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GATE 2019
Electrical Engineering

Memory based Questions and Solutions

Date of Exam : 9/2/2019

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Q.1 Eigen value of a matrix m is 4 and 9, then eigen value of m^2 is

(a) 4 and 9 (b) 16 and 81

(c) 8 and 18 (d) 24 and 36

Ans. (b)

Eigen value of a matrix m is

$$\lambda_1 = 4 \text{ and } \lambda_2 = 9$$

Eigen value of matrix m^2 is

$$\lambda_1^2 = 16 \text{ and } \lambda_2^2 = 81$$

Option (b) is correct.

End of Solution

Q.2 If $m = [V_1\ V_2]$, where m is a 2×2 matrix and V_1 and V_2 are column vector and $m^{-1} = \begin{bmatrix} u_1^T \\ u_2^T \end{bmatrix}$,

consider the given statement.

Statement-1: $u_1^T V_1 = 1$ and $u_2^T V_2 = 1$.

Statement-2: $u_2^T V_1 = 0$ and $u_1^T V_2 = 0$

which one of the following is correct?

(a) Statement 1 is right, statement 2 is wrong.

(b) Statement 2 is right, statement 1 is wrong.

(c) Both statement 1 is wrong.

(d) Both statement is right.

Ans. (d)

Both statements are correct.

End of Solution

Q.3 If $\vec{A} = 2x\hat{i} + 3y\hat{j} + 4z\hat{k}$ and $u = x^2 + y^2 + z^2$ then the $\nabla(u\vec{A})$ at (1, 1, 1) is ____.

Ans. (45)

End of Solution

Q.4 $\oint_{|z|=5} \frac{z^3+z^2+8}{z+2} dZ$ is _____. Value of integral in anticlock direction is

(a) $-4\pi j$ (b) $4\pi j$
(c) $8\pi j$ (d) $-8\pi j$

Ans. (c)

End of Solution

Q.5 Which one of the following function is analytic. In region $|z| \le 1$?

(a) $\frac{z^2-1}{z-0.5}$ (b) $\frac{z^2-1}{z+2}$
(c) $\frac{z^2-1}{z+0.5j}$ (d) $\frac{z^2-1}{z}$

Ans. (b)

End of Solution

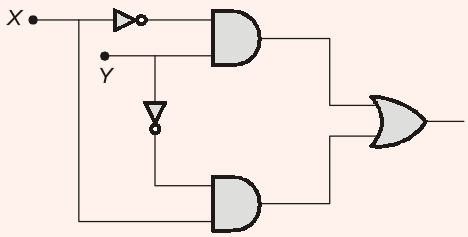
Q.6 Rank of the given matrix is _____.

$$A=\begin{bmatrix}0 & 1 & 1\\ 1 & 0 & 1\\ 1 & 1 & 0\end{bmatrix}$$

Ans. (3)

End of Solution

Q.7 Which one of the following is correct gate for given circuit?



(a) AND (b) OR
(c) X-OR (d) X-NOR

Ans. (c)

End of Solution

Q.8 The output equation for given K-map is

RS \ PQ	00	01	11	10
00	0	1	1	0
01	1	1	1	1
11	1	1	1	1
10	0	0	0	0

(a) $Q\bar{R}+S$ (b) $Q\bar{R}+\bar{S}$

(c) $QR+\bar{S}$ (d) $QR+S$

Ans. **(a)**

Output equation = $S+Q\bar{R}$

End of Solution

Q.9 The missing term of the following series is 343, 1331, _____, 4913

(a) 4096 (b) 2197

(c) 2744 (d) 3375

Ans. **(b)**

$343 \rightarrow 7^3$

$1331 \rightarrow 11^3$

$4913 \rightarrow 17^3$

These are cubes of prime numbers,

missing term = $13^3 = 2197$

End of Solution

Q.10 I am not sure if the bus that has been booked will be able to _____ all the students.

(a) fill (b) accommodate

(c) sit (d) deteriorate

Ans. **(b)**

End of Solution

Q.11 Newspaper are constant source of delight and recreation for one. The ____ trouble is that I read _____ many of them.

(a) only, quite (b) only, too

(c) even, quite (d) even, too

Ans. **(b)**

End of Solution

Q.12 A person X can mow the lawn in 2 hours and person Y can mow in 4 hours. How many minutes he will take to mow when both work together is _____.

(a) 60 (b) 90

(c) 120 (d) 80

Ans. (d)

End of Solution

Q.13 Passengers were angry _____ the airline staff due to delay.

(a) with (b) on

(c) towards (d) about

Ans. (a)

End of Solution

Q.14 How many numbers have all even digits even between 100 and 1000.

(a) 100 (b) 90

(c) 80 (d) 60

Ans. (a)

End of Solution

Q.15 Set Z is formed from the sets X and Y, where $X = \{1, 2, 3\}$, $Y = \{2, 3, 4\}$. Find the product of maximum and minimum values of the set which is formed using X and Y where X being the numerator and Y being denominator.

(a) $\frac{5}{3}$ (b) $\frac{3}{8}$

(c) $\frac{1}{2}$ (d) $\frac{4}{5}$

Ans. (b)

End of Solution

Q.16 The ratio of number of boys and girls is 4 : 3. The total passed candidates is 80% and only girls passed candidates is 90%. Then percentage of boys passed candidates is _____.

(a) 72.5 (b) 60
(c) 24.5 (d) 30

Ans. (a)

Let, Number of boys = $4x$
and Number of girls = $3x$

$$\text{Total passed candidates} = \frac{80}{100}\times 7x = \frac{28}{5}x$$

Number of girls candidates who passed

$$= \frac{90}{100}\times 3x = \frac{27}{10}x$$

Now total number of candidates passed
= Number of girls who passed
+ Number of boys who passed

$$\Rightarrow \text{Number of boys who passed} = \left(\frac{28}{5}-\frac{27}{10}\right)x = \frac{56-27}{10}x = \frac{29}{10}x$$

$$\%\text{ of boys} = \frac{29}{10\times 4x}x\times 100 = 72.5\%$$

Option (a) is correct.

End of Solution

Q.17 There are five members Mita, Ganga, Rita, Laxmi and Sana. Ganga is taller than Laxmi and Rita both. Laxmi is taller than Sana, Mita is taller than Ganga.
Which of the following statement is correct?

1. Laxmi is taller than Rita.
2. Mita is taller than Rita.
3. Rita is taller than Sana.
4. Ganga is taller than Sana.

(a) 1 (b) 3
(c) 1 and 3 (d) 2 and 4

Ans. (d)

End of Solution

Q.18 $\frac{\partial^2 u}{\partial t^2} - C^2\left(\frac{\partial^2 u}{\partial x^2} + \frac{\partial^2 u}{\partial y^2}\right) = 0$ is _____.

(a) Poisson equation
(b) Wave equation
(c) Laplace equation
(d) Heat equation

Ans. **(b)**

The given equation is wave equation.

End of Solution

Q.19 For the 2 bus system Y-bus is given, $\begin{bmatrix} -j8 & j20 \\ j20 & -j8 \end{bmatrix}$.

System has two parallel lines between buses then the series reactance of one line is _____ pu.

Ans. **(0.1)**

$$Y_{12} = -j20$$

$$Y_{12}^1 \text{ of one transmission line} = \frac{-j20}{2} = -j10$$

$$\therefore \quad \text{Series reactance} = \frac{1}{-j10} = j0.1$$

Magnitude is 0.1 p.u.

End of Solution

Q.20 The output of the system is $Y(s) = \frac{10}{s(s^2 + s + 100\sqrt{2})}$.

Steady state value of y(t) is _____.

(a) $100\sqrt{2}$
(b) $10\sqrt{2}$
(c) $\frac{1}{100\sqrt{2}}$
(d) $\frac{1}{10\sqrt{2}}$

Ans. **(d)**

$$\text{Steady state value of } y(t) = \lim_{s \to 0} sY(s)$$

$$= \lim_{s \to 0} \frac{10s}{s(s^2 + s + 100\sqrt{2})}$$

$$= \frac{10}{100\sqrt{2}} = \frac{1}{10\sqrt{2}}$$

End of Solution

Q.21 Open loop transfer function, $G(s)=\dfrac{\pi e^{-0.25s}}{s}$ at which point Nyquist plot passes through negative X-axis.

(a) (–0.5, *j*0)
(b) (–1.25, *j*0)
(c) (–1.5, *j*0)
(d) (–0.75, *j*0)

Ans. **(a)**

$$\angle G(j\omega) = -0.25\times\frac{180\omega_{pc}}{\pi}-90^\circ=-180^\circ$$

$$-0.25\times\frac{180\omega_{pc}}{\pi}=-90^\circ$$

$$\omega_{pc}=\frac{4\pi}{2}=2\pi$$

$$|G(j\omega)|_{\omega=\omega_{pc}}=\left|\frac{\pi e^{-0.25s}}{s}\right|_{\omega=\omega_{pc}}=\frac{\pi}{2\pi}=0.5$$

$\therefore$ Point is (–0.5, *j*0).

End of Solution

Q.22 Consider a stable variable modes of a system,

$$\begin{bmatrix}x_1\\x_2\end{bmatrix}=\begin{bmatrix}0 & 1\\-\alpha & -2\beta\end{bmatrix}\begin{bmatrix}x_1\\x_2\end{bmatrix}+\begin{bmatrix}0\\1\end{bmatrix}$$

or
$$Y=\begin{bmatrix}1 & 0\end{bmatrix}\begin{bmatrix}X_1\\X_2\end{bmatrix}$$

The damping ratio ξ and undamped natural frequency ω_0 of given state variable model.

(a) $\xi=\sqrt{\dfrac{\alpha}{\beta}},\quad \omega_n=\sqrt{\beta}$
(b) $\xi=\sqrt{\alpha}$ and $\omega_n=\dfrac{\beta}{\sqrt{\alpha}}$
(c) $\xi=\dfrac{\beta}{\sqrt{\alpha}}$ and $\omega_n=\sqrt{\alpha}$
(d) $\xi=\sqrt{\beta}$ and $\omega_n=\sqrt{\alpha}$

Ans. (c)

Characteristic equation is,

$$|sI - A| = 0$$

$$|sI - A| = \begin{bmatrix} s & -1 \\ \alpha & s+2\beta \end{bmatrix} = s^2 + 2s\beta + \alpha = 0$$

$\therefore$ $\omega_n^2 = \alpha$

$\omega_n = \sqrt{\alpha}$

$2\xi\omega_n = 2\beta$

$\xi = \dfrac{\beta}{\sqrt{\alpha}}$

End of Solution

Q.23 Characteristic equation of a control system is given as,

$$1 + G(s)\,H(s) = s^4 + 3s^3 + 3s^2 + s + k = 0$$

The system is BIBO stable if

(a) $k > 3$

(b) $k < 6$

(c) $0 < k < \dfrac{8}{9}$

(d) $0 < k < \dfrac{12}{9}$

Ans. (c)

Routh array is

s^4	1	3	k
s^3	3	1	
s^2	$\frac{8}{3}$	k	
s^1	$\dfrac{\left(\frac{8}{3} - k\right)}{8/3}$		
s^0	k		

For BIBO stability,

$$\frac{\left(\frac{8}{3} - 3k\right)}{\left(\frac{8}{3}\right)} > 0$$

$\Rightarrow$ $k < \dfrac{8}{9}$

and $k > 0$

$\therefore$ $0 < k < \dfrac{8}{9}$

End of Solution

Q.24 $H(s)=\dfrac{a_1s^2+b_1s+c_1}{a_2s^2+b_2s+c_2}$, $a_1 = b_1 = 0$ and all other coefficients > 0. Which type of filter it is?

(a) Low pass filter
(b) High pass filter
(c) Notch filter
(d) Bandpass

Ans. **(a)**

$$a_1 = b_1 = 0$$

$$H(s) = \frac{C_1}{a_2s^2+b_2s+C_2}$$

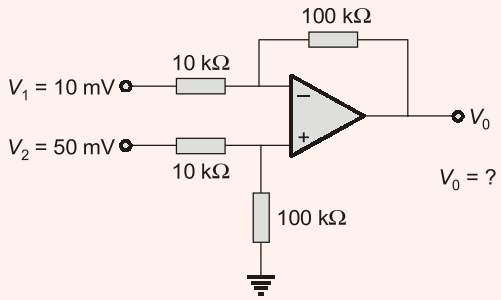
$$H(0) = \frac{C_1}{C_2}$$

$$H(\infty) = 0$$

$\therefore$ It is a low pass filter.

End of Solution

Q.25



(a) 500 mV
(b) 100 mV
(c) 300 mV
(d) 400 mV

Ans. **(d)**

$$V_0 = -\frac{100k}{10k}(V_1)+\left(1+\frac{100k}{10k}\right)V_2\times\left(\frac{100}{100+10}\right)$$

$$= -10\times10+\frac{110}{10}\times\frac{100}{110}\times50$$

$$= -100 + 500 = 400 \text{ mV}$$

End of Solution

Q.26 Transfer function of a phase lead compensator is $T(s)=\dfrac{3\left(s+\dfrac{1}{3T}\right)}{\left(s+\dfrac{1}{T}\right)}$.

Frequency at which $\angle T(j\omega)$ is maximum

(a) $\dfrac{1}{3\sqrt{T}}$ (b) $\sqrt{\dfrac{1}{3T^2}}$

(c) $\sqrt{3T}$ (d) $\sqrt{3T^2}$

Ans. (b)

End of Solution

Q.27 Which of the following impulse response is not output of causal linear time invariant system?

(a) $e^{at}u(t)$ (b) $e^{-a(t-T)}u(t)$

(c) $1+e^{-at}u(t)$ (d) $e^{-a(t+T)}u(t)$

Ans. (c)

Due to presence of 1, given system is non-causal.

End of Solution

Q.28 Find the inverse Laplace transform of $\dfrac{s+3}{s^2+2s+1}$.

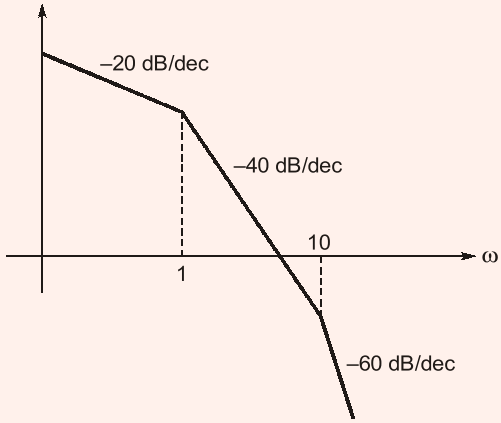
(a) $2te^{-t}+e^{-t}$ (b) $3te^{-t}+e^{-t}$

(c) $4te^{-t}+e^{-t}$ (d) $3e^{-t}$

Ans. (a)

End of Solution

Q.29 For the Bode plot given below which of the following statement are correct?



Statement-1: The transfer function has 3 pole and one zero.
Statement-2: Value of $\angle G(j\omega)\, H(j\omega)$ is $-3\pi/2$ when ω tends to infinity.

(a) Statement 1 is correct statement 2 is wrong.
(b) Statement 2 is correct statement 1 is wrong.
(c) Both statements are correct.
(d) Both statements are wrong.

Ans. (b)

End of Solution

Q.30 If $f = 2x^3 + 3y^2 + 4z$, $\int_c \text{grad} f \cdot dr$ along the path $(-3, -3, 2) \rightarrow (2, -3, 2) \rightarrow (2, 6, 2) \rightarrow (2, 6, -1)$ will be

Ans. (139)

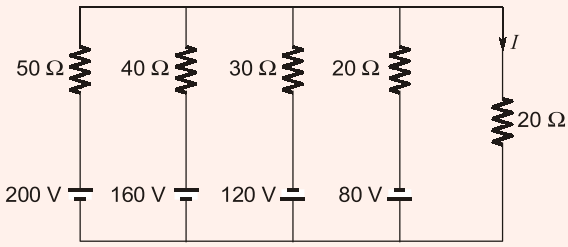
End of Solution

Q.31 The probability of a defective resistor is 0.02, there are 50 such resistors. Find the probability that two or more than two are defective?

Ans. (0.26)

End of Solution

Q.32 Find the value of current I in the given circuit.

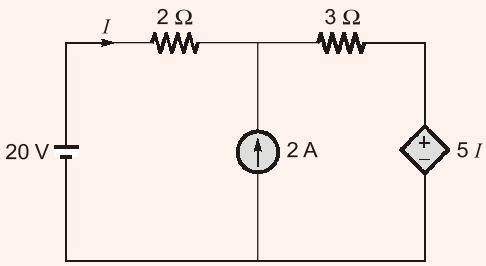


Ans. (0)

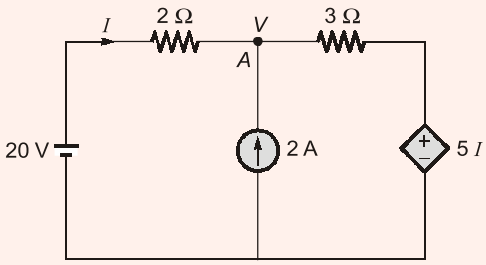
By Millman's theorem, $I = \dfrac{\dfrac{200}{50} + \dfrac{160}{40} - \dfrac{120}{30} - \dfrac{80}{20}}{\dfrac{1}{50} + \dfrac{1}{40} + \dfrac{1}{30} + \dfrac{1}{20}} = 0 \text{ A}$

End of Solution

Q.33 Find the value of current I in the circuit below.



Ans. (1.4)



Applying KCL at A,

$$I + 2 \text{ A} = \frac{V - 5I}{3} \qquad \text{...(i)}$$

$$I = \frac{20 - V}{2} \qquad \text{...(ii)}$$

Solving above two equations,

$I = 1.4$ A

End of Solution

Q.34 A DC motor with terminal voltage 220 V, has field resistance of 220 Ω and armature resistance of 0.5 Ω takes 25 A at full load while running at 1500 rpm. At no-load it takes 3 A from line, then the speed at no-load is _____ rpm.

Ans. (1579.32)

End of Solution

Q.35 A three-phase synchronous motor draws 200 A from line at unity power factor at rated load. The line current I_L at power factor 0.5 lead for same line voltage and load will be _____.

(a) 400 A (b) 200 A
(c) 300 A (d) 100 A

Ans. (a)

$$P = V_1 \cos\phi$$

For same line voltage and lead,

$$I\cos\phi = \text{constant}$$

$$I_1\cos\phi_1 = I_2\cos\phi_2$$

$$200 \times 1 = I2 \times 0.5 = 400 \text{ A}$$

End of Solution

Q.36 A delta connected 3.7 kW, 400 V (line) 3-ϕ, 4 pole, 50 Hz, squirrel cage induction motor has following parameters per phase referred to stator:

$$R_1 = 5.39\ \Omega, \quad R_2 = 5.72\ \Omega, \quad X_1 = X_2 = 8.22\ \Omega$$

Neglecting shunt branch in equivalent circuit, the starting line current when it is connected to 100 V (line), 10 Hz, 3-ϕ source is _____.

Ans. (14.95)

End of Solution

Q.37 A single phase transformer of rating 25 kVA, supplies 12 kW at power factor of 0.6 lag. The additional load at unity power factor in kW that may be added before the transformer exceeds rated kVA will be _____.

Ans. (7.2)

$$P_L = 12 \text{ kW}$$

$$Q_L = \frac{12}{0.6} \times \sin[\cos^{-1}(0.6)] = 16 \text{ kVAR}$$

As Q_L is fixed then,

$$S^2 = P^2 + Q^2$$

$$(25\text{ k})^2 = P^2 + (16\text{ k})^2$$

$$P = 19.2 \text{ kW}$$

Additional load that can be added

$$= P - P_L = 7.2 \text{ kW}$$

End of Solution

Q.38 Five alternators rated 5 MVA, 13.2 kV with 25% reactance on their own base are connected in parallel to infinite bus bar. The short-circuit level in MVA at bus bar will be ____.

Ans. (100)

Under short circuit reactance diagram would be

$$X_f = \frac{0.25}{5} = 0.05$$

$$\text{Short circuit current} = \frac{1\,\text{pu}}{X_f} = \frac{1}{0.05} = 20\,\text{pu}$$

$$\text{Short circuit MVA} = 20 \times 5 = 100\ \text{MVA}$$

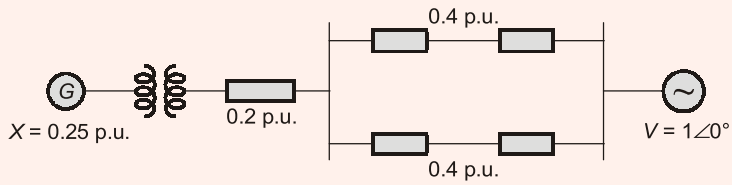
End of Solution

Q.39 A 220 V, synchronous is star connected and has synchronous impedance (0.25 + *j*2.5) Ω/phase. The motor draws 10 A at 0.8 p.f. leading. The rms value of line to line internal voltage is _____.

Ans. (200.9)

End of Solution

Q.40 Single machine connected to infinite bus system generator delivers real power of 0.8 p.u. at 0.8 power factor (lag) to infinite bus. The power angle of generator is _____.



Ans. (20.5)

End of Solution

Q.41 The voltage across and current through a element are given as,

$$V = -170\cos\left(377t - \frac{\pi}{6}\right)$$

$$i = 8\sin\left(377t + \frac{\pi}{6}\right)$$

the power absorbed by element in watts is _____.

Ans. (588.8)

$$V(t) = -170\cos\left(377t - \frac{\pi}{6}\right)$$

$$= 170\sin\left(377t + \frac{\pi}{3}\right)$$

$$i(t) = 8\sin\left(377t + \frac{\pi}{6}\right)$$

$$P = V_{rms} \times I_{rms} \cos\phi$$

$$= \frac{170}{\sqrt{2}}\frac{8}{\sqrt{2}}\cos\left(\frac{\pi}{3} - \frac{\pi}{6}\right) = 588.8\ \text{W}$$

End of Solution

Q.42 A 50 MVA, 30 kVA alternator has the positive, negative and zero sequence reactance 0.25 pu, 0.15 and 0.05 pu respectively. A reactance is connected in neutral of the generator. The value of reactance to make fault level of line to ground fault and 3-phase fault at the terminal of alternator will be equal to _____ ohms.

Ans. (1.8)

End of Solution

Q.43 An n-channel enhancement type MOSFET is there then condition for MOSFET to be in saturation is

(a) $V_{GS} < V_{Th}$, $V_{DS} \le V_{GS} - V_{Th}$
(b) $V_{GS} > V_{Th}$, $V_{DS} \ge V_{GS} - V_{Th}$
(c) $V_{GS} < V_{Th}$, $V_{DS} \ge V_{GS} - V_{Th}$
(d) $V_{GS} > V_{Th}$, $V_{DS} \le V_{GS} - V_{Th}$

Ans. (b)

End of Solution

Q.44 In a transmission line total inductance seen from the circuit breaker is 0.5 mH and the shunt capacitance is 0.05 μH. Critical resistance required to die out the transient oscillation is _____.

Ans. (500)

End of Solution

Q.45 A 3-ϕ, 50 Hz, 400 kV line is 300 km long. The line inductance is 1 mH/km/phase and capacitance, $C = 0.01$ μF/km/phase. The line is under open circuit condition at receiving end and energized with 400 kV at sending end, the receiving end voltage will be ____.

Ans. (435.3)

End of Solution

Q.46 A single-phase full controlled converter is used to obtain average voltage of 180 V with 10 A constant current feeding dc load. It is fed from a single phase ac 230 V, 50 Hz supply. Neglect source impedance and over lap. The power factor of AC mains is _____.

Ans. (0.782)

End of Solution

Q.47 A six pulse thyristor bridge rectifier is connected to a balanced 3-ϕ, 50 Hz ac source. Assuming dc output current to be constant, the lowest harmonic component in ac input current is

(a) 250 Hz (b) 150 Hz

(c) 100 Hz (d) 300 Hz

Ans. (a)

End of Solution

Q.48 A capacitor of 0.1 μF is charged upto 100 V then it is to be discharged through 1 kW resistor. The time required to reach the value of capacitor voltage to 1 V is _____ msec.

Ans. (0.46)

End of Solution

Q.49 A coaxial cable is as shown in figure (a). When 1/4th of the region is filled with as dielectric of permittivity ε_{r2} as shown in figure (b) the capacitance doubles. The value of ε_{r2} is _____.

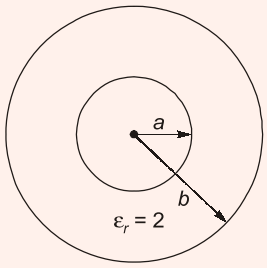


Fig. (a)

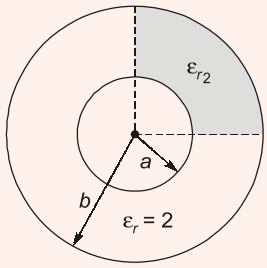


Fig. (b)

Ans. (10)

End of Solution

Q.50 5 A CT has impedance having burden in secondary of fault current is 20 times of normal rated calculated VA.

Ans. (100)

End of Solution

Q.51 A research shows that men are as prone as women to buy in an impulse. But women feel guilt about shopping. Choose best deduction:

(a) All men and women buy in impulse.
(b) Many men and women buy in impulse.
(c) Some men and women buy in impulse.
(d) Few men and women buy in impulse.

Ans. (c)

End of Solution

Q.52 A boost converter has input voltage of 24 V and a output voltage of 48 V. It supplies a power of 120 W to a resistive load of 24 Ω. The switching frequency is 50 kHz. The value of critical boost inductor in μH required at boundary of continuous and discontinuous conduction is _____.

Ans. (24)

$$\therefore \quad V_0 = \frac{V_s}{1-\alpha}$$

$$48 = \frac{24}{1-\alpha}$$

$$\alpha = 0.5$$

$$\therefore \quad V_s I_s = 120$$

$$I_s = \frac{120}{24} = 5\ \text{A} = I_L$$

$$I_L = \frac{\alpha V_s}{2fL} \qquad \text{...(at boundary)}$$

So critical value inductor,

$$L = \frac{\alpha V_s}{2f I_L} = \frac{0.5\times 24}{2\times 50\times 10^3 \times 5} = 24\ \mu\text{H}$$

End of Solution

Q.53 A PMMC instrument with 10 Ω internal resistance. Shows full scale reading for 10 mA current. The external resistance connected in series to make the instrument able to measure μp to 100 V is _____.

(a) 9990 Ω
(b) 990 Ω
(c) 90 Ω
(d) 9 Ω

Ans. (a)

End of Solution

Q.54 A buck converter is supplied from 48 V and has a load resistance of 24 Ω. It has a switching frequency of f_s 250 Hz and switch on time is 1 msec then the power absorbed by the load is _____ watt.

(a) 24 W (b) 6 W
(c) 12 W (d) 36 W

Ans. (b)

Given that, $V_s = 48$ V, $R_L = 24\ \Omega$
$f_s = 250$ Hz, $T_{ON} = 1$ msec

$\therefore$ $$T = \frac{1}{f_s} = \frac{1}{250} = 4\ \text{msec}$$

$$\alpha = \frac{T_{ON}}{T} = \frac{1}{4} = 0.25$$

$$V_0 = \alpha V_s = \frac{1}{4} \times 48 = 12\ \text{V}$$

$$P_0 = \frac{V_0^2}{R_L} = \frac{(12)^2}{24} = \frac{144}{24} = 6\ \text{W}$$

End of Solution

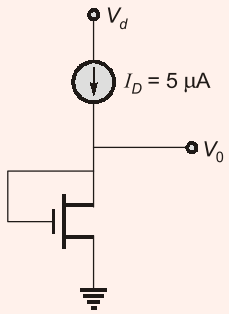
Q.55 A 3-ϕ full converter is supplied with 440 V supplies a constant dc current of 100 A in the load. If the output voltage is 400 V then the rms value of line current in ac supply is _____.

Ans. (81.64)

End of Solution

Q.56 A MOSFET has threshold volage of V_{th} = 500 mV, $\mu_0 C_{ox}$ = 100 μA/V^2 and $\frac{W}{L} = \frac{100\mu m}{10\mu m}$.

If transistor is in saturation the gate voltage V_0 would be _____.

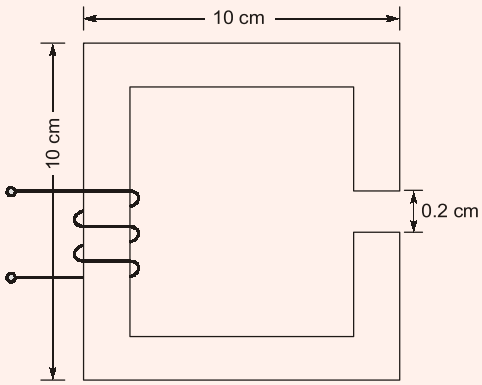


(a) 600 mV (b) 300 mV
(c) 400 mV (d) 200 mV

Ans. (a)

End of Solution

Q.57 A magnetic core has a mean length of 40 cm and an air gap of 0.2 cm. If the permeability of the core is assumed to be infinite, then the flux density through the air gap is 1 T. If the core has pemeability of 1000 then the flux density through the air gap would be _____.



Ans. (0.83)

End of Solution

Q.58 A 50 kVA 200/100 V transformer has the output at secondary terminal of 95 V then the voltage regulation is _____.

(a) 4.5%
(b) 5%
(c) 9%
(d) 2%

Ans. (b)

End of Solution

Q.59 The mean square value of a zero mean random process is kT/C, then standard deviation of random process is

(a) $\sqrt{\frac{kT}{C}}$
(b) $\frac{kT}{C}$
(c) $\frac{\sqrt{kT}}{C}$
(d) $\frac{kT}{\sqrt{C}}$

Ans. (a)

End of Solution

Q.60 A CCCS amplifier has input impedance of 10 Ω and output impedance of 100 kΩ. If the negative feedback of loop gain 9 is applied to the amplifier then output impedance of the feedback amplifier woule be _____

(a) 10 kΩ
(b) 100 kΩ
(c) 1000 kΩ
(d) 1 kΩ

Ans. (c)

End of Solution