

✓ the correct answer PART A

Q1: A Capacitor act as a linear element if

- (a) charged or discharged at constant rate
- (b) charged or discharged not at constant rate
- (c) (a) and (b) both
- (d) None of the above

Q2 Transistor is

- (a) unilateral element (b) Bilateral element (c)
- (c) unilateral and bilateral both (d) None of the above.

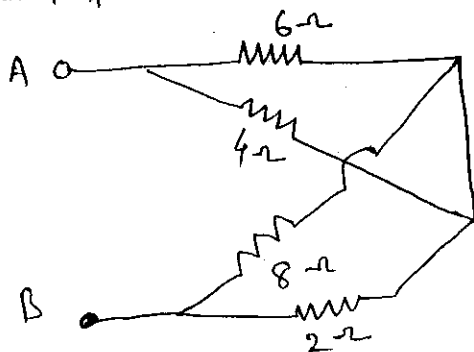
Q3 Thevenin's theorem is based on the idea of

- (a) an equivalent current source (b) an equivalent source of emf (c) an equivalent power source (d) an equivalent resistance.

Q4 Maxm power transfer occurs, when

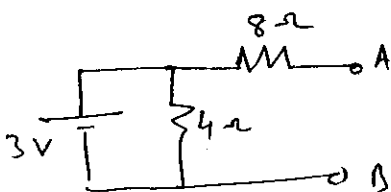
- (a) total circuit resistance is equal to the load resistance
- (b) Internal resistance of source is equal to load resistance
- (c) The total series resistance is equal to the equivalent resistance of parallel combination of resistor
- (d) Internal resistance of the source of e.m.f is zero.

Q5 Find the equivalent resistance between A and B



- (a) 4Ω (b) 20Ω (c) 8Ω (d) 10Ω

Q6

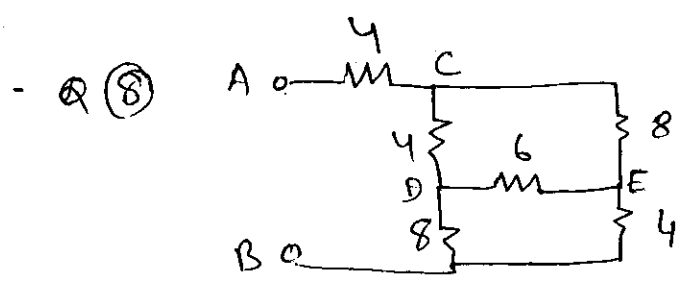


→ For the given circuit Thevenin's equivalent resistance  $R_{th}$  between A and B will be

- (a) 4Ω (b) 8Ω (c) 12Ω (d) 6Ω

Q7

Superposition theorem can be applied only to circuit having elements (a) Non linear (b) passive (c) active (d) linear bilateral



Resistor between A and B is

- (a)  $80/9$  (b)  $85/9$  (c) 100 (d)  $87/9 \Omega$

Q9 Current and voltage in an ac resistive circuit are

- (a)  $90^\circ$  out of phase (b) in phase (c)  $90^\circ$  out of phase voltage leading current (d)  $180^\circ$  out of phase.

Q10 Alternating current frequency is the number of

- (a) alternations per minute (b) cycle per minute
- (c) alternations per second (d) cycle per second.

Q11 The frequency of power in pure inductive ckt or capacitive ckt is

- (a) same as supply frequency (b) twice as the supply frequency
- (c) thrice as the supply frequency (d) None of the above.

Q12 The r.m.s value of sine wave is equal to

- (a)  $0.637$  maxm value (b)  $0.707$  maxm value (c)  $0.505$  maxm value
- (d)  $1.414$  maxm value.

Q13 In parallel ckt when resonance occurs

- (a) current is maxm and impedance is minm
- (b) both current and impedance are maxm
- (c) both current and impedance are minm
- (d) current is minm and impedance is maxm

Q14 A series RLC ckt will have unity power factor if operated at frequency of

- (a)  $\frac{1}{LC}$  (b)  $\frac{1}{\omega \sqrt{LC}}$  (c)  $\frac{1}{\omega LC}$  (d)  $\frac{1}{2\sqrt{LC}}$

Q15 In ac ckt kW represents

- (a)  $kVA \times Pf$  (b)  $\frac{kVA}{Pf}$  (c) kW (d) kVA

Q16 Power factor in the given ckt is unity, the reactive power is (a) maxm (b) zero (c) equal to  $I^2R$  (d) -ve quantity.

Q17 In a 3 $\phi$  star connected system, the relation between phase and line voltage is

- (a)  $V_p = V_L/\sqrt{3}$ ,  $V_p = \sqrt{3} V_L$  (c)  $V_p = V_L$  (d)  $V_p = V_L/3$

Q18 In the two wattmeter method of measuring <sup>3 $\phi$</sup>  power if phase angle  $\theta = 90$  then reading of  $W_1$  and  $W_2$  will be (a) both equal and +ve (b) both equal and -ve (c) both equal but one is +ve and other is -ve (d) both are zero

Q19 In the measurement of power by two wattmeter method the two wattmeters indicate equal reading when p.f. is (a) unity (b) zero (c) 0.5 (d) either unity or zero.

Q20 When wdg of 3 $\phi$  ac generator are connected in delta, the voltage within the closed  $\Delta$  connection will be equal to (a) line voltage (b) phase voltage (c) zero (d)  $\frac{1}{2}$  of line voltage

Q21 The most efficient damping can be obtained by

- (a) air friction (b) fluid friction (c) eddy current (d) none of the above.

Q22 In a dynamometer type of wattmeter, the errors can be kept minm if the pressure coil ckt is

- (a) purely inductive (b) purely capacitive (c) purely non inductive (d) purely resistive.

Q23 The induction type of instruments are less accurate compared to the other types because of the following errors:

- (a) Temperature error (b) frequency error (c) temp and frequency error (d) frictional error.

Q24) A moving coil instrument can be used as an ammeter by connecting a suitable resistance  
a) in series with it (b) across it (c) in series parallel combination (d) across another resistance.

Q25) The inter connection of various generating sth are called 1) grid 2) feeder 3) conductor 4) None of the above

Q26) While designing distributor, the main criterion is (a) voltage drop (b) power loss (c) heat dissipation (d) mechanical strength

Q27) The reluctance of material is defined as  
(a) opposition offered to the magnetic field by it  
(b) its ability to conduct magnetic flux  
(c) opposition offered to the flow of current through the solenoid (d) none of the above.

Q28) The coefficient of coupling of two coil is proportional to  
(a)  $L_1 L_2$  (b)  $\sqrt{L_1 L_2}$  (c)  $\frac{1}{\sqrt{L_1 L_2}}$  (d)  $\frac{1}{L_1 L_2}$

Q29) The ampere turns are:

(a) The product of the no. of turns and current of the coil (b) The no of turns coil through which current is flowing (c) the currents of all turns of the coil (d) the turns of xer winding.

Q30) The  $\eta$  of xer is high compared to other electrical machines because:

(a) its copper loss is small  
(b) it has small air gap  
(c) its copper loss is constant  
(d) it has small air gap and no moving parts.

Q31 The equivalent resistance referred to primary of xer is

- (a)  $R_{o1} = R_2 + R_1/k^2$
- (b)  $R_{o1} = R_1 + R_2/k^2$
- (c)  $R_{o1} = R_1 k^2 + R_2$
- (d)  $R_{o1} = R_2/k^2 + k R_1$

Q32 The max<sup>m</sup>  $\eta$  of xer occurs when

- (a) iron loss is less than Cu loss
- (b) iron loss is equal to Cu loss
- (c) Iron loss is zero
- (d) Iron loss is greater than Cu loss

Q33 Transformer loss due to eddy currents is reduced by

- (a) using a non conductor core material (b) laminating core materials (c) insulating the core from the coils
- (d) placing the primary and secondary wdg on different limbs of the core.

Q34 To raise a.c. power to a high voltage, low current, the transformer used is

- (a) voltage xer (b) current xer (c) Auto xer (d) audio transformer

Q35 The purpose of commutator in a dc m/c is

- (a) take away generated voltage (b) convert output current to voltage (c) convert dc voltage to ac voltage.
- (d) Rectify ac voltage to dc voltage.

Q (36) The average e.m.f generated in each conductor of dc m/c is proportional to the product of  
(a) flux and no of poles (b) flux, no of conductors and pole (c) flux no of conductors and speed (d) flux and speed.

Q (37) Shunt generator is used where the main requirement is a constant  
(a) current (b) current and voltage (c) voltage over a narrow load range (d) voltage over a wide load range.

Q (38) The field connection of dc series motor are reversed. The motor will  
(a) not run (b) run backward (c) run in the same direction as before (d) become a generator

Q (39) The torque developed by dc motor is dependent upon  
(a) the speed of the motor (b) the e.m.f of the motor (c) the armature current and flux per pole (d) the speed and e.m.f of the motor

Q (40) The conditions for producing a rotating magnetic field in 3 $\phi$  system are that  
(a) There must be three coils displaced in space by 120° from each other (b) The coil should carry 3 $\phi$  balanced current (c) The three coils must be co-planar (d) all the above.

Q (41) The torque in 3 $\phi$  induction motor is produced due to  
(a) interaction of stator and rotor flux which rotates at synchronous speed in space and are stationary w.r.t. each other. (b) stator field (c) rotor magnetic field (d) all of the above.

Q 42 Synchronous speed of synchronous motor is given by  
(a)  $120 f/p$  (b)  $200 \frac{f}{p}$  (c)  $120 P/f$  (d)  $120 Pf$

Q 43 In a single phase induction at start, the two revolving fields produce  
(a) unequal torque in rotor conductor (b) no torque in rotor conductor (c) equal and opposite torque in rotor conductor (d) None of the above