Gate Mock Test Questions(2015-2016)

1) The bus admittance matrix of a three-bus three-line system is

$$Y = j\begin{bmatrix} -13 & 10 & 5 \\ 10 & -18 & 10 \\ 5 & 10 & -13 \end{bmatrix}$$

If each transmission line between the two buses is represented by an equivalent π-network, the magnitude of the shunt susceptance of the line connecting bus 1 and 2 is

(A) 4 (B) 2 (C) 1 (D) 0

Option (B) is correct.

For bus admittance matrix,

$$Y_{11} + (Y_{12} + y_{line}) + Y_{13} = 0$$
$$-j13 + (j10 + y_{line}) + j5 = 0$$
$$y_{line} = -j2$$

Magnitude of susceptance is $+2$

2) The Gauss Seidel load flow method has following disadvantages

(A) Unreliable convergence

(B) Slow convergence

(C) Choice of slack bus affects convergence

(D) A good initial guess for voltages is essential for convergence

Option (A) is correct. Unreliable convergence is the main disadvantage of gauss seidel load flow method.

3) For enhancing the power transmission in along EHV transmission line, the most preferred method is to connect a

(A) Series inductive compensator in the line

(B) Shunt inductive compensator at the receiving end

(C) Series capacitive compensator in the line

(D) Shunt capacitive compensator at the sending end

Option (C) is correct. Steady state stability or power transfer capability

Pmax = EV/X

To improve steady state limit, reactance X should be reduced. The stability may be increased by using two parallel lines. Series capacitor can also be used to get a better regulation and to increase the stability limit by decreasing reactance. Hence (C) is correct option

4) High Voltage DC (HVDC) transmission is mainly used for

(A) bulk power transmission over very long distances

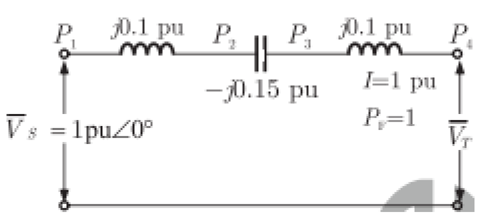
(B) inter-connecting two systems with same nominal frequency

(C) eliminating reactive power requirement in the operation

(D) minimizing harmonics at the converter stations

Option (A) is correct. For bulk power transmission over very long distance HVDC transmission preferably used.

5) Consider the model shown in figure of a transmission line with a series capacitor at its mid-point. The maximum voltage on the line is at the location



(A) P1 (B) P2 (C) P3 (D) P4

SOL 5.129 Option (C) is correct.

We have to find out maximum voltage location on line by applying KVL in the circuit

$$V_S - V_R = 0.05j, \text{ where } V_S = 1$$

$$V_R = 1 - 0.05j$$

voltage at $P_1 = V_S = 1\,\text{pu}.$ ..(1)

voltage at $P_2 = 1 - 0.1j$ (by applying KVL) ...(2)

voltage at $P_3 = 1 - 0.1j + j0.15$ (by applying KVL)

$= 1 + 0.05j$ ...(3)

From equation (1), (2) and (3) it is cleared that voltage at P_3 is maximum.

6) A three-phase, 33 kV oil circuit breaker is rated 1200 A, 2000 MVA, 3 s. The symmetrical breaking current is

(A) 1200 A
(B) 3600 A
(C) 35 kA

(D) 104.8 kA

Option (C) is correct.
Given 3-ϕ, 33 kV oil circuit breaker.
Rating 1200 A, 2000 MVA, 3 sec

Symmetrical breaking current $I_b = ?$

$$I_b = \frac{MVA}{\sqrt{3}\ \text{kV}}\ \text{kA} = \frac{2000}{\sqrt{3} \times 33} = 34.99\ \text{kA} \simeq 35\ \text{kA}$$

7) The *A*, *B*, *C* , *D* constants of a 220 kV line are :
$A = D = 0.94\angle 1^0$, $B = 130\angle 73^0$, $C = 0.001\angle 90^0$
If the sending end voltage of the line for a given load delivered at nominal voltage is 240 kV, the % voltage regulation of the line is

(A) 5 (B) 9 (C) 16 (D) 21

Option (C) is correct.
Given $ABCD$ constant of 220 kV line
$A = D = 0.94\angle 10°$, $B = 130\angle 730°$, $C = 0.001\angle 900°$, $V_S = 240$ kV
% voltage regulation is being given as

$$\%\text{V.R.} = \frac{(V_R)_{\text{No Load}} - (V_R)_{\text{Full load}}}{V_R(\text{Full load})} \times 100$$

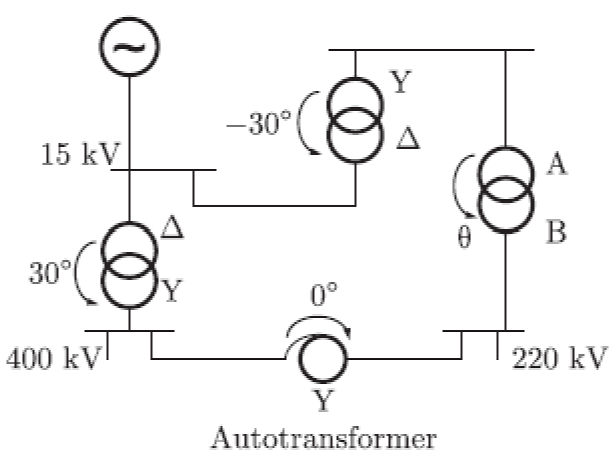
At no load $I_R = 0$

$$(V_R)_{NL} = V_S/A,\ (V_R)_{\text{Full load}} = 220 \text{ kV}$$

$$\%\text{V.R.} = \frac{\frac{240}{0.94} - 220}{220} \times 100$$

$$\%\text{V.R.} = 16$$

8) Consider the transformer connections in a part of a power system shown in the figure. The nature of transformer connections and phase shifts are indicated for all but one transformer Which of the following connections, and the corresponding phase shift θ, should be used for the transformer between A and B ?



(A) Star-star (θ = 0%) (B) Star-Delta (θ =− 30%)
(C) Delta-star (θ = 30%) (D) Star-Zigzag (θ = 30%)

Option (A) is correct.
Equal Phase shift of point A & B with respect to source from both bus paths.
So the type of transformer Y-Y with angle 0c.

9) A loss less transmission line having Surge Impedance Loading (SIL) of 2280 MW is provided with a uniformly distributed series capacitive compensation of 30%. Then, SIL of the compensated transmission line will be

(A) 1835 MW (B) 2280 MW
(C) 2725 MW (D) 3257 MW

Option (B) is correct.
SIL has no effect of compensation
So SIL = 2280 MW

10) A 500 MW, 21 kV, 50 Hz, 3-phase, 2-pole synchronous generator having a rated p.f = 0.9, has a moment of inertia of 27.5 *10^3 kg-m^2 .The inertia constant (H) will be

(A) 2.44 s (B) 2.71 s
(C) 4.88 s (D) 5.42 s

Option (A) is correct.
Given Synchronous generator of 500 MW, 21 kV, 50 Hz, 3-ϕ, 2-pole
P.F = 0.9, Moment of inertia $M = 27.5 \times 10^3$ kg-m^2
Inertia constant H = ?

$$\text{Generator rating in MVA } G = \frac{P}{\cos\phi} = \frac{500 \text{ MW}}{0.9} = 555.56 \text{ MVA}$$

$$N = \frac{120 \times f}{\text{pole}} = \frac{120 \times 50}{2} = 3000 \text{ rpm}$$

$$\text{Stored K.E} = \frac{1}{2}M\omega^2 = \frac{1}{2}M\left(\frac{2\pi N}{60}\right)^2$$

$$= \frac{1}{2} \times 27.5 \times 10^3 \times \left(\frac{2\pi \times 3000}{60}\right) \text{MJ}$$

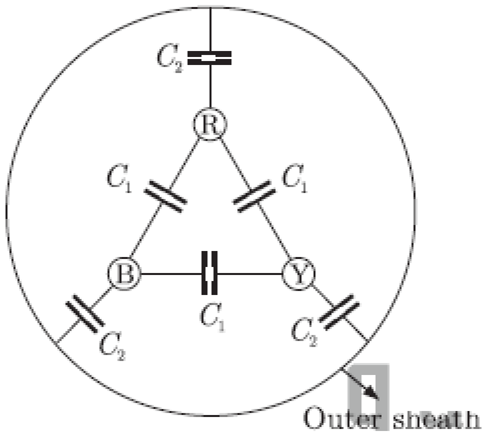
$$= 1357.07 \text{ MJ}$$

$$\text{Inertia constant } (H) = \frac{\text{Stored K.E}}{\text{Rating of Generator (MVA)}}$$

$$H = \frac{1357.07}{555.56}$$

$$= 2.44 \text{ sec}$$

11) Consider a three-core, three-phase, 50 Hz, 11 kV cable whose conductors are denoted as R,Y and B in the figure. The inter-phase capacitance($C1$) between each line conductor and the sheath is 0.4 μF . The per-phase charging current is



(A) 2.0 A (B) 2.4 A
(C) 2.7 A (D) 3.5 A

Option (A) is correct.
Given : 3-φ, 50 Hz, 11 kV cable
$C1 = 0.2$ μF
$C2 = 0.4$ μF

$$\text{Charging current } I_C \text{ per phase } = ?$$

$$\text{Capacitance Per Phase } C = 3C_1 + C_2$$

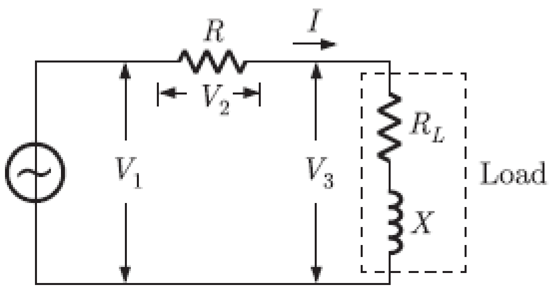
$$C = 3 \times 0.2 + 0.4 = 1\,\mu\text{F}$$

$$\omega = 2\pi f = 314$$

$$\text{Changing current } I_C = \frac{V}{X_C} = V(\omega C) = \frac{11 \times 10^3}{\sqrt{3}} \times 314 \times 1 \times 10^{-6}$$

$$= 2 \text{ Amp}$$

12) In the circuit shown, the three voltmeter readings are $V1 = 220$ V, $V2 = 122$ V, $V3 = 136$ V.



The power factor of the load is
(A) 0.45 (B) 0.50
(C) 0.55 (D) 0.60

Option (A) is correct.
By taking $\boldsymbol{V}_1$, $\boldsymbol{V}_2$ and $\boldsymbol{V}_3$ all are phasor voltages.

$$\boldsymbol{V}_1 = \boldsymbol{V}_2 + \boldsymbol{V}_3$$

Magnitude of $\boldsymbol{V}_1$, $\boldsymbol{V}_2$ and $\boldsymbol{V}_3$ are given as

$$V_1 = 220\text{ V},\ V_2 = 122\text{ V},\ V_3 = 136\text{ V}$$

Since voltage across R is in same phase with $\boldsymbol{V}_1$ and the voltage V_3 has a phase difference of θ with voltage $\boldsymbol{V}_1$, we write in polar form

$$\begin{aligned}
\boldsymbol{V}_1 &= V_2\angle 0^\circ + V_3\angle\theta \\
\boldsymbol{V}_1 &= V_2 + V_3\cos\theta + jV_3\sin\theta \\
\boldsymbol{V}_1 &= (V_2 + V_3\cos\theta) + jV_3\sin\theta \\
|\boldsymbol{V}_1| &= \sqrt{(V_2 + V_3\cos\theta)^2 + (V_2\sin\theta)^2} \\
220 &= \sqrt{(122 + 136\cos\theta)^2 + (136\sin\theta)^2}
\end{aligned}$$

By solving, power factor

$$\cos\theta = 0.45$$

13) The average power delivered to an impedance $(4 - j3)\Omega$ by a current $5\cos(100\pi t + 100)$A is

(A) 44.2W (B) 50W
(C) 62.5W (D) 125W

Option (B) is correct.
In phasor form

$$\begin{aligned}
Z &= 4 - j3 \\
Z &= 5\angle -36.86^\circ\,\Omega \\
\boldsymbol{I} &= 5\angle 100^\circ\text{ A}
\end{aligned}$$

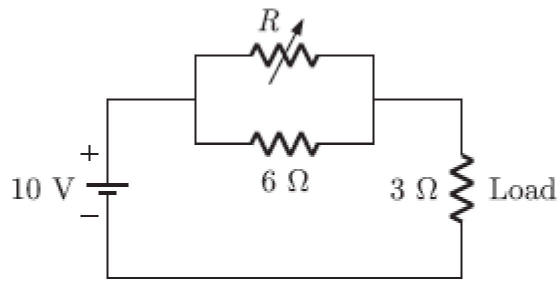
Average power delivered.

$$P_{avg.} = \frac{1}{2}|\boldsymbol{I}|^2 Z\cos\theta = \frac{1}{2}\times 25\times 5\cos 36.86^\circ = 50\text{ W}$$

Alternate method:

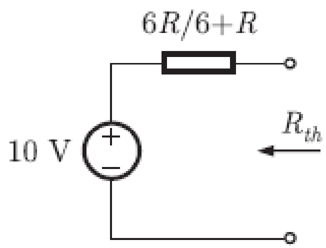
$$\begin{aligned}
Z &= (4 - j3)\,\Omega \\
I &= 5\cos(100\pi t + 100)\text{ A} \\
P_{avg} &= \frac{1}{2}\text{Re}\{|I|^2 Z\} = \frac{1}{2}\times\text{Re}\{(5)^2\times(4 - j3)\} = \frac{1}{2}\times 100 = 50\text{ W}
\end{aligned}$$

14) In the circuit given below, the value of R required for the transfer of maximum power to the load having a resistance of 3 Ω is



(A) zero (B) 3 Ω
(C) 6 Ω (D) infinity

Option (A) is correct.



Power transferred to the load

$$P = I^2 R_L = \left(\frac{10}{R_{th} + R_L}\right)^2 R_L$$

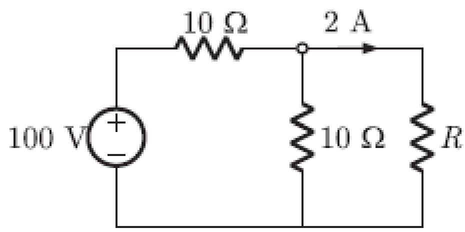
For maximum power transfer R_{th}, should be minimum.

$$R_{th} = \frac{6R}{6+R} = 0$$

$$R = 0$$

Note: Since load resistance is constant so we choose a minimum value of R_{th}

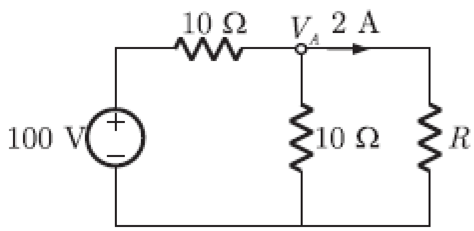
15) In figure, the value of resistance R in Ω is



(A) 10 (B) 20
(C) 30 (D) 40

Option (B) is correct.

In the circuit



Voltage $\quad V_A = \frac{100}{10 + (10 \,||\, R)} \times (10 \,||\, R) = \left(\frac{100}{10 + \frac{10R}{10+R}} \right) \left(\frac{10R}{10+R} \right)$

$$= \frac{1000R}{100 + 20R} = \frac{50R}{5+R}$$

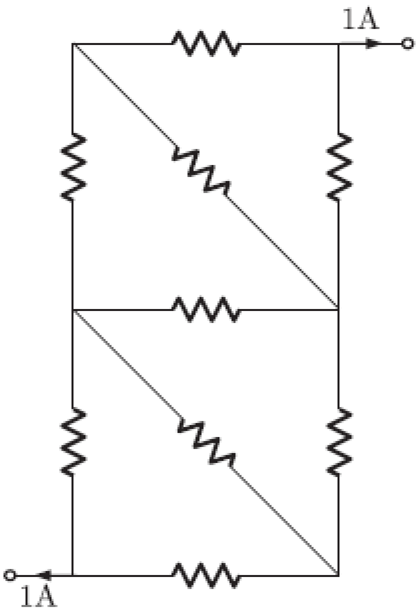
Current in $R\,\Omega$ resistor

$$2 = \frac{V_A}{R}$$

$$2 = \frac{50R}{R(5+R)}$$

or $\quad R = 20\,\Omega$

16) In the resistor network shown in figure, all resistor values are 1Ω. A current of 1 A passes from terminal *a* to terminal *b* as shown in figure, Voltage between terminal *a* and *b* is



(A) 1.4 Volt (B) 1.5 Volt
(C) 0 Volt (D) 3 Volt

Option (A) is correct.

17) The RMS value of the voltage $u(t) = 3 + 4\cos(3t)$ is

Option (A) is correct.
Rms value is given as

$$\mu_{rms} = \sqrt{3^2 + \frac{(4)^2}{2}} = \sqrt{9+8} = \sqrt{17}\ \text{V}$$

(A) 17 V (B) 5 V
(C) 7 V (D) (3 + 2 2) V

18) The rms value of the current in a wire which carries a d.c. current of 10 A and a sinusoidal alternating current of peak value 20 A is

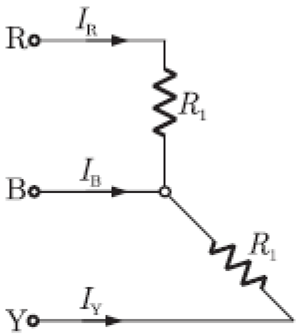
(A) 10 A (B) 14.14 A
(C) 15 A (D) 17.32 A

Option (D) is correct.
Total current in the wire

$$I = 10 + 20\sin\omega t$$

$$I_{rms} = \sqrt{10^2 + \frac{(20)^2}{2}} = \sqrt{100 + 200} = \sqrt{300} = 17.32 \text{ A}$$

19) For the three-phase circuit shown in the figure the ratio of the currents
IR: *IY*: *IB* is given by



(A) 1:1: 3 (B) 1:1: 2
(C) 1:1: 0 (D) 1:1: root(3/2)

Option (A) is correct.
In the circuit

$$\overline{I}_B = I_R\angle 0^\circ + I_y\angle 120^\circ$$

$$I_B^2 = I_R^2 + I_y^2 + 2I_R I_y \cos\left(\frac{120^\circ}{2}\right) = I_R^2 + I_y^2 + I_R I_y$$

Since $\quad I_R = I_y$

so, $\quad I_B^2 = I_R^2 + I_R^2 + I_R^2 = 3I_R^2$

$$I_B = \sqrt{3}\, I_R = \sqrt{3}\, I_y$$

$$I_R : I_y : I_B = 1 : 1 : \sqrt{3}$$

20) For the system 2/(*s* + 1), the approximate time taken for a step response to reach 98% of the final value is

(A) 1 s (B) 2 s
(C) 4 s (D) 8 s

Option (C) is correct.
System is given as

$$H(s) = \frac{2}{(s+1)}$$

Step input $R(s) = \frac{1}{s}$

Output $Y(s) = H(s)\,R(s) = \frac{2}{(s+1)}\left(\frac{1}{s}\right) = \frac{2}{s} - \frac{2}{(s+1)}$

Taking inverse Laplace transform

$$y(t) = (2 - 2e^{-t})\,u(t)$$

Final value of $y(t)$,

$$y_{ss}(t) = \lim_{t \to \infty} y(t) = 2$$

Let time taken for step response to reach 98% of its final value is t_s.
So,

$$2 - 2e^{-t_s} = 2 \times 0.98$$

$$0.02 = e^{-t_s}$$

$$t_s = \ln 50 = 3.91 \text{ sec.}$$

21) The rms value of the periodic waveform given in figure is

(A) 2 root(6)A (B) 6 root(2)A
(C) root(4/3)A (D) 1.5 A

Option (A) is correct.

Root mean square value is given as

$$I_{rms} = \sqrt{\frac{1}{T}\int_0^T I^2(t)\,dt}$$

From the graph, $I(t) = \begin{cases} -\left(\frac{12}{T}\right)t, & 0 \le t < \frac{T}{2} \\ 6, & T/2 < t \le T \end{cases}$

So

$$\frac{1}{T}\int_0^T I^2\,dt = \frac{1}{T}\left[\int_0^{T/2}\left(\frac{-12t}{T}\right)^2 dt + \int_{T/2}^{T}(6)^2\,dt\right]$$

$$= \frac{1}{T}\left(\frac{144}{T^2}\left[\frac{t^3}{3}\right]_0^{T/2} + 36[t]_{T/2}^{T}\right)$$

$$= \frac{1}{T}\left[\frac{144}{T^2}\left(\frac{T^3}{24}\right) + 36\left(\frac{T}{2}\right)\right] = \frac{1}{T}[6T + 18T] = 24$$

$$I_{rms} = \sqrt{24} = 2\sqrt{6}\ \text{A}$$

22) The rms value of the resultant current in a wire which carries a dc current of 10 A and a sinusoidal alternating current of peak value 20 is

(A) 14.1 A (B) 17.3 A
(C) 22.4 A (D) 30.0 A

Option (B) is correct.

Total current in wire

$$I = 10 + 20\sin\omega t$$

$$I_{rms} = \sqrt{(10)^2 + \frac{(20)^2}{2}} = 17.32\ \text{A}$$

23) The Fourier series for the function $f(x) = \sin^2 x$ is

(A) $\sin x + \sin 2x$
(B) $1 - \cos 2x$
(C) $\sin 2x + \cos 2x$
(D) $0.5 - 0.5\cos 2x$

Option (D) is correct.

$$f(x) = \sin^2 x = \frac{1 - \cos 2x}{2}$$

$$= 0.5 - 0.5 \quad \cos 2x$$

$$f(x) = A_0 + \sum_{n=1}^{\infty} a_n \cos n\omega_0 x + b_n \sin n\omega_0 x$$

$f(x) = \sin^2 x$ is an even function so $b_n = 0$

$$A_0 = 0.5$$

$$a_n = \begin{cases} -0.5, & n = 1 \\ 0 & , \text{ otherwise} \end{cases}$$

$$\omega_0 = \frac{2\pi}{T_0} = \frac{2\pi}{T} = 2$$

24) The second harmonic component of the periodic waveform given in the figure has an amplitude of

(A) 0 (B) 1
(C) $2/\pi$ (D)root(5)

Option (A) is correct.
Fourier series of given function

$$x(t) = A_0 + \sum_{n=1}^{\infty} a_n \cos n\omega_0 t + b_n \sin n\omega_0 t$$

$$\because x(t) = -x(t) \text{ odd function}$$

So, $A_0 = 0$

$$a_n = 0$$

$$b_n = \frac{2}{T}\int_0^T x(t) \sin n\omega_0 t \, dt$$

$$= \frac{2}{T}\left[\int_0^{T/2} (1) \sin n\omega_0 t \, dt + \int_{T/2}^{T} (-1) \sin n\omega_0 t \, dt\right]$$

$$= \frac{2}{T}\left[\left(\frac{\cos n\omega_0 t}{-n\omega_0}\right)_0^{T/2} - \left(\frac{\cos n\omega_0 t}{-n\omega_0}\right)_{T/2}^{T}\right]$$

$$= \frac{2}{n\omega_0 T}[(1 - \cos n\pi) + (\cos 2n\pi - \cos n\pi)]$$

$$= \frac{2}{n\pi}[1 - (-1)^n]$$

$$b_n = \begin{cases} \frac{4}{n\pi}, & n \text{ odd} \\ 0 \quad , & n \text{ even} \end{cases}$$

So only odd harmonic will be present in $x(t)$
For second harmonic component $(n = 2)$ amplitude is zero.

25) Which of the following statements is false?
(a) A DC motor converts electrical energy to mechanical energy
(b) The efficiency of a DC motor is the ratio input power to output power
(c) A DC generator converts mechanical power to electrical power
(d) The efficiency of a DC generator is the ratio output power to input power
Options:
1. C only
2. C and D only
3. B only
4. None of the above
Ans: 3

Answer

26 If the speed of a DC machine is doubled and the flux remains constant, the generated e.m.f.

(a) remains the same
(b) is doubled
(c) is halved
(d) None of the above

Ans: B
Answer

27 If the flux per pole of a shunt-wound DC generator is increased, and all other variables are kept the same, the speed
(a) decreases
(b) stays the same
(c) increases
(d) None of the above

Ans:A
Answer

28 Which of the following statements is false?
(a) A commutator is necessary as part of a DC motor to keep the armature rotating in the same direction
(b) A commutator is necessary as part of a DC generator to produce unidirectional voltage at the terminals of the generator
(c) The field winding of a DC machine is housed in slots on the armature
(d) The brushes of a DC machine are usually made of carbon and do not rotate with the armature
Options:
1. D only
2. C and D only
3. None of the above
4. C only

Ans: 4
Answer

29 If the flux per pole of a shunt-wound DC generator is halved, the generated e.m.f. at constant speed
(a) is doubled
(b) is halved
(c) remains the same
(d) None of the above

Ans: B
Answer

30 In a series-wound generator running at constant speed, as the load current increases, the terminal voltage

(a) increases
(b) decreases
(c) stays the same
(d) None of the above

Ans:A
Answer

31 Which of the following statements is false for a series-wound DC motor?
(a) The speed decreases with increase of resistance in the armature circuit
(b) The speed increases as the flux decreases
(c) The speed can be controlled by a diverter
(d) The speed can be controlled by a shunt field regulator

Ans: D
Answer

32 The armature resistance of a DC motor is 0.5 , the supply voltage is 200V and the back e.m.f. is 196V at full speed. The armature current is:
(a) 4A
(b) 8A
(c) 400A
(d) 392A

Ans: B
Answer

33 In DC generators iron losses are made up of:
(a) hysteresis and friction losses
(b) hysteresis, eddy current and brush contact losses
(c) hysteresis and eddy current losses
(d) hysteresis, eddy current and copper losses

Ans: C
Answer

34 The effect of inserting a resistance in series with the field winding of a shunt motor is to:
(a) increase the magnetic field
(b) increase the speed of the motor
(c) decrease the armature current
(d) reduce the speed of the motor

Ans: B
Answer

35 Which of the following statements about a three-phase squirrel-cage induction motor are

false?
(a) It has no external electrical connections to its rotor
(b) A three-phase supply is connected to its stator
(c) A magnetic flux which alternates is produced
(d) It is cheap, robust and requires little or no skilled maintenance

(1) A,B,C only
(2) C and D only
(3) C only
(4) None of the above
(5) B only

Ans: 3
Answer

36 Which of the following statements about a three-phase induction motor are false?
(a) The speed of rotation of the magnetic field is called the synchronous speed
(b) A three-phase supply connected to the rotor produces a rotating magnetic field
(c) The rotating magnetic field has a constant speed and constant magnitude
(d) It is essentially a constant speed type machine

(1) C only
(2) B only
(3) A only
(4) All of the above
(5) A and C only

Ans: 2
Answer

37 Which of the following statements is false when referring to a three-phase induction motor?
(a) The synchronous speed is half the supply frequency when it has four poles
(b) In a 2-pole machine, the synchronous speed is equal to the supply frequency
(c) If the number of poles is increased, the synchronous speed is reduced
(d) The synchronous speed is inversely proportional to the number of poles

(1) All of the above
(2) D only
(3) B only
(4) None of the above
(5) A and C only

Ans: 2

Answer

38 A 4-pole three-phase induction motor has a synchronous speed of 25 rev/s. The frequency of the supply to the stator is:
(a) 50 Hz
(b) 100 Hz
(c) 25 Hz
(d) 12.5 Hz

Ans: A
Answer

39 In a three-phase induction motor. Which of the following statements are false?
(a) The slip speed is the synchronous speed minus the rotor speed
(b) As the rotor is loaded, the slip decreases
(c) The frequency of induced rotor e.m.f.'s increases with load on the rotor
(d) The torque on the rotor is due to the interaction of magnetic fields

(1) All of the above
(2) C only
(3) B only
(4) A and C only
(5) B and D only

Ans: 3
Answer

40 In a three-phase induction motor. Which of the following statements are false?
(a) If the rotor is running at synchronous speed, there is no torque on the rotor
(b) If the number of poles on the stator is doubled, the synchronous speed is halved
(c) At no-load, the rotor speed is very nearly equal to the synchronous speed
(d) The direction of rotation of the rotor is opposite to the direction of rotation of the magnetic field to give maximum current induced in the rotor bars

(1) A, B , C
(2) C only
(3) B only
(4) A and C only
(5) D only

Ans: 5
Answer

41 The slip speed of an induction motor depends upon:

(a) Armature current
(b) Supply voltage
(c) Mechanical load
(d) Eddy currents

Ans: C
Answer

42 The starting torque of a simple squirrel-cage motor is:
(a) Low
(b) Increases as rotor current rises
(c) Decreases as rotor current rises
(d) High

Ans: A
Answer

43 The slip speed of an induction motor:
(a) is zero until the rotor moves and then rises slightly
(b) is 100 per cent until the rotor moves and then decreases slightly
(c) is 100 per cent until the rotor moves and then falls to a low value
(d) is zero until the rotor moves and then rises to 100 per cent

Ans: C

44 A rectifier type instrument is connected to 100VDC and is operated in the DC measuring module reads
(a) 111V
(b) 90V
(c) 50V
(d) 100V

Ans: A
Answer

45 A permanent magnet moving coil ammeter has a coil resistance of 99ohm and Full Scale Deflection(FSD) current of 0.1mA. Shunt resistance is 1 ohm. Current through the meter at 0.5 F.S.D is
(a) 0.007mA
(b) 0.05mA
(c) 0.023mA
(d) 0.1mA

Ans: B

Answer
46 One single phase wattmeter operating on 230V and 5A for 5 hours makes 1940 revolutions. Meter constant in revolutions is 400. What is the power factor of the land?
(a) 1
(b) 0.84
(c) 0.73
(d) 0.65

Ans:B
Answer
47 For power measurement of three phase circuit by two wattmeter method, when the value of power factor is less than 0.5 lagging
(a) one of the wattmeters will read zero
(b) both give the same readings
(c) one of the wattmeter connections will have to be reversed
(d) pressure coil of the wattmeter will become ineffective.

Ans:C
Answer
48 When using ohmmeter, applied voltage is to be disconnected from the circuit because
(a) Voltage source will increase resistance
(b) Current will decrease resistance
(c) the ohmmeter has its own internal battery
(d) non of the above

Ans: C
Answer
49 Which wave has the least form factor?
(a) Square wave
(b) Rectangular wave
(c) Sine wave
(d) Triangular wave

Ans: A
Answer
50 With a sweep time 10ms across the screen the approx. horizontal sawtooth frequency will be
(a) 50Hz
(b) 100Hz
(c) 1kHz
(d) 500Hz

Ans: B