scale voltmeter. These meters will have figure of merit is

Ans
✘ 1. 10 kΩ/V and 100 kΩ/V
✘ 2. 10 kΩ/V and 1 kΩ/V
✔ 3. 10 kΩ/V and 10 kΩ/V
✘ 4. 100 kΩ/V and 10 kΩ/V

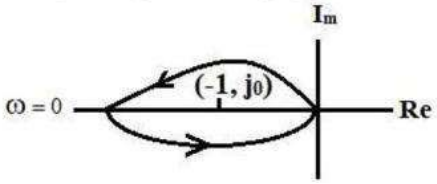
Question ID : **170527573**
Chosen Option : **1**

Q.67 In the spectrum of frequency modulated wave

Ans
✘ 1.
The total number of sidebands depends on the modulation index
✘ 2.
The carrier frequency disappears when the modulation index is large
✔ 3.
The amplitude of any sideband depends on the modulation index
✘ 4.
The carrier frequency cannot disappear with the modulation index

Question ID : **170527552**
Chosen Option : **3**

Q.68 The Nyquist plot of G(s)H(s), which has one right hand pole is given below. The corresponding closed loop system is



Ans
✔ 1. stable
✘ 2. unstable with two righthand poles
✘ 3. unstable with one righthand pole
✘ 4. unstable with three righthand poles

Question ID : **170527543**
Chosen Option : **1**

Q.69 Latch is a sequential circuit that takes all its inputs _____ and changes its output accordingly at any time _____ of a clock signal

Ans

✗ 1. Samples, dependent

✗ 2. Samples, independent

✗ 3. Continuously, dependent

✓ 4. Continuously, independent

Question ID : **170527539**
Chosen Option : **1**

Q.70 Which of the following one is not correct with respect to Faraday's law?

Ans

✓ 1.
The emf induced in a conductor is inversely proportional to the rate of change of flux linked with the conductor

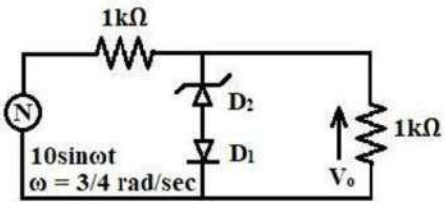
✗ 2.
The value of the emf produced is directly proportional to the rate of change of flux linked with the conductor

✗ 3.
When a changing flux is linked with the circuit, an emf is induced in the circuit

✗ 4.
Whenever a conductor cuts across the magnetic lines of force, an emf is induced in it

Question ID : **170527564**
Chosen Option : **2**

Q.71 The cut in voltage of both Zener diode D_2 & pn diode D_1 shown in figure is 0.7 V, while breakdown voltage of the Zener is 3.3 V and reverse breakdown of D_1 is 50 V. The other parameters can be assumed to be the same as those of an ideal diode. The value of the peak output voltage (V_o) is



Ans

✗ 1. 0.7V in the positive half cycle

✗ 2. 3.3V in the positive half cycle

✓ 3. 4V in the positive half cycle

✗ 4. 5V in the positive half cycle

Question ID : **170527521**
Chosen Option : **2**

Q.72 In n-channel enhancement MOSFET, at a fixed drain voltage, the drain current is

Ans

✔ 1. zero at zero gate voltage and it increases with the positive applied gate voltage

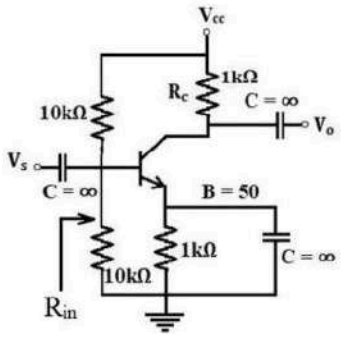
✗ 2. a finite value at zero gate voltage and it increases or decreases with the applied voltage of proper polarity

✗ 3. maximum at zero gate voltage and it decreases with applied negative gate voltage

✗ 4. zero for negative bias voltage to gate and it increases as the negative gate bias is decreased in magnitude

Question ID : **170527516**
Chosen Option : **1**

Q.73 The transconductance g_m of the transistor shown in figure is 10m℧. The value of input resistance R_{in} is



Ans

✗ 1. 5 kΩ

✔ 2. 2.5 kΩ

✗ 3. 8.3 kΩ

✗ 4. 10 kΩ

Question ID : **170527526**
Chosen Option : **2**

Q.74 Match the following:

(a)	Primary cell	(i)	fluid in paste form
(b)	Daniel cell	(ii)	one fluid cell
(c)	Dry cell	(iii)	chemical action
(d)	Voltaic cell	(iv)	two fluid cell

Ans

✗ 1. a – iv, b – i, c – ii, d – iii

✗ 2. a – ii, b – iii, c – iv, d – i

✔ 3. a – iii, b – iv, c – i, d – ii

✗ 4. a – i, b – ii, c – iii, d – iv

Question ID : **170527565**
Chosen Option : **2**

Q.75 The cladding which surrounds the fiber core

Ans
- ✗ 1. Ensures that the refractive index remains constant
- ✓ 2. Acts to help guide the light in the core
- ✗ 3. Is used to protect the fiber
- ✗ 4. Is used to reduce optical interference

Question ID : **170527559**
Chosen Option : **3**

Q.76 The DRAM stores binary information in

Ans
- ✗ 1. programmable AND array
- ✗ 2. internal latches
- ✗ 3. programmable OR array
- ✓ 4. the form of electric charges on capacitors

Question ID : **170527540**
Chosen Option : **4**

Q.77 For a J-K flipflop, its J input is tied to its own $\overline{Q}$ output and the K input is connected to its own Q output. If the flipflop is fed with a clock of frequency 1 MHz, its Q output frequency will be

Ans
- ✗ 1. 5 MHz
- ✗ 2. 1 MHz
- ✓ 3. 0.5 MHz
- ✗ 4. 10 MHz

Question ID : **170527535**
Chosen Option : **3**

Q.78 In which of the following region the FET behaves like a resistor?

Ans
- ✓ 1. Ohmic
- ✗ 2. Pinch off
- ✗ 3. Saturation
- ✗ 4. Breakdown

Question ID : **170527520**
Chosen Option : **2**

Q.79 If S has 3 symbols with probabilities $\frac{1}{4}$, $\frac{1}{2}$ and $\frac{1}{4}$ then the binary entropy of S is

Ans
- ✗ 1. 1
- ✓ 2. $\frac{3}{2}$
- ✗ 3. $\frac{1}{2}$
- ✗ 4. $\frac{1}{4}$

Question ID : **170527550**
Chosen Option : **1**

Q.80 A circuit reduced to a single equivalent capacitance C and a single equivalent resistance R will have a natural response given by $v(t) = v_0 e^{-t/\tau}$ where τ is

Ans
- ✗ 1. $1/RC$
- ✗ 2. C/R
- ✗ 3. R/C
- ✓ 4. RC

Question ID : **170527503**
Chosen Option : **1**

Section : **Section B**

Q.81 A person celebrated his birthday on 12th December 1959. If it was on a Saturday, when will he celebrate his next birthday again on Saturday?

Ans
- ✓ 1. 12th December 1964
- ✗ 2. 12th December 1963
- ✗ 3. 12th December 1965
- ✗ 4. 12th December 1966

Question ID : **170527584**
Chosen Option : **2**

Q.82 Fill in the blank with suitable form of the verb:
John's answers _____ his attitude.

Ans
- ✗ 1. reflects
- ✗ 2. are reflected
- ✓ 3. reflect
- ✗ 4. Have been reflected

Question ID : **170527589**
Chosen Option : **3**

Q.83 Which of the following is not a web browser?

Ans
- ✗ 1. Google Chrome
- ✗ 2. Internet Explorer
- ✗ 3. Firefox
- ✓ 4. Ubuntu

Question ID : **170527598**
Chosen Option : **4**

Q.84 $\sqrt{(22+37-15)\div 11\times 13-3} =$

Ans
- ✗ 1. 11
- ✗ 2. 3
- ✗ 3. 13
- ✓ 4. 7

Question ID : **170527581**
Chosen Option : **4**

Q.85 The sculptor who carved the Gunpark statue built as a symbol of the martyrs (369) of the 1969 Special Telangana Movement is

Ans
✗ 1. B.S.Ramulu
✓ 2. Ekka Yadagi Rao
✗ 3. VVR Chari
✗ 4. Durgam Ravinder

Question ID : **170527593**
Chosen Option : **4**

Q.86 Choose the one which can be substituted for the given words/sentence.
"One who does not care for literature or art"

Ans
✗ 1. Hypocrite
✗ 2. Dictator
✗ 3. Primitive
✓ 4. Philistine

Question ID : **170527591**
Chosen Option : **1**

Q.87 In a certain code language 'CODING is coded as 'DRIPWR then in the same language which word would be coded as 'YWUSQO'

Ans
✓ 1. XTPLHD
✗ 2. DHLPTX
✗ 3. XTPMJE
✗ 4. YUQLHD

Question ID : **170527583**
Chosen Option : **1**

Q.88 In MS Word, macros are used for

Ans
✗ 1. Editing Images using built-in VB code
✗ 2. Aggregating table rows or columns with given key combination
✗ 3. Automate the design of a document with a given key combination
✓ 4. Repeating a sequence of keystrokes with a given key combination

Question ID : **170527599**
Chosen Option : **2**

Q.89 The three new states of India that were created in 2000 are from

Ans
✗ 1. Uttar Pradesh, Bihar and West Bengal
✗ 2. West Bengal, Uttar Pradesh and Maharashtra
✗ 3. Madhya Pradesh, Haryana and Rajasthan
✓ 4. Madhya Pradesh, Uttar Pradesh and Bihar

Question ID : **170527587**
Chosen Option : **2**

Q.90 Choose an appropriate ***preposition*** from the options:
What you say has hardly any bearing _____ the lives of tribes.

Ans
✗ 1. for
✗ 2. about
✓ 3. on
✗ 4. in

Question ID : **170527592**
Chosen Option : **2**

Q.91 Which is the correct formatting of a 'SUM' formula?

Ans
✗ 1. SUMof(B1-B6)
✗ 2. SUM (B1 to B6)
✗ 3. =SUMOF(B1,B6)
✓ 4. =SUM(B1:B6)

Question ID : **170527597**
Chosen Option : **4**

Q.92 The traditional art form of Telangana, which involves storytelling through puppetry, is called:

Ans
✗ 1. Yakshagana
✗ 2. Burrakatha
✓ 3. Tholu Bommalata
✗ 4. Kathakali

Question ID : **170527595**
Chosen Option : **3**

Q.93 Who is the renowned Telangana artist known for his pioneering work in the Cheriyal Scroll painting style?

Ans
✗ 1. P. S. Ramakrishna
✗ 2. Surya Prakash
✓ 3. Thota Vaikuntam
✗ 4. Laxma Goud

Question ID : **170527594**
Chosen Option : **4**

Q.94 Tsunamis are not caused by?

Ans
✗ 1. Earthquakes
✓ 2. Hurricanes
✗ 3. Volcanic eruptions
✗ 4. Undersea landslides

Question ID : **170527585**
Chosen Option : **3**

Q.95 Author and poet Mercy Margaret won the 2017 Sahitya Akademi Yuva Puraskar for the book

Ans
✗ 1. Maata Muchata
✗ 2. Maatalu Muchatlu
✓ 3. Maatala Madugu
✗ 4. Maatala Mantalu

Question ID : **170527596**
Chosen Option : **2**

Q.96 The present chairman of the chiefs of staff committee in the Indian Armed Forces is

Ans
✓ 1. Anil Chauhan
✗ 2. Birender Singh Dhanaa
✗ 3. Manoj Mukund Naravane
✗ 4. Bipin Rawat

Question ID : **170527586**
Chosen Option : **4**

Q.97 The salaries of three persons A, B and C are in the ratio 2 : 4 : 5. If the salaries of A, B and C are increased by 30%, 25% and 20% respectively, then the ratio of their new salaries in the same order is

Ans
✗ 1. 3 : 5 : 5
✓ 2. 13 : 25 : 30
✗ 3. 12 : 20 : 25
✗ 4. 15 : 25 : 28

Question ID : **170527582**
Chosen Option : **2**

Q.98 How is a logo that appears in the same position on all the slides is added in Power Point?

Ans
✗ 1. Insert logo on notes master
✗ 2. There is no direct way. It must be inserted manually on each slide
✓ 3. Insert logo on the slide master
✗ 4. Insert logo on handout master

Question ID : **170527600**
Chosen Option : **1**

Q.99 The river that flows towards the west is

Ans
✓ 1. Narmada
✗ 2. Cauvery
✗ 3. Krishna
✗ 4. Godavari

Question ID : **170527588**
Chosen Option : **4**

Q.100 The Antonym of "Notorious " is ---------.

Ans

✔ 1. Famous

✗ 2. Uninterested

✗ 3. Tarnished

✗ 4. Vigorous

Question ID : **170527590**
Chosen Option : **4**