SJVNL
ET

Previous Year Paper
Electrical 2019

SJVN LIMITED
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Participant ID	
Participant Name	
Test Center Name	iON Digital Zone iDZ 1 Sector 62
Test Date	30/05/2019
Test Time	2:00 PM - 4:30 PM
Subject	Executive Trainee Electrical

Section : **Discipline**

Q.1 The baseband bandwidth in case of frequency division multiplexing (FDM) is:

Ans
✗ 1. (Modulated message bandwidths) – (guard bands)
✓ 2. (Modulated message bandwidths) + (guard bands)
✗ 3. (Modulated message bandwidths) ÷ (guard bands)
✗ 4. (Modulated message bandwidths) × (guard bands)

Question ID : **16794328625**
Status : **Answered**
Chosen Option : **2**

Q.2 In load frequency control the area control error is negative if:

Ans
✗ 1. frequency has increased
✓ 2. net power flow out of an area is low
✗ 3. net power flow out of an area is high
✗ 4. net power flow out of an area is zero

Question ID : **16794328596**
Status : **Answered**
Chosen Option : **3**

Q.3 In 8085 microprocessor, assume that the Stack Pointer is pointing to memory location 2000H and registers DE contains 1050H. After the execution of instruction PUSH D the Stack Pointer would be pointing at:

Ans
✗ 1. 2000H
✗ 2. 1FFDH
✓ 3. 1FFEH
✗ 4. 1FFFH

Question ID : **16794328616**
Status : **Answered**
Chosen Option : **3**

Q.4 Assuming δ to be in electrical degrees, the swing equation is given by the expression:

Ans

1. $\frac{H}{180f_0}\frac{d\delta}{dt} = P_m - P_e$

2. $\frac{H}{180f_0}\frac{d^2\delta}{dt^2} = P_m - P_e$

3. $\frac{H}{180f_0}\frac{d^2\delta}{dt^2} = P_e - P_m$

4. $\frac{H}{180f_0}\frac{d\delta}{dt} = P_e - P_m$

Question ID : **16794328598**
Status : **Answered**
Chosen Option : **2**

Q.5 Circuit breaker with shortest arcing time is:

Ans

1. vacuum CB
2. bulk oil CB
3. air blast CB
4. SF6 CB

Question ID : **16794328591**
Status : **Answered**
Chosen Option : **3**

Q.6 The megohmmeter is used for measurement of:

Ans

1. high value capacitance
2. medium value resistance
3. high value resistance
4. low value resistance

Question ID : **16794328551**
Status : **Answered**
Chosen Option : **3**

Q.7 An example of type I superconductor is:

Ans

1. niobium tin
2. tin
3. niobium titanium
4. yttrium barium copper oxide

Question ID : **16794328536**
Status : **Answered**
Chosen Option : **2**

Q.8

At the terminals of a network, to which a certain load is connected, it was found that $R_{th} = 20\ \Omega$ and $V_{th} = 80$ V. The maximum possible power supplied to the load is:

Ans
1. 80 W ✔
2. 40 W ✘
3. 160 W ✘
4. 4 W ✘

Question ID : **16794328547**
Status : **Answered**
Chosen Option : **1**

Q.9 If a power transformer has a star connected primary and a delta connected secondary then the CT connections on its primary and secondary sides should be:

Ans
1. delta and delta respectively ✘
2. star and delta respectively ✘
3. star and star respectively ✘
4. delta and star respectively ✔

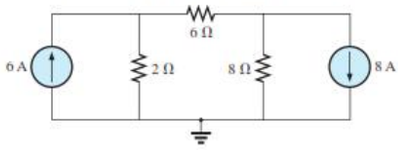
Question ID : **16794328586**
Status : **Answered**
Chosen Option : **4**

Q.10 The chemical formula for simple ferrites is:

Ans
1. $Me^2 + Fe_2^3 + O_2$ ✘
2. $Me^3 + Fe_2^2 + O_4$ ✘
3. $Me^2 + Fe_2^3 + O_4$ ✔
4. $Me^2 + Fe^3 + O_4$ ✘

Question ID : **16794328530**
Status : **Answered**
Chosen Option : **4**

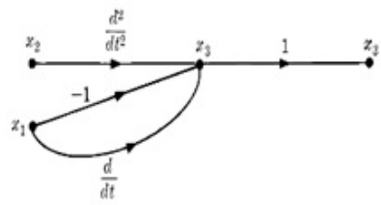
Q.11 Using mesh analysis, determine the current through 2 Ω resistor of the given circuit.



Ans
1. 3.25 A ✘
2. 1.25 A ✔
3. 4.75 A ✘
4. 2 A ✘

Question ID : **16794328542**
Status : **Answered**
Chosen Option : **2**

Q.12 The expression for x_3 from the signal flow graph is:



Ans

✔ 1. $x_3 = \frac{d^2x_2}{dt^2} + \frac{dx_1}{dt} - x_1$

✘ 2. $x_3 = \frac{d^2x_2}{dt^2} + \frac{dx_1}{dt} - x_1 - 1$

✘ 3. $x_3 = \frac{d^2x_2}{dt^2} - \frac{dx_1}{dt} - x_1$

✘ 4. $x_3 = \frac{d^2x_2}{dt^2} + \frac{dx_1}{dt} - x_1 + 1$

Question ID : **16794328562**
Status : **Answered**
Chosen Option : **1**

Q.13 For transmission of the voice and music signals commercial FM radio must broadcast using frequency band range of:

Ans

✘ 1. 200 kHz to 10.7 MHz

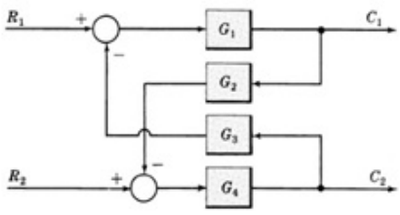
✔ 2. 88 – 108 MHz

✘ 3. 110 MHz to 150 MHz

✘ 4. 22 – 66 MHz

Question ID : **16794328629**
Status : **Answered**
Chosen Option : **2**

Q.14 From the figure output C_1 due to R_1 and R_2 is:



Ans

✘ 1. $\frac{G_1R_1 - G_2G_3G_4R_2}{1 - G_1G_2G_3G_4}$

✔ 2. $\frac{G_1R_1 - G_1G_3G_4R_2}{1 - G_1G_2G_3G_4}$

✘ 3. $\frac{G_1R_1 - G_1G_2G_3G_4R_2}{1 - G_1G_2G_3G_4}$

✗ 4. $\frac{G_1R_1 - G_1G_3G_2R_2}{1 - G_1G_2G_3G_4}$

Question ID : **16794328570**
Status : **Answered**
Chosen Option : **2**

Q.15 Ratio of average demand to maximum demand is called:

Ans
✗ 1. demand factor
✗ 2. diversity factor
✗ 3. average demand
✓ 4. load factor

Question ID : **16794328599**
Status : **Answered**
Chosen Option : **4**

Q.16 A relay is connected to a 400/5 current transformer. For a fault current of 2.4 kA and relay setting of 150%, the PSM is:

Ans
✗ 1. 8
✗ 2. 12
✓ 3. 4
✗ 4. 16

Question ID : **16794328590**
Status : **Answered**
Chosen Option : **3**

Q.17 What values will the registers BC and HL contain after the following instructions of 8085 microprocessor are executed?
LXI SP, 2099H
LXI B, 424FH
LXI H, 64A5H
PUSH B
PUSH H
POP B
POP H
RET

Ans
✗ 1. BC = 4F42H; HL = A564H
✗ 2. BC = 424FH; HL = 64A5H
✓ 3. HL = 424FH; BC = 64A5H
✗ 4. HL = 4F42H; BC = A564H

Question ID : **16794328611**
Status : **Answered**
Chosen Option : **3**

Q.18 Which of the following AC bridges is used to measure unknown frequency?

Ans
✓ 1. Wien's bridge

✗ 2. Kelvin's double bridge

✗ 3. De Sauty's bridge

✗ 4. Maxwell's bridge

Question ID : **16794328549**
Status : **Answered**
Chosen Option : **1**

Q.19 An 230 V, 1-phase watt hour meter records a constant load of 10 A for 10 h at unity PF If the meter disc makes 2300 revolutions during this period, what is the meter constant in revolutions/kWh?

Ans

✗ 1. 400 rev/kWh

✓ 2. 100 rev/kWh

✗ 3. 200 rev/kWh

✗ 4. 300 rev/kWh

Question ID : **16794328552**
Status : **Answered**
Chosen Option : **2**

Q.20 Distortion factor, DF and total harmonic distortion THD are related by:

Ans

✗ 1. $\text{THD} = \sqrt{\frac{1}{1+\text{DF}^2}}$

✓ 2. $\text{DF} = \sqrt{\frac{1}{1+\text{THD}^2}}$

✗ 3. $\text{DF} = \sqrt{\frac{1}{1-\text{THD}^2}}$

✗ 4. $\text{THD} = \sqrt{\frac{1}{1-\text{DF}^2}}$

Question ID : **16794328634**
Status : **Answered**
Chosen Option : **2**

Q.21 Conductively-Modulated Field Effect Transistor is also called:

Ans

✓ 1. Insulated Gate Bipolar Transistor

✗ 2. Metal Oxide Semiconductor Field Effect Transistor

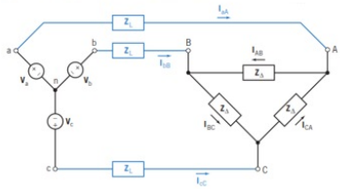
✗ 3. Bipolar Junction Transistor

✗ 4. MOS-Controlled Thyristor

Question ID : **16794328632**
Status : **Answered**

Chosen Option : **2**

Q.22 In the given 3-phase circuit find the current I_{aA}. (Given $V_a = 100 + j0$ V, $Z_L = 50 + j75\ \Omega$ and impedance in each phase of delta, $Z_\Delta = 150 - j225\ \Omega$)



Ans

✗ 1. $I_{aA} = 0.5 + j0.67$ A

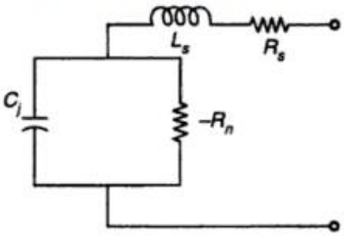
✓ 2. $I_{aA} = 1 + j0$ A

✗ 3. $I_{aA} = 0.5 - j0.67$ A

✗ 4. $I_{aA} = 3 + j3$ A

Question ID : **16794328545**
Status : **Answered**
Chosen Option : **2**

Q.23 The given figure represents the equivalent circuit of which of the following?



Ans

✗ 1. IMPATT diode

✗ 2. Avalanche photodiode

✓ 3. Tunne diode

✗ 4. GUNN diode

Question ID : **16794328534**
Status : **Answered**
Chosen Option : **3**

Q.24 In a salient pole synchronous machine, the excitation voltage for generating action is given by:

Ans

✗ 1. $E_o = V \cos\delta + I_q R_a - I_d X_d$

✗ 2. $E_o = V \cos\delta - I_q R_a - I_d X_d$

✓ 3. $E_o = V \cos\delta + I_q R_a + I_d X_d$

✗ 4. $E_o = V \cos\delta - I_q R_a + I_d X_d$

Question ID : **16794328584**
Status : **Answered**
Chosen Option : **3**

Q.25

The result of the following 8086 assembly language program is:

MOV AX, BB11H

MOV CX, 1122H

ADD AX, CX

HLT

Ans
1. CX = BB11H
2. AX = CC33H
3. AX = BB11H
4. CX = CC33H

Question ID : **16794328620**
Status : **Answered**
Chosen Option : **3**

Q.26 Materials in which the dipole moments of adjacent atoms line up in antiparallel fashion are called:

Ans
1. anti-ferrimagnetic materials
2. anti-ferromagnetic materials
3. anti-paramagnetic materials
4. anti-supermagnetic materials

Question ID : **16794328522**
Status : **Answered**
Chosen Option : **2**

Q.27 In 8085 microprocessor the first machine cycle of every instruction is:

Ans
1. Opcode Fetch Cycle
2. Memory Read Cycle
3. Memory Write Cycle
4. I/O Read Cycle

Question ID : **16794328617**
Status : **Answered**
Chosen Option : **1**

Q.28 The Giorgi System of Units is the other name of:

Ans
1. the cgs electromagnetic system of units
2. The practical system of units
3. rationalised MKS system of units
4. the cgs electrostatic system of units

Question ID : **16794328557**
Status : **Answered**
Chosen Option : **4**

Q.29 In a thermocouple the cold junction is at 20 °C and the neutral temperature is at 250 °C. The inversion temperature is:

Ans
1. 480 °C ✔
2. 500 °C ✘
3. 520 °C ✘
4. 460 °C ✘

Question ID : **16794328554**
Status : **Answered**
Chosen Option : **3**

Q.30 When a 3-phase induction motor is supplied with balanced 3-phase supply, it produces a rotating magnetic field of magnitude:

Ans
1. twice the peak value of the flux due to any individual phase ✘
2. equal to the peak value of the flux due to any individual phase ✘
3. 1.5 times the peak value of the flux due to any individual phase ✔
4. 0.5 times the peak value of the flux due to any individual phase ✘

Question ID : **16794328576**
Status : **Answered**
Chosen Option : **3**

Q.31 Marginally stable systems have closed loop transfer functions with only imaginary axis poles of multiplicity:

Ans
1. 1 ✔
2. 3 ✘
3. 4 ✘
4. 2 ✘

Question ID : **16794328569**
Status : **Answered**
Chosen Option : **4**

Q.32 An impedance of an antenna is 40 Ω. An unmodulated AM signal produces a current of 5 A. Assuming total power of 1295 W, determine the sideband power:

Ans
1. 800 W ✘
2. 2800 W ✘
3. 2295 W ✘
4. 295 W ✔

Question ID : **16794328622**
Status : **Answered**
Chosen Option : **4**

Q.33

3 A linear system:

Ans
✔ 1. satisfies the properties of superposition and homogeneity

✘ 2.
satisfies the properties of superposition but not of homogeneity

✘ 3.
satisfies the properties of homogeneity but not of superposition

✘ 4.
does not satisfy the properties of superposition and homogeneity

Question ID : **16794328560**
Status : **Answered**
Chosen Option : **1**

Q.34 The output ripple voltage in a buck dc-dc converter is calculated from:

Ans
✘ 1. $\frac{\Delta V_0}{V_0} = \frac{1+D}{8LCf^2}$

✘ 2. $\frac{\Delta V_0}{V_0} = \frac{1-D}{8LCf}$

✘ 3. $\frac{\Delta V_0}{V_0} = \frac{1+D}{8LCf}$

✔ 4. $\frac{\Delta V_0}{V_0} = \frac{1-D}{8LCf^2}$

Question ID : **16794328637**
Status : **Answered**
Chosen Option : **4**

Q.35 The subcycle surge current rating of a thyristor is given by:
Where,
T = time for one half cycle of supply frequency
t = duration of subcycle surge

Ans
✔ 1. $I_{sb} = I\sqrt{\frac{T}{t}}$

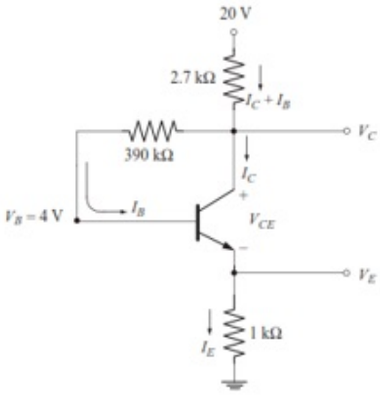
✘ 2. $I_{sb} = I\sqrt{\frac{t}{T}}$

✘ 3. $I_{sb} = t\sqrt{\frac{I}{T}}$

4. $I_{sb} = T\sqrt{\frac{I}{t}}$

Question ID : **16794328630**
Status : **Answered**
Chosen Option : **1**

Q.36 Determine I_B in the circuit shown.



Ans
1. 11.09 mA
2. 11.09 µA
3. 18.17 mA
4. 18.17 µA

Question ID : **16794328606**
Status : **Answered**
Chosen Option : **3**

Q.37 When a two-winding transformer is converted into an autotransformer, the kVA rating of the resultant autotransformer:

Ans
1. remains same
2. decreases to half of the original rating
3. decreases to $3/4^{th}$ of the original rating
4. increases

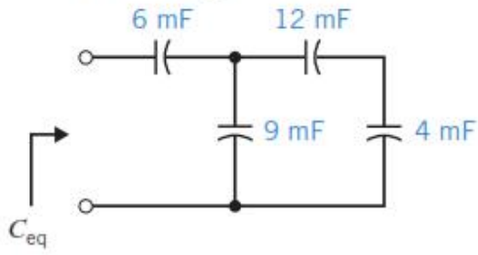
Question ID : **16794328575**
Status : **Answered**
Chosen Option : **4**

Q.38 In the standard three-phase voltage source inverter topology, which of the two states out of the eight valid switching states produces zero ac line voltages?

Ans
1. State 5 and State 6
2. State 7 and State 8
3. State 3 and State 4
4. State 1 and State 2

Question ID : **16794328633**
Status : **Answered**
Chosen Option : **3**

Q.39 The value of C_{eq} in the given circuit is:



Ans
1. 4 μF
2. 11.76 μF
3. 11.76 mF
4. 4 mF

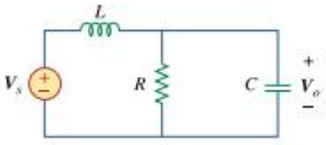
Question ID : **16794328538**
Status : **Answered**
Chosen Option : **4**

Q.40 The status of CY, AC, P and S for the following program in 8085 microprocessor is:
MVI A, 8FH
MVI B, 68H
ADD B

Ans
1. AC = 1; CY = 1; S = 0; P = 1
2. AC = 0; CY = 0; S = 1; P = 0
3. AC = 1; CY = 0; S = 1; P = 0
4. AC = 0; CY = 1; S = 0; P = 1

Question ID : **16794328614**
Status : **Answered**
Chosen Option : **3**

Q.41 The transfer function H(s) of the given circuit is:



Ans
1. $H(s) = \frac{C}{s^2L + sLRC + R}$
2. $H(s) = \frac{R}{s^2LRC + sL + R}$
3. $H(s) = \frac{R}{s^2L + sLRC + R}$

✗ 4. $H(s) = \frac{C}{s^2LRC + sL + R}$

Question ID : **16794328548**
Status : **Answered**
Chosen Option : **2**

Q.42 The primary constants of the transmission lines are _____.

Ans
✗ 1. R, G and L
✗ 2. L, C and G
✓ 3. R, L, C and G
✗ 4. R, L and C

Question ID : **16794328521**
Status : **Answered**
Chosen Option : **3**

Q.43 When a crystal vibrates, L represents:

Ans
✓ 1. electrical equivalent of crystal mass
✗ 2. electrical equivalent of heat
✗ 3. electrical equivalent of mechanical friction
✗ 4. electrical equivalent of elasticity

Question ID : **16794328604**
Status : **Answered**
Chosen Option : **1**

Q.44 For measuring performance at negligible noise, the signal-to-quantization-noise power ratio of pulse code modulation (PCM) must be where f(t) is analog message and $\varepsilon_q(t)$ quantization error:

Ans
✗ 1. $\left(\frac{S_0}{N_q}\right)_{PCM} = \frac{\overline{\varepsilon_q^2(t)}}{\overline{f^2(t)}}$
✗ 2. $\left(\frac{S_0}{N_q}\right)_{PCM} = \frac{\overline{\varepsilon_q^2(t)f(t)}}{\overline{f^2(t)}}$
✓ 3. $\left(\frac{S_0}{N_q}\right)_{PCM} = \frac{\overline{f^2(t)}}{\overline{\varepsilon_q^2(t)}}$
✗ 4. $\left(\frac{S_0}{N_q}\right)_{PCM} = \frac{\overline{f^2(t)\varepsilon_q(t)}}{\overline{\varepsilon_q^2(t)}}$

Question ID : **16794328623**
Status : **Answered**
Chosen Option : **3**

Q.45

5 If the magnetic field $\bar{H} = [3x\cos\beta + 6y\sin\alpha]\bar{a}_z$, find the current density $\bar{J}$ if fields are invariant with time.

Ans

✗ 1. $\bar{J} = 6\sin\alpha\bar{a}_x + 3\cos\beta\bar{a}_y \ A/m^2$

✗ 2. $\bar{J} = 6\sin\alpha\bar{a}_x + 3\cos\beta\bar{a}_y \ A/m$

✗ 3. $\bar{J} = 6\sin\alpha\bar{a}_x - 3\cos\beta\bar{a}_y \ A/m$

✓ 4. $\bar{J} = 6\sin\alpha\bar{a}_x - 3\cos\beta\bar{a}_y \ A/m^2$

Question ID : **16794328523**
Status : **Answered**
Chosen Option : **3**

Q.46 For a hydrogen atom the potential energy of the electron in the field of the nucleus is given by:

Ans

✓ 1. $V = -\frac{e^2}{4\pi\varepsilon_o r}$

✗ 2. $V = \frac{e^2}{4\pi\varepsilon_o r}$

✗ 3. $V = -\frac{4e^2}{\pi\varepsilon_o r}$

✗ 4. $V = \frac{4e^2}{\pi\varepsilon_o r}$

Question ID : **16794328532**
Status : **Answered**
Chosen Option : **1**

Q.47 The peak power dissipated per transistor in case of a class B push-pull power amplifier if $V_{cc} = 15$ V and $R'_L = 5\ \Omega$ is:

Ans

✓ 1. $\frac{45}{\pi^2}$

✗ 2. $\frac{90}{\pi}$

✗ 3. $\frac{90}{\pi^2}$

✗ 4. $\frac{45}{\pi}$

Question ID : **16794328610**
Status : **Answered**
Chosen Option : **4**

Q.48 Which of the following step does NOT hold true for the steps involved in Newton-Raphson method of load flow study?

Ans

✗ 1.

Use the estimated $|V|^{(0)}$ and $\delta^{(0)}$ to formulate the Jacobian matrix $J^{(0)}$

✗ 2.

Choose initial values of the voltage magnitude $|V|^{(0)}$ of all n_p load buses and n-1 angles $\delta^{(0)}$ of the voltages of all the buses except the slack bus

✗ 3.

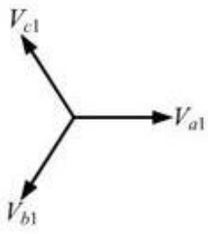
Use the estimated $|V|^{(0)}$ and $\delta^{(0)}$ to calculate a total n_p number of injected reactive power $Q_{calc}^{(0)}$ and equal number of reactive power mismatch $\Delta Q^{(0)}$

✓ 4.

Use the estimated $|V|^{(0)}$ and $\delta^{(0)}$ to calculate a total n number of injected real power $P_{calc}^{(0)}$ and equal number of real power mismatch $\Delta P^{(0)}$

Question ID : **16794328593**
Status : **Answered**
Chosen Option : **2**

Q.49 The figure shown represents a/an:



Ans

✓ 1. positive sequence

✗ 2. negative sequence

✗ 3. zero sequence

✗ 4. unbalanced network

Question ID : **16794328595**
Status : **Answered**
Chosen Option : **1**

Q.50 A 3-phase, 4 pole, 55 hp squirrel cage induction motor has the following result from the no load test: supply frequency = 50 Hz, line voltage = 2 kV, line current = 4.5 A and input power = 1600 W. Assuming an average DC resistance per stator phase being 2.8 Ω, determine the no load rotational loss.

Ans

✓ 1. 1429.9 W

✗ 2. 1562.2 W

✗ 3. 1829.9 W

✗ 4. 1494.16 W

Question ID : **16794328582**
Status : **Answered**
Chosen Option : **1**

Q.51 A transformer has a core loss of 100 W at $3/4^{th}$ full load. Its full load copper loss when maximum efficiency occurs at full load is:

Ans

✗ 1. 75 W

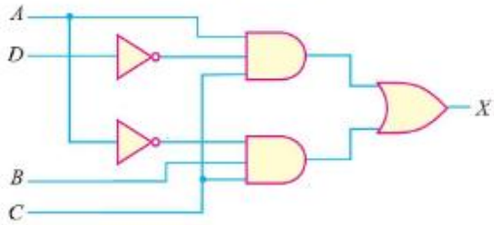
✓ 2. 100 W

✗ 3. 133.34 W

✗ 4. 177.78 W

Question ID : **16794328587**
Status : **Answered**
Chosen Option : **2**

Q.52 Output X in the circuit is:



Ans

✗ 1. $X = A\bar{C}D + \bar{A}BC$

✗ 2. $X = AC\bar{D} + A\bar{B}C$

✓ 3. $X = AC\bar{D} + \bar{A}BC$

✗ 4. $X = AC\bar{D} + \overline{ABC}$

Question ID : **16794328607**
Status : **Answered**
Chosen Option : **3**

Q.53 The Hall mobility (μ_H) is given by:

Ans

✓ 1. $\mu_H = \frac{e\tau}{m}$

✗ 2. $\mu_H = e\tau m$

✗ 3. $\mu_H = \frac{m\tau}{e}$

✗ 4. $\mu_H = \frac{em}{\tau}$

Question ID : **16794328528**
Status : **Answered**
Chosen Option : **1**

Q.54 For which of the material is the energy gap at room temperature least?

Ans

✓ 1. Si

✗ 2. GaAs

✗ 3. Diamond

✗ 4. CdS

Question ID : **16794328531**
Status : **Answered**
Chosen Option : **2**

Q.55 A signal $V_m \sin 100\pi t + 2V_m \sin 200\pi t$ must be sampled and stored in a data acquisition system. To extract the signal effectively, the original sampling frequency should be:

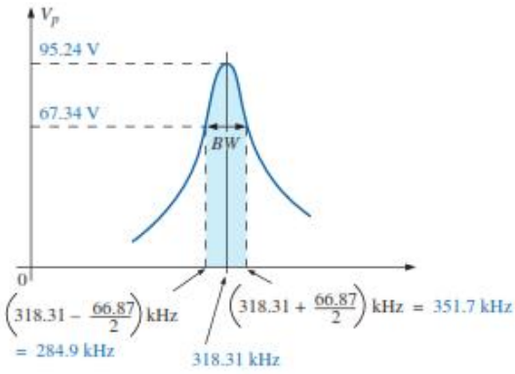
Ans

✗ 1. 50 Hz

✔ 2. 200 Hz
✘ 3. 100 Hz
✘ 4. 150 Hz

Question ID : **16794328558**
Status : **Answered**
Chosen Option : **2**

Q.56 In the given network determine the bandwidth (BW) if Q_P is 100.



Ans
✘ 1. 351.7 kHz
✔ 2. 3.1831 kHz
✘ 3. 318.31 kHz
✘ 4. 2.849 kHz

Question ID : **16794328546**
Status : **Answered**
Chosen Option : **2**

Q.57 In 8085 microprocessor, assume the accumulator contains AAH and CY = 0. How many times the instruction RAL must be executed so that the accumulator reads A9H. What will be the CY bit reading at that instant?

Ans
✔ 1. 2 times; CY = 0
✘ 2. 4 times; CY = 0
✘ 3. 4 times; CY = 1
✘ 4. 2 times; CY = 1

Question ID : **16794328615**
Status : **Answered**
Chosen Option : **2**

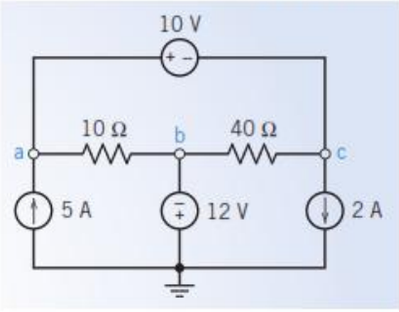
Q.58 Out of the following hardware interrupts in 8085 which has got the least priority?

Ans
✘ 1. TRAP
✘ 2. RST 7.5
✘ 3. RST 6.5
✔ 4. RST 5.5

Question ID : **16794328618**
Status : **Answered**

Chosen Option : **4**

Q.59 Using nodal analysis determine the voltage at node c in the given circuit.

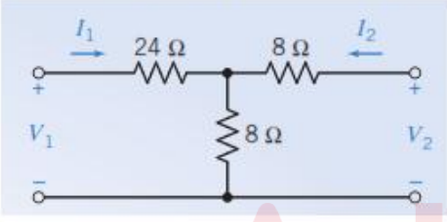


Ans

1. ✗ 12 V
2. ✗ −12 V
3. ✗ 5 V
4. ✓ 4 V

Question ID : **16794328543**
Status : **Answered**
Chosen Option : **2**

Q.60 Determine the Z parameter of the given network.



Ans

1. ✓ $Z = \begin{bmatrix} 32 & 8 \\ 8 & 16 \end{bmatrix}$
2. ✗ $Z = \begin{bmatrix} 8 & 32 \\ 32 & 16 \end{bmatrix}$
3. ✗ $Z = \begin{bmatrix} 32 & 8 \\ 16 & 8 \end{bmatrix}$
4. ✗ $Z = \begin{bmatrix} 16 & 8 \\ 8 & 32 \end{bmatrix}$

Question ID : **16794328544**
Status : **Answered**
Chosen Option : **1**

Q.61 When L is variable, minimum attenuation is achieved at:
(Where: L is Inductance per unit length; C is Capacitance per unit length; R is Resistance per unit length; and G is Conductance per unit length.)

Ans

1. ✗ $L = \frac{RG}{C}$ H/km
2. ✓ $L = \frac{CR}{G}$ H/km

3. $L = CRG\ H/km$

4. $L = \frac{CG}{R}\ H/km$

Question ID : **16794328526**
Status : **Answered**
Chosen Option : **2**

Q.62 Which of the following is one of the boundary conditions for time varying fields?

Ans

1.
The tangential component of magnetic field intensity is discontinuous across the surface except for a perfect conductor.

2.
The normal component of electric flux density is discontinuous at the boundary if the surface charge density is zero.

3.
The normal component of magnetic flux density is continuous at the boundary.

4.
The tangential component of electric field intensity is discontinuous at the surface.

Question ID : **16794328520**
Status : **Answered**
Chosen Option : **3**

Q.63 Ampere's circuit law for time varying fields is given by:

Ans

1. $\nabla \times \bar{H} = \bar{J_C} - \bar{J_D}$

2. $\nabla \times \bar{H} = \bar{J_C} + \bar{J_D}$

3. $\nabla \times \bar{H} = J_C + J_D$

4. $\nabla \times \bar{H} = J_C - J_D$

Question ID : **16794328524**
Status : **Answered**
Chosen Option : **2**

Q.64 The quality factor Q of a series resonant circuit is defined as:

Ans

1.
the sum of the reactive power of either the inductor or the capacitor and the average power of the resistor at resonance

2.
the ratio of the average power of the resistor to the reactive power of either the inductor or the capacitor at resonance

3.
the product of the reactive power of either the inductor or the capacitor and the average power of the resistor at resonance

4.
the ratio of the reactive power of either the inductor or the capacitor to the average power of the resistor at resonance

Question ID : **16794328540**
Status : **Answered**
Chosen Option : **4**

Q.6

5 An R-C coupled amplifier has a mid-frequency gain of 400. It has a upper and lower 3 db frequencies of 15 kHz and 100 Hz respectively. If a negative feedback with $\beta = 0.01$ is incorporated in the amplifier circuit determine the gain with feedback A_{vf} and new bandwidth BW_{new}.

Ans

1. $A_{vf} = 100$ and $BW_{new} = 55$ kHz
2. $A_{vf} = 100$ and $BW_{new} = 74.98$ kHz
3. $A_{vf} = 80$ and $BW_{new} = 55$ kHz
4. $A_{vf} = 80$ and $BW_{new} = 74.98$ kHz

Question ID : **16794328608**
Status : **Answered**
Chosen Option : **4**

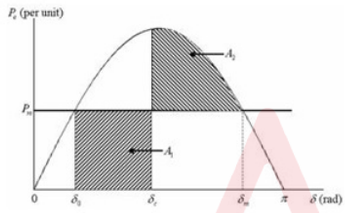
Q.66 In television broadcasting the total channel bandwidth required to transmit video and audio signals is:

Ans

1. 2.4 MHz
2. 5.785 MHz
3. 5.578 MHz
4. 4.2 MHz

Question ID : **16794328628**
Status : **Answered**
Chosen Option : **4**

Q.67 In the power-angle curve for equal area criterion shown below, the area of acceleration is defined as:

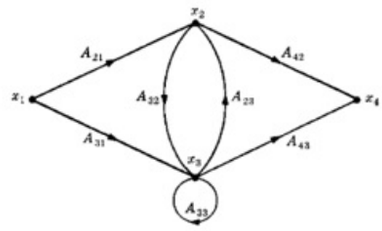


Ans

1. $A_1 = \int_{\delta_c}^{\delta_o} (P_m - P_e)d\delta = 0$
2. $A_1 = \int_{\delta_o}^{\delta_c} (P_e - P_m)d\delta = 0$
3. $A_1 = \int_{\delta_o}^{\delta_c} (P_m - P_e)d\delta = 0$
4. $A_1 = \int_{\delta_c}^{\delta_o} (P_e - P_m)d\delta = 0$

Question ID : **16794328594**
Status : **Answered**
Chosen Option : **2**

Q.68 Which of the following equations holds true for the given signal flow graph?



Ans
1. $x_2 = A_{21}x_1 + A_{22}x_2$
2. $X_4 = A_{41}x_2 + A_{43}x_3$
3. $X_3 = A_{31}x_1 + A_{23}x_2 + A_{33}x_3$
4. $x_2 = A_{21}x_1 + A_{23}x_3$

Question ID : **16794328568**
Status : **Answered**
Chosen Option : **4**

Q.69 A power plant which is most efficient but has high initial cost is:

Ans
1. nuclear power plant
2. diesel power plant
3. steam power plant
4. hydroelectric power plant

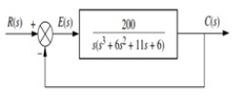
Question ID : **16794328588**
Status : **Answered**
Chosen Option : **4**

Q.70 Which of the following formulae gives Maxwell's first equation?

Ans
1. $\text{div } D = \overline{\rho_v}$
2. $\text{div } \overline{D} = \overline{\rho_v}$
3. $\text{div } D = \rho_v$
4. $\text{div } \overline{D} = \rho_v$

Question ID : **16794328519**
Status : **Answered**
Chosen Option : **3**

Q.71 Find the number of poles in the left half plane (LHP), the right half plane (RHP) and on the jω-axis for the feedback control system as shown. Is the system stable?



Ans
1. 1 LHP pole, 3 RHP poles, 0 jω poles, system is unstable

✔ 2. 2 LHP poles, 2 RHP poles, 0 jω poles, system is unstable

✘ 3. 2 LHP poles, 2 RHP poles, 0 jω poles, system is stable

✘ 4. 1 LHP pole, 3 RHP poles, 0 jω poles, system is stable

Question ID : **16794328563**
Status : **Answered**
Chosen Option : **2**

Q.72 The complete response of a first-order circuit is equal to:

Ans

✘ 1. (Natural response) – (Forced response)

✔ 2. (Natural response) + (Forced response)

✘ 3. (Natural response) / (Forced response)

✘ 4. (Natural response)(Forced response)

Question ID : **16794328541**
Status : **Answered**
Chosen Option : **2**

Q.73 The critical temperature of which superconducting material is the highest?

Ans

✘ 1. Lead

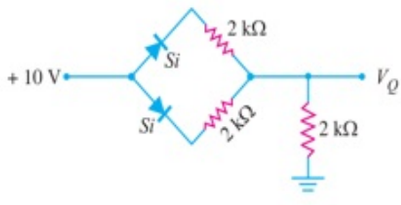
✘ 2. Tantalum

✘ 3. Thorium

✔ 4. Niobium

Question ID : **16794328535**
Status : **Answered**
Chosen Option : **1**

Q.74 Determine V_Q from the circuit shown.



Ans

✘ 1. 1.63 V

✘ 2. 3.1 V

✘ 3. 2.62 V

✔ 4. 6.2 V

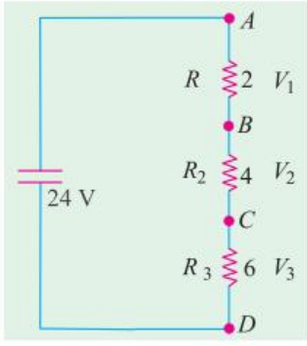
Question ID : **16794328605**
Status : **Answered**
Chosen Option : **4**

Q.75 Out of the given units which unit is for magnetic field intensity, H?

Ans
1. AT/m
2. ATm
3. Am
4. AT/m^2

Question ID : **16794328525**
Status : **Answered**
Chosen Option : **1**

Q.76 Using KVL determine the voltage drop across the resistor R_2 in the given circuit.



Ans
1. 4 V
2. 24 V
3. 8 V
4. 12 V

Question ID : **16794328539**
Status : **Answered**
Chosen Option : **3**

Q.77 The maximum starting torque of a 3-phase induction motor occurs when:

Ans
1. rotor resistance is $3/4^{th}$ of the rotor reactance
2. rotor resistance is $1/4^{th}$ of rotor reactance
3. rotor resistance is $1/2^{th}$ of rotor reactance
4. rotor resistance is equal to rotor reactance

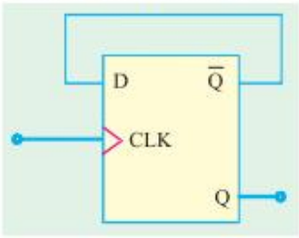
Question ID : **16794328573**
Status : **Answered**
Chosen Option : **4**

Q.78 Esaki diode is the other name of:

Ans
1. Step recovery diode
2. Point contact diode
3. Tunnel diode
4. Schottky diode

Question ID : **16794328537**
Status : **Answered**
Chosen Option : **4**

Q.79 The flip-flop behaves as a:



Ans
1. JK flip-flop
2. RS flip-flop
3. D flip-flop
4. T flip-flop

Question ID : **16794328602**
Status : **Answered**
Chosen Option : **2**

Q.80 The 8th bit of program status word (PSW) of 8086 microprocessor represents which of the following flag?

Ans
1. Trap flag
2. Overflow flag
3. Interrupt enable flag
4. Direction flag

Question ID : **16794328619**
Status : **Answered**
Chosen Option : **3**

Q.81 Hot carrier diode is also called:

Ans
1. Zener diode
2. Photo diode
3. Tunnel diode
4. Schottky diode

Question ID : **16794328603**
Status : **Answered**
Chosen Option : **4**

Q.82 The surge impedance in a transmission line having negligible resistance is:

Ans
1. $\sqrt{LC}$
2. $\sqrt{((L) + C)}$

✔ 3. $\sqrt{((L)/C)}$

✘ 4. $\sqrt{(LC)} - 1$

Question ID : **16794328589**
Status : **Answered**
Chosen Option : **3**

Q.83 The purpose of carrier modulation is to:

Ans

✘ 1. Reduce the amplitude of the message for better radiation

✔ 2. Shift the message to higher frequency band for better radiation

✘ 3. Result in reduced performance in noise in some of the systems

✘ 4. Shift the message to lower frequency band for better radiation

Question ID : **16794328626**
Status : **Answered**
Chosen Option : **2**

Q.84 The relationship between output signal and input light intensity of a light intensity transducer is:

Ans

✘ 1. $V_0 = Ke^{\alpha Q}$

✘ 2. $V_0 = Ke^{\alpha/Q}$

✔ 3. $V_0 = Ke^{-\alpha Q}$

✘ 4. $V_0 = Ke^{-\alpha/Q}$

Question ID : **16794328553**
Status : **Answered**
Chosen Option : **4**

Q.85 A 220 V, 7 HP series motor is mechanically coupled to a fan and draws 25 A and runs at 300 rpm when connected to a 220 V with no external resistance. The torque required by the fan is proportional to the square of the speed. $R_a = 0.6\ \Omega$ and $R_{se} = 0.4\ \Omega$. Determine the power delivered to the fan. (Assume 1 hp = 746 W)

Ans

✔ 1. 6.54 hp

✘ 2. 36 hp

✘ 3. 4880 hp

✘ 4. 0.15 hp

Question ID : **16794328581**
Status : **Answered**
Chosen Option : **2**

Q.86 The transfer function of the lag compensator is:

Ans

1. $G_c(s) = \frac{s+\frac{1}{T}}{s+\frac{1}{\alpha T}}$ where $\alpha < 1$

2. $G_c(s) = \frac{s-\frac{1}{T}}{s-\frac{1}{\alpha T}}$ where $\alpha > 1$

3. $G_c(s) = \frac{s+\frac{1}{T}}{s+\frac{1}{\alpha T}}$ where $\alpha > 1$

4. $G_c(s) = \frac{s-\frac{1}{T}}{s-\frac{1}{\alpha T}}$ where $\alpha < 1$

Question ID : **16794328564**
Status : **Answered**
Chosen Option : **3**

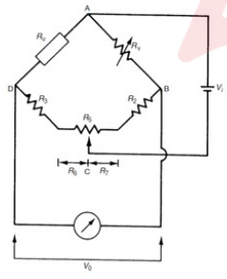
Q.87 The memory space of 8086 microprocessor consists of:

Ans

1. 528,244 words
2. 524,288 words
3. 825,424 words
4. 588,224 words

Question ID : **16794328621**
Status : **Answered**
Chosen Option : **3**

Q.88 A potentiometer R_5 is put in the apex of the bridge shown in the figure to balance the circuit. If $R_u = 500\ \Omega$, $R_v = 500\ \Omega$, $R_2 = 515\ \Omega$, $R_3 = 480\ \Omega$ and $R_5 = 100\ \Omega$, find the values of R_6 and R_7 to balance the bridge and compensate for the unequal values of R_2 and R_3.



Ans

1. $R_6 = 67.5\ \Omega$ and $R_7 = 32.5\ \Omega$
2. $R_6 = 60\ \Omega$ and $R_7 = 40\ \Omega$
3. $R_6 = 50\ \Omega$ and $R_7 = 50\ \Omega$
4. $R_6 = 65.5\ \Omega$ and $R_7 = 34.5\ \Omega$

Question ID : **16794328555**
Status : **Answered**
Chosen Option : **1**

Q.89 Current (I_n) at a point n unit lengths down the infinite line is given by:

Ans
1. $I_n = I_S e^{n\gamma}$
2. $I_n = I_S e^{-\frac{n}{\gamma}}$
3. $I_n = I_S e^{-n\gamma}$
4. $I_n = I_S e^{\frac{n}{\gamma}}$

Question ID : **16794328527**
Status : **Answered**
Chosen Option : **2**

Q.90 The signaling rate of a time division multiplexing (TDM) signal for M input channels is given by:

Ans
1. $r = Mf_s \geq 2MW$
2. $r = Mf_s \leq 2MW$
3. $r = Mf_s \leq MW$
4. $r = Mf_s \geq MW$

Question ID : **16794328624**
Status : **Answered**
Chosen Option : **1**

Q.91 For high power application the type of switched mode power supply used is:

Ans
1. Full bridge converter
2. Push-pull converter
3. Flyback converter
4. Half bridge converter

Question ID : **16794328635**
Status : **Answered**
Chosen Option : **3**

Q.92 Potassium is a _____.

Ans
1. magnetic material
2. diamagnetic material
3. ferromagnetic material
4. paramagnetic material

Question ID : **16794328529**
Status : **Answered**
Chosen Option : **4**

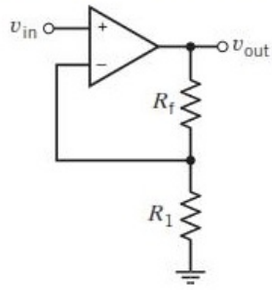
Q.93 An example of advanced ceramic is:

Ans
1. Cement

2. Nitrides
3. Clay Products
4. Silicate Glass

Question ID : **16794328533**
Status : **Answered**
Chosen Option : **4**

Q.94 If $R_f = R_1$ then the output v_{out} of the following operational amplifier circuit is:



Ans

1. $v_{out} = \left(\frac{R_f}{R_1}\right) v_{in}$
2. $v_{out} = v_{in}$
3. $v_{out} = \left(1 - \frac{R_f}{R_1}\right) v_{in}$
4. $v_{out} = 2v_{in}$

Question ID : **16794328601**
Status : **Answered**
Chosen Option : **4**

Q.95 Which of the following devices is used to measure the highest temperature range?

Ans

1. Base metal thermocouple
2. Noble metal thermocouple
3. Resistance thermometer
4. Platinum resistance thermometer

Question ID : **16794328556**
Status : **Answered**
Chosen Option : **4**

Q.96 An 8-bit DAC produces an out voltage of 1 V for a digital input of 00110010. Determine the largest value of the output voltage from the DAC.

Ans

1. 12.75 kV
2. 5.1 V
3. 255 V
4. 20 mV

Question ID : **16794328559**

Status : **Answered**
Chosen Option : **4**

Q.97 If there are more than one charge distribution in Gaussian surface, the net charge is _____.

Ans
✗ 1. algebraic sum of all the odd charges
✗ 2. algebraic sum of all the even charges
✗ 3. difference of all the charges
✓ 4. algebraic sum of all the individual charges

Question ID : **16794328518**
Status : **Answered**
Chosen Option : **4**

Q.98 The number of parallel paths of a P pole n-plex wave winding is:

Ans
✗ 1. nP
✗ 2. P
✗ 3. 2
✓ 4. 2n

Question ID : **16794328572**
Status : **Answered**
Chosen Option : **3**

Q.99 The relay used for protecting EHV transformers from magnetising inrush current is:

Ans
✓ 1. second harmonic restraint relay
✗ 2. thermal relay
✗ 3. balanced beam type relay
✗ 4. attracted armature type relay

Question ID : **16794328592**
Status : **Answered**
Chosen Option : **1**

Q.100 A 3-phase, 6 pole, 120 slots alternator has a coil span of 18 slots. The sort pitch angle is:

Ans
✗ 1. 15°
✓ 2. 18°
✗ 3. 20°
✗ 4. 0°

Question ID : **16794328578**
Status : **Answered**
Chosen Option : **2**

Q.101

Find the stat transition matrix $\Phi(t)$ if $A = \begin{bmatrix} 0 & -2 \\ 1 & -3 \end{bmatrix}$

Ans

✔ 1. $\begin{bmatrix} (2e^{-t} - e^{-2t}) & (-2e^{-t} + 2e^{-2t}) \\ (e^{-t} - e^{-2t}) & (-e^{-t} + 2e^{-2t}) \end{bmatrix}$

✘ 2. $\begin{bmatrix} (2e^{-t} - e^{-2t}) & (e^{-t} - e^{-2t}) \\ (-2e^{-t} + 2e^{-2t}) & (-e^{-t} + 2e^{-2t}) \end{bmatrix}$

✘ 3. $\begin{bmatrix} (2e^{-t} - e^{-2t}) & (-2e^{-t} + 2e^{-2t}) \\ (e^{-t} + e^{-2t}) & (-e^{-t} + 2e^{-2t}) \end{bmatrix}$

✘ 4. $\begin{bmatrix} (2e^{-t} + e^{-2t}) & (-2e^{-t} + 2e^{-2t}) \\ (e^{-t} - e^{-2t}) & (-e^{-t} + 2e^{-2t}) \end{bmatrix}$

Question ID : **16794328566**
Status : **Answered**
Chosen Option : **1**

Q.102 What type of load should be used in a single- phase full bridge inverter so that it can operate in load communication mode?

Ans

✘ 1. RL

✘ 2. RLC overdamped

✔ 3. RLC underdamped

✘ 4. RC

Question ID : **16794328636**
Status : **Answered**
Chosen Option : **3**

Q.103 The two basic forms of moving-iron type voltmeters and ammeters are:

Ans

✘ 1. permanent magnet type and electrodynamic type

✔ 2. attraction type and repulsion type

✘ 3. induction type and electrostatic type

✘ 4. split-phase type and shaded-pole type

Question ID : **16794328550**
Status : **Answered**
Chosen Option : **2**

Q.104 Stray losses are the combination of:

Ans

✔ 1. iron and mechanical losses

✘ 2. friction and windage losses

✘ 3. copper and iron losses

✘ 4. hysteresis and eddy current losses

Question ID : **16794328571**

Status : **Answered**
Chosen Option : **1**

Q.105 The synchronous reactance X_s in the equivalent circuit model of a synchronous machine is equal to: (X_l is leakage reactance and X_a is magnetizing reactance)

Ans
✔ 1. $X_l + X_a$
✘ 2. $X_l \times X_a$
✘ 3. $X_l - X_a$
✘ 4. $X_l \div X_a$

Question ID : **16794328585**
Status : **Answered**
Chosen Option : **1**

Q.106 Most of the telemetry systems:

Ans
✔ 1. Use sample rates at least 5 times higher than the highest expected frequency
✘ 2. Use sample rates at least 3 times higher than the highest expected frequency
✘ 3. Use sample rates at least 9 times higher than the highest expected frequency
✘ 4. Use sample rates at least 7 times higher than the highest expected frequency

Question ID : **16794328627**
Status : **Answered**
Chosen Option : **3**

Q.107 A buck-boost converter has an input voltage of 24 V at 100 kHz with duty ratio of 0.4. If R = 5 Ω, L = 20 μH and C = 80 μF, what is the minimum value of its inductor current and output voltage ripple in percentage?

Ans
✘ 1. 7.33 A and 1% respectively
✘ 2. 7.33 A and 10% respectively
✔ 3. 2.93 A and 1% respectively
✘ 4. 2.93 A and 10% respectively

Question ID : **16794328631**
Status : **Answered**
Chosen Option : **3**

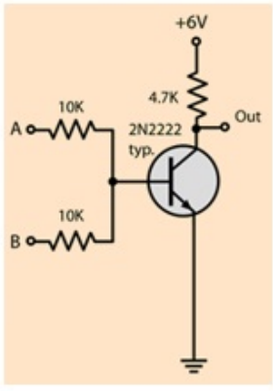
Q.108 A 4-pole wave wound DC shunt generator has 35 slots with 12 conductors/slot. Its armature supplies a current of 35 A. If the brushes are given an actual mechanical lead of 10°, what is the demagnetising ampere turns/pole at full load?

Ans
✘ 1. 715 At
✔ 2. 204 At
✘ 3. 402 At
✘ 4. 517 At

Question ID : **16794328583**

Status : **Answered**
Chosen Option : **3**

Q.109 The circuit behaves as a:



Ans
1. AND Gate ✗
2. OR Gate ✗
3. NOR Gate ✓
4. NAND Gate ✗

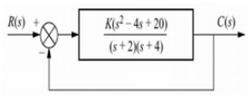
Question ID : **16794328609**
Status : **Answered**
Chosen Option : **2**

Q.110 The minimum frequency of operation of 8085 microprocessor is:

Ans
1. 3 MHz ✗
2. 1 MHz ✗
3. 2 MHz ✗
4. 500 kHz ✓

Question ID : **16794328613**
Status : **Answered**
Chosen Option : **1**

Q.111 From the given system determine the number of loci, starting points, ending points and number of asymptotes.



Ans
1. 1, (2,4), (2+j4,2-j4), 0 respectively ✗
2. 2, (-2, -4), (2+j4, 2-j4), 0 respectively ✓
3. 1, (-2, -4), (2+j4, 2-j4), 0 respectively ✗
4. 2, (2, 4), (2+j4, 2-j4), 0 respectively ✗

Question ID : **16794328565**
Status : **Answered**
Chosen Option : **2**

Q.112

12 The peripheral that does NOT belong to the category of general purpose peripherals in microprocessor 8085 is:

Ans
1. programmable keyboard and display interface
2. programmable CRT controller
3. programmable floppy disk controller
4. programmable DMA controller

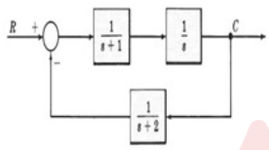
Question ID : **16794328612**
Status : **Answered**
Chosen Option : **1**

Q.13 The number of direction of encirclements around the point -1 + j0 in the complex plane by the Nyquist plot of $G(s) = \frac{1-s}{4+2s}$ is:

Ans
1. zero
2. three, anticlockwise
3. two, anticlockwise
4. two, clockwise

Question ID : **16794328567**
Status : **Answered**
Chosen Option : **1**

Q.14 Reduce the block diagram to unity feedback form and find the system characteristic equation:



Ans
1. $s^3 + 2s^2 + 3s + 1 = 0$
2. $s^3 + 3s^2 + 2s + 1 = 0$
3. $s^3 + 2s^2 + 3s - 1 = 0$
4. $s^3 + 3s^2 - 2s + 1 = 0$

Question ID : **16794328561**
Status : **Answered**
Chosen Option : **2**

Q.15 In the case where the voltage bases are the same, the new per unit impedance is obtained from the formula:

Ans
1. $Z_{pu}^{new} = \frac{Z_{pu}^{old} S_B^{new}}{S_B^{old}}$
2. $Z_{pu}^{old} = \frac{Z_{pu}^{new} S_B^{new}}{S_B^{old}}$
3. $Z_{pu}^{new} = \frac{Z_{pu}^{old} S_B^{old}}{S_B^{new}}$

✗ 4. $Z_{pu}^{new} = \frac{Z_{pu}^{old} S_B^{new} V_B^{old}}{S_B^{old} V_B^{new}}$

Question ID : **16794328597**
Status : **Answered**
Chosen Option : **1**

Q.116 In a bipolar junction transistor α and β are related by:

Ans

✗ 1. $\beta = \frac{1}{1-\alpha}$

✗ 2. $\beta = \frac{\alpha}{\alpha - 1}$

✗ 3. $\beta = \frac{\alpha}{1+\alpha}$

✓ 4. $\beta = \frac{\alpha}{1-\alpha}$

Question ID : **16794328600**
Status : **Answered**
Chosen Option : **4**

Q.117 The output current corresponding to maximum efficiency of a transformer is:

Ans

✓ 1. $I_2 = \sqrt{\frac{W_i}{R_{02}}}$

✗ 2. $I_2 = \sqrt{\frac{W_i}{R_{01}}}$

✗ 3. $I_2 = \sqrt{\frac{W_{cu}}{R_{02}}}$

✗ 4. $I_2 = \sqrt{\frac{W_{cu}}{R_{01}}}$

Question ID : **16794328580**
Status : **Answered**
Chosen Option : **1**

Q.118 A Y-Δ transformer bank cannot be paralleled with either a Y-Y or a Δ- Δ transformer bank because the phasor voltage difference between the two systems would be:

Ans

✗ 1. 0.75 times the secondary voltages

✗ 2. equal to the secondary voltages

✗ 3. 0.25 times the secondary voltages

✔ 4. 0.5 times the secondary voltages

Question ID : **16794328574**
Status : **Answered**
Chosen Option : **2**

Q.119 For voltage regulation of the transmission lines, synchronous motors are used as a:

Ans
✘ 1. belt driven reciprocating device
✔ 2. power factor correction device
✘ 3. timing device
✘ 4. stroboscopic device

Question ID : **16794328579**
Status : **Answered**
Chosen Option : **2**

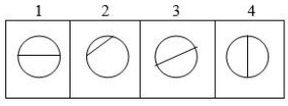
Q.120 Which of the following type of 1-phase induction motor finds its application in electric toys?

Ans
✘ 1. Capacitor start motor
✘ 2. Permanent split capacitor motor
✘ 3. Split phase induction motor
✔ 4. Shaded pole motor

Question ID : **16794328577**
Status : **Answered**
Chosen Option : **4**

Section : **General Ability**

Q.1 In problem, out of four figures marked 1, 2, 3 and 4, three are similar in a certain manner. However one figure is not like the other three. Choose the figure which is different from the rest.



Ans
✘ 1. 3
✘ 2. 4
✔ 3. 2
✘ 4. 1

Question ID : **16794328641**
Status : **Answered**
Chosen Option : **3**

Q.2 There are some benches in a classroom. If 4 students sit on each bench, then 3 benches are unoccupied. However, if 3 students sit on each bench, 3 students are left standing. How many students are there in the class?

Ans
✘ 1. 28
✘ 2. 40
✘ 3. 34

✔ 4. 48

Question ID : **16794328647**
Status : **Answered**
Chosen Option : **4**

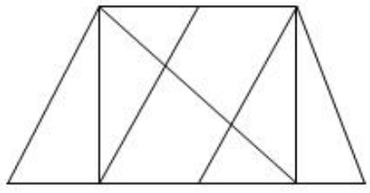
Q.3 Choose the similar pair for the following:

8 : 100 : _____

Ans
✔ 1. 12 : 196
✘ 2. 10 : 110
✘ 3. 9 : 81
✘ 4. 16 : 225

Question ID : **16794328639**
Status : **Answered**
Chosen Option : **1**

Q.4 Find the number of triangles from the following figure:



Ans
✔ 1. 14
✘ 2. 18
✘ 3. 12
✘ 4. 10

Question ID : **16794328643**
Status : **Answered**
Chosen Option : **1**

Q.5 Kumar said, "This girl is the wife of the grandson of my mother". How is Kumar related to the girl?

Ans
✔ 1. Father-in-law
✘ 2. Father
✘ 3. Son
✘ 4. Brother

Question ID : **16794328640**
Status : **Answered**
Chosen Option : **1**

Q.6 Four numbers have been given out of which three are alike in some manner, while the fourth one is different. Choose out the odd one.

Ans
✔ 1. 64 : 4
✘ 2. 81 : 3

✗ 3. 10000 : 10
✗ 4. 625 : 5

Question ID : **16794328644**
Status : **Answered**
Chosen Option : **1**

Q.7 A cube is coloured green on all faces. It is cut into 27 smaller cubes of equal size. How many cubes are not coloured on any face?

Ans
✗ 1. 2
✓ 2. 1
✗ 3. 4
✗ 4. 6

Question ID : **16794328646**
Status : **Answered**
Chosen Option : **2**

Q.8 Select the option that will correctly replace the question mark (?) in the series.

2, 5, 10, 17, 28, 41, 58, 77, ?

Ans
✗ 1. 101
✓ 2. 100
✗ 3. 99
✗ 4. 110

Question ID : **16794328638**
Status : **Answered**
Chosen Option : **2**

Q.9 If 'TEACHER' is coded as 'UDBBIDS', then what is the code for 'PROFESSOR'?

Ans
✗ 1. QQPEFTRNS
✗ 2. QQPGFRTNS
✓ 3. QQPEFRTNS
✗ 4. QSPEFRTNS

Question ID : **16794328642**
Status : **Answered**
Chosen Option : **3**

Q.10 In the question a figure is given followed by four alternatives 1, 2, 3 and 4. Choose the alternative which most closely resembles the mirror image of the given figure.

DOWN

Ans
✗ 1. DOWN
✓ 2. ИWOD
✗ 3. NWOD
✗ 4. NWOD

Question ID : **16794328645**
Status : **Answered**

Chosen Option : **2**

Q.11 Ajay started a business with ₹ 4,500 and after some time, Benny joins the business with an investment of ₹ 5,400. At the end of the year the profit was divided in the ratio 2 : 1. When did Benny enter business?

Ans

1. After 4 months ✗
2. After 8 months ✗
3. After 7 months ✓
4. After 5 months ✗

Question ID : **16794328656**
Status : **Answered**
Chosen Option : **3**

Q.12 Suppose that one-third of a certain sum is invested at 3% simple interest, one-sixth is invested at 6% simple interest and the rest of the sum at 8%. If the annual amount is ₹ 600, then the original sum is:

Ans

1. ₹ 15,000 ✗
2. ₹ 5,000 ✗
3. ₹ 20,000 ✗
4. ₹ 10,000 ✓

Question ID : **16794328650**
Status : **Answered**
Chosen Option : **4**

Q.13 Suppose that the difference between two numbers is 24 and are in the ratio 4 : 5. Then the numbers are:

Ans

1. 96, 120 ✓
2. 94, 118 ✗
3. 96, 116 ✗
4. 98, 122 ✗

Question ID : **16794328653**
Status : **Answered**
Chosen Option : **1**

Q.14 Suppose $3.5a = 6.5b$. Then the value of $\frac{a-b}{a+b}$ is:

Ans

1. $\frac{3}{25}$ ✗
2. $\frac{3}{10}$ ✓
3. $\frac{1}{5}$ ✗
4. $\frac{3}{5}$ ✗

Question ID : **16794328657**
Status : **Answered**
Chosen Option : **2**

Q.15 If the difference between the simple interest and the compound interest on a certain sum of money for 3 years at the rate of 5% per annum is ₹ 122 , then the sum is:

Ans
1. ₹ 16,000 ✔
2. ₹ 12,000 ✘
3. ₹ 8,000 ✘
4. ₹ 10,000 ✘

Question ID : **16794328649**
Status : **Answered**
Chosen Option : **3**

Q.16 Suppose that the population of a certain village increases at the rate of 5% annually. If the present population 8820, then the population of the village 2 years ago is:

Ans
1. 8200 ✘
2. 8000 ✔
3. 8500 ✘
4. 8400 ✘

Question ID : **16794328654**
Status : **Answered**
Chosen Option : **2**

Q.17 A person sells two books for ₹ 990 each and gains 10% profit on one book and loses 10% on the other book. The total gain or loss percent is:

Ans
1. 10% Profit ✘
2. 2% Profit ✘
3. 5% loss ✘
4. 1% loss ✔

Question ID : **16794328652**
Status : **Answered**
Chosen Option : **4**

Q.18 If the volume of a right circular cone is $1232\ m^3$ and radius of the base is 7 m, then the slant height of the cone is: ($\pi = \frac{22}{7}$)

Ans
1. 20 m ✘
2. 30 m ✘
3. 25 m ✔
4. 15 m ✘

Question ID : **16794328648**
Status : **Answered**
Chosen Option : **3**

Q.19

A bank in a city published the following pie chart for its depositors:

The angle of the sector representing the 'Cash on Hand'is:

Ans
1. 20°
2. 12°
3. 18°
4. 16°

Question ID : **16794328655**
Status : **Answered**
Chosen Option : **3**

Q.20 X and Y can do a piece of work together in 12 days, Y and Z together in 15 days, X and Z together in 20 days. Then the number of days taken by X alone to complete the work is:

Ans
1. 40 days
2. 50 days
3. 20 days
4. 30 days

Question ID : **16794328651**
Status : **Answered**
Chosen Option : **4**

Q.21 In March 2019, who among the following was appointed as the next chief of the Naval Staff?

Ans
1. Vice Admiral G Ashok Kumar
2. Vice Admiral Bimal Verma
3. Vice Admiral MS Pawar
4. Vice Admiral Karambir Singh

Question ID : **16794328666**
Status : **Answered**
Chosen Option : **4**

Q.22 Which of the following heritage place is located in Jaipur?

Ans
1. Rock Shelters of Bhimbetka
2. Rani-ki-vav
3. Humayun's Tomb
4. Jantar Mantar

Question ID : **16794328659**
Status : **Answered**
Chosen Option : **4**

Q.23 Amongst the following who won Padma Shri 2019 award for her contribution to chess?

Ans
1. Bachendri Pal
2. Prashanti Singh
3. Bombayla Laishram
4. Harika Dronavalli

Question ID : **16794328665**
Status : **Answered**
Chosen Option : **1**

Q.24 In March 2019, who among the following stepped-down from the board of Jet Airways?

Ans
1. Robin Kamark
2. Rajshree Pathy
3. Anita Goyal
4. Gaurang Shetty

Question ID : **16794328662**
Status : **Answered**
Chosen Option : **2**

Q.25 Which of the following is the state bird of Kerala?

Ans
1. Koel
2. Great Hornbill
3. Flycatcher
4. Greater Flamingo

Question ID : **16794328667**
Status : **Answered**
Chosen Option : **3**

Q.26 Which of the following persons is a Epidemiologist well known for developing anti-rabies treatment at $1/10^{th}$ of the prevailing cost accepted as WHO protocol globally?

Ans
1. Uddab Bharali
2. Rohini Godbole
3. Baldev Dhillon

✔ 4. Omesh Bharti

Question ID : **16794328664**
Status : **Answered**
Chosen Option : **3**

Q.27 According to World Economic Forum's Fostering Effective Energy Transition Report (2019), which country ranks first in the Energy Transition Index 2019 Results?

Ans
✘ 1. United Kingdom
✘ 2. India
✘ 3. Singapore
✔ 4. Sweden

Question ID : **16794328663**
Status : **Answered**
Chosen Option : **4**

Q.28 Jallianwala Baug massacre took place in the year _____.

Ans
✔ 1. 1919
✘ 2. 1925
✘ 3. 1905
✘ 4. 1932

Question ID : **16794328661**
Status : **Answered**
Chosen Option : **1**

Q.29 Which of the following folk drama DOES NOT belongs to the Indian state of Kerala?

Ans
✘ 1. Koodiyaattam
✔ 2. Bhaona
✘ 3. Krishnattam
✘ 4. Mudiyettu

Question ID : **16794328658**
Status : **Answered**
Chosen Option : **2**

Q.30 As per the Indian Constitution, Sikkim was included as an Indian State in the year _____.

Ans
✔ 1. 1975
✘ 2. 2001
✘ 3. 1997
✘ 4. 2015

Question ID : **16794328660**
Status : **Answered**
Chosen Option : **1**