Chapter 16

# ALTERNATING CURRENT

***Each question has four possible answers, tick (✓) the correct answer:***

**1.** Alternating current is one which changes in a:

**(a)** Magnitude **(b)** Direction

**(c)** Magnitude as well as direction **(d)** None of the above

**2.** If $V_{rms}$ be the root mean square value of emf then its peak to peak value is given by:

**(a)** $\frac{V_{rms}}{\sqrt{2}}$ **(b)** $\sqrt{2}\, V_{rms}$

**(c)** $\frac{2}{\sqrt{2}\, V_{rms}}$ **(d)** $\frac{V_{rms}}{2}$

**3.** If $I_o$ is the peak value of current, then its root mean square value is given by:

**(a)** $\sqrt{2}\, I_o$ **(b)** $2\, I_o$

**(c)** $I_o$ **(d)** $0.7\, I_o$

**4.** A.C can be measure with the help of:

**(a)** Ammeter (D.C) **(b)** Moving coil galvanometer

**(c)** Hot wire ammeter **(d)** All of the above

**5.** For a sine wave, the form factor is given by:

**(a)** $\frac{\pi}{2\sqrt{2}}$ **(b)** $\frac{\pi}{2}$

**(c)** $\sqrt{2}\,\pi$ **(d)** $2\sqrt{2}\,\pi$

**6.** Alternating current is converted to direct current by:

**(a)** Dynamo **(b)** Motor

**(c)** Transformer **(d)** Rectifier

**7.** The out put voltage of an A.C at any time is given by:

**(a)** $V = V_o \sin \omega t$ **(b)** $V = V_o \cos \frac{2\pi}{T} \times t$

**(c)** $V = V_o \sin \frac{2\pi}{T} \times t$ **(d)** None of the above

**8.** The value of capacitive reactance is given by:

**(a)** $X_c = VI$ **(b)** $X_c = \frac{V}{I}$

**(c)** $X_c = \frac{I}{V}$ **(d)** All of above

**9.** The time during which the voltage sources changes its polarity once is called:

**(a)** Time period **(b)** Critical time

**(c)** Period of the AC **(d)** None of the above

**10.** The SI unit of reactance is:

**(a)** ohm **(b)** Volt – $m^{-1}$

**(c)** Volt **(d)** Ampere

**11.** Alternating current or emf measuring instruments measures its:

**(a)** r.m.s. value **(b)** Peak value

**(c)** Average value **(d)** None of the above

**12.** The average value of A.C over a complete cycle is:

**(a)** $I_o$ **(b)** $\frac{I}{\sqrt{2}}$

**(c)** I **(d)** None of the above

**13.** One complete set of positive and negative value of alternating quantities is called:

**(a)** Frequency **(b)** Time period

**(c)** Amplitude **(d)** Cycle

**14.** Reactance offered by a coil having no resistance in a.c circuit is equal to:

**(a)** $\frac{1}{\omega L}$ **(b)** $\omega L$

**(c)** $\omega^2 L^2$ **(d)** $\omega LR$

**15.** Alternating voltage is:

**(a)** Varies inversely with time **(b)** Varies directly with time

**(c)** Independent of time **(d)** Varies sinusoidally with time

**16.** The alternating current can be transmitted:

**(a)** Very low cost **(b)** To very high cost

**(c)** Long distances **(d)** Both (a) and (c)

**17.** Alternating current is produced by a voltage source which polarity:

**(a)** Keeps on reversing with time **(b)** Remains the same

**(c)** Reverses after period T **(d)** None of these

**18.** The output V of an A.C generator at any instant is given by:

**(a)** $V = V_o \sin \omega t$ **(b)** $V = Vo \sin \frac{2\pi}{t} T$

**(c)** $V = Vo \sin \frac{2\pi}{T} t$ **(d)** Both (a) and (c)

**19.** Using $\theta = \omega t$ and $\omega = \frac{2\pi}{T}$, the angle through which the coil of the A.C generator rotates when $t = \frac{T}{2}$ is:

**(a)** $\pi$ **(b)** Zero

**(c)** $\frac{\pi}{2}$ **(d)** $2\pi$

**20.** If $V = V_o \sin \omega t$ and $\omega = \frac{2\pi}{T}$, the value of alternating voltage V when $t = \frac{3T}{4}$ is:

**(a)** $-V_o$ **(b)** $V_o$

**(c)** $V_o = 0$ **(d)** None of these

**21.** The waveform of alternating voltage is the graph between:

**(a)** Current and time **(b)** Voltage and time

**(c)** Voltage and current **(d)** Voltage along y-axis and time along x-axis

**22.** The waveform of alternating voltage is a:

**(a)** Square **(b)** Sinusoidal

**(c)** Rectangular **(d)** None of these

**23.** The peak to peak value of alternating voltage is:

**(a)** $2V_o$ **(b)** $V_o$

**(c)** $\frac{V_o}{2}$ **(d)** None of these

**24.** The average value of alternating voltage over a complete cycle is:

**(a)** Zero **(b)** $0.7\ V_{max}$

**(c)** $0.707\ V_{max}$ **(d)** None of these

**25.** The RMS value of alternating voltage is:

**(a)** 0.5 times the peak value **(b)** 0.7 times the peak value

**(c)** 0.7 times the instantaneous value **(d)** Equal to maximum voltage

**26.** The alternating voltage or current is actually measured by:

**(a)** Its RMS value **(b)** Square root of its mean square value

**(c)** Peak value **(d)** Instantaneous value

**27.** The magnitude of alternating voltage is:

**(a)** Always decreases **(b)** Always increases

**(c)** Always remains the same **(d)** Does not remain the same

**28.** The basic circuit element in a D.C circuit is:

**(a)** An inductor **(b)** A resistor

**(c)** A capacitor **(d)** None of these

**29.** The basic circuit elements in A.C circuits are:

**(a)** Thermistor **(b)** Inductor and resistors

**(c)** Inductor and capacitor **(d)** All of above

**30.** The maximum current $I_o$ passing through a resistance R connected with an alternating voltage source $V_o$ is given by:

**(a)** $I_o = R \times V_o$ **(b)** $I_o = \frac{V_o}{R}$

**(c)** $I_o = \frac{R}{V_o}$ **(d)** $I_o = V_o \times R$

**31.** In a resistive A.C circuit, instantaneous values of voltage and current are:

**(a)** In phase **(b)** Out of phase

**(c)** Lead each other **(d)** None of these

**32.** The dimensions, of R.C matches with:

**(a)** $\frac{R}{L}$ **(b)** $\frac{L}{R}$

**(c)** RL **(d)** None of these

**33.** At what frequency 1 henry inductance offer same impendance as 1 μF capacitor:

**(a)** 450 Hz **(b)** 512 Hz

**(c)** 1 KHz **(d)** 159 Hz

**34.** A transformer has $\frac{N_2}{N_1} = 10$, the load current is 1.0A, the current in primary is:

**(a)** 1 A **(b)** 0.1 A

**(c)** 11 A **(d)** 10 A

**35.** For resistance, $\vec{V}$ and $\vec{I}$ vectors are drawn:

**(a)** Parallel to each other **(b)** Perpendicular to each other

**(c)** Such that $\vec{V}$ leads $\vec{I}$ **(d)** None of these

**36.** When voltage V and current I are in phase the power is expressed as:

**(a)** $P = VI \sin\theta$ **(b)** $P = I^2R$

**(c)** $P = VR$ **(d)** $P = VI \cos\theta$

**37.** When A.C voltage source is connected to a capacitor:

**(a)** Voltage V lags behind current I **(b)** Current I leads the voltage V

**(c)** Voltage leads the current I **(d)** Both (a) and (b)

**38.** The measure of the opposition offered by a capacitor to the flow of A.C is called:

**(a)** Reactance **(b)** Resistance

**(c)** Impedance **(d)** Capacitance

**39.** Energy in an inductance coil is stored in the form of:

**(a)** Electrical energy **(b)** Light energy

**(c)** Magnetic energy **(d)** Heat energy

**40.** The reactance is the ratio of:

**(a)** $V_{rms}/I_{rms}$ **(b)** $V_{rms} \times I_{rms}$

**(c)** $I_{rms}/V_{rms}$ **(d)** $V_{max} \times V_{rms}$

**41.** In case of capacitor, the unit of reactance is:

**(a)** Farad **(b)** Ohm

**(c)** Newton **(d)** All of these

**42.** The reactance of a coil depends upon:

**(a)** Inductance of the coil **(b)** Capacitance of the coil

**(c)** Thickness of the coil **(d)** None of these

**43.** To maintain the current in an inductor, the applied alternating voltage must be:

**(a)** Smaller than back emf **(b)** Greater than back emf

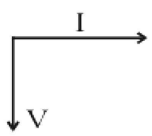
**(c)** Equal to back emf **(d)** None of these

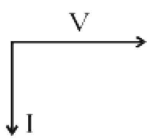
**44.** When A.C voltage is applied to an inductor, the:

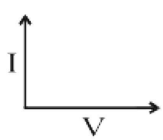
**(a)** Voltage V leads current I by 90° **(b)** Voltage V leads current I by 270°

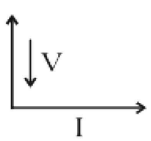
**(c)** Voltage V leads current I by 0° **(d)** None of these

**45.** The phase diagram for an inductor can be shown as:

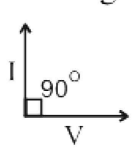
**(a)** 

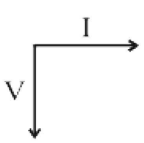

**(b)** 

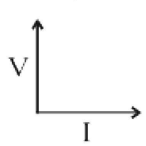

**(c)** 

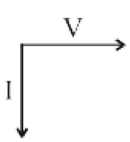

**(d)** 


**46.** The phase diagram for a capacitor can be shown as:

**(a)** 


**(b)** 


**(c)** 


**(d)** 


**47.** If frequency f is in Hz and inductance L is in milli henry, then $X_L$ is in:

**(a)** milli ohm **(b)** kilo ohm

**(c)** ohm **(d)** none of these

**48.** If frequency f is in Hz and capacitance C is in μF then the unit of $X_C$ is:

**(a)** Mega ohm **(b)** Milli ohm

**(c)** μ ohm **(d)** None of these

**49.** Alternating current can be produced by:

**(a)** Electric motor **(b)** Generator

**(c)** Turbine **(d)** Transformer

**50.** Which of the following statement is correct for an A.C circuit:

**(a)** The current depends upon the components connected in circuit

**(b)** The current lags the voltage by a phase angle of 90°

**(c)** The current leads the voltage by a phase angle of 90°

**(d)** The current and voltage are in same phase

**51.** Impedance is the combined effect of:

**(a)** Resistance and inductance **(b)** Resistance and reactance

**(c)** Inductance and capacitance **(d)** None of these

**52.** The unit of impedance is:

**(a)** Farad **(b)** Henry

**(c)** Tesla **(d)** Ohm

**53.** In an RLC circuit, the impedance is:

**(a)** Combined effect of resistance and reactance

**(b)** Another name of resistance

**(c)** Another name of inductance and capacitance

**(d)** None of these

**54.** The amplitude of the effective current is:

**(a)** $I_{rms} \cos \theta$ **(b)** $I_{rms} \sin \theta$

**(c)** $I_o \cos \theta$ **(d)** Infinity

**55.** The graph between time and voltage is:

**(a)** tan curve **(b)** Curved line

**(c)** Sine curve **(d)** Straight line

**56.** Alternating current can be measured by D.C ammeter because if:

**(a)** A.C is virtual **(b)** Average current for complete cycle is zero

**(c)** A.C cannot pass through D.C ammeter **(d)** None of the above

**57.** The highest value reached by the voltage or current in one cycle is known as:

**(a)** Peak value **(b)** Minimum value

**(c)** Average value **(d)** Zero value

**58.** Inductive reactance $\omega L$ of a coil is expressed in:

**(a)** Ohm **(b)** Ampere

**(c)** Volt **(d)** None of the above

**59.** The current flows from $0 \rightarrow T/2$ is:

**(a)** + ve direction of A.C **(b)** – ve direction of A.C

**(c)** Towards zero **(d)** None of the above

**60.** The current flows from T/2 → T is:

**(a)** – ve direction of A.C **(b)** + ve direction of A.C

**(c)** Towards zero **(d)** All of the above

**61.** The most common source of A.C voltage is:

**(a)** Cell **(b)** A.C generator

**(c)** A.C transformer **(d)** Motor

**62.** Voltage drop in A.C circuit is the product of current and:

**(a)** Impedance **(b)** Inductance

**(c)** Resistance **(d)** None of the above

**63.** In a purely capacitive A.C circuit, the current is:

**(a)** In phase with emf **(b)** The emf by 90°

**(c)** Leads the emf by 90° **(d)** All of the above

**64.** With high frequencies, capacitive reactance:

**(a)** Remain unchanged **(b)** Increases

**(c)** Decreases **(d)** None of the above

**65.** With increase of frequency of A.C supply, the inductive reactance is:

**(a)** Decreases **(b)** Increases as square of frequency

**(c)** Remain unchanged **(d)** Increases as directly to frequency

**66.** The natural frequency of L.C circuit is equal to:

**(a)** $\frac{1}{2\pi}\sqrt{\frac{C}{L}}$ **(b)** $\frac{1}{2\pi}\sqrt{\frac{L}{C}}$

**(c)** $\frac{1}{2\pi\sqrt{L\,C}}$ **(d)** $\frac{\sqrt{LC}}{2\pi}$

**67.** With increase in frequency of an A.C supply, the impedance of LCR series circuit:

**(a)** Decrease **(b)** Increases

**(c)** Remains constant **(d)** First decrease, becomes minimum and then increase

**68.** SI The unit of impedance is:

**(a)** Hertz **(b)** Henry

**(c)** Volt **(d)** Ohm

**69.** An expression for impedance for R.C series circuit is given by:

**(a)** $Z = \sqrt{R^2 + \frac{1}{\omega c}}$ **(b)** $Z = \sqrt{R + \frac{1}{\omega c}}$

**(c)** $Z = \sqrt{R^2 + \left(\frac{1}{\omega c}\right)^2}$ **(d)** $Z = \sqrt{\left(R + \frac{1}{\omega c}\right)^2}$

**70.** The phase angle θ in an R.C series circuit is expressed as:

**(a)** $\theta = \text{Cos}^{-1}\left(\frac{1}{\omega CR}\right)$ **(b)** $\theta = \tan\left(\frac{1}{\omega CR}\right)$

**(c)** $\theta = \tan^{-1}\left(\frac{X_C}{R}\right)$ **(d)** None of these

**71.** The phase angle θ in an R.L series circuit is expressed as:

**(a)** $\theta = \tan^{1}\left(\frac{\omega L}{R}\right)$ **(b)** $\theta = \tan\left(\frac{\omega L}{R}\right)$

**(c)** $\theta = \tan^{-1}\left(\frac{R}{\omega L}\right)$ **(d)** None of these

**72.** The impedance Z of an R.L series circuit is expressed as:

**(a)** $Z = \sqrt{(\omega L)^2 + \frac{1}{R^2}}$ **(b)** $Z = \sqrt{R^2 + (\omega L)^2}$

**(c)** $Z = \sqrt{R^2 + \left(\frac{1}{\omega L}\right)^2}$ **(d)** None of these

**73.** In an R.L.C series circuit, the quantities which are directed opposite to each other are:

**(a)** $X_C$ and R **(b)** $X_C$ and $X_L$

**(c)** $X_C$ and L **(d)** $X_L$ and C

**74.** The condition of resonance in an R.L.C series circuit is that:

**(a)** $X_L = X_C$ **(b)** $X_L > X_C$

**(c)** $X_L < X_C$ **(d)** None of these

**75.** The equation which satisfied the resonance condition is:

**(a)** $X_L = X_C$ **(b)** $\omega = \frac{1}{\sqrt{LC}}$

**(c)** $f = \frac{1}{2\pi\sqrt{LC}}$ **(d)** All of above

**76.** Power factor is defined by:

**(a)** cos θ **(b)** sin θ

**(c)** tan θ **(d)** sec θ

**77.** At resonance frequency, the impedance of an R.L.C series circuit is:

**(a)** Minimum **(b)** Zero

**(c)** Maximum **(d)** None of these

**78.** At resonance frequency in an R.L.C series circuit, $V_L$ and $V_C$:

**(a)** Greater than the source voltage **(b)** Smaller than the source voltage

**(c)** Equal to source voltage **(d)** None of these

**79.** A.C voltmeter measures:

**(a)** Peak value **(b)** Average voltage

**(c)** Peak inverse voltage **(d)** r.m.s voltage

**80.** The impedance of pure anti-resonant which at resonance is:

**(a)** 0 **(b)** $\frac{1}{2}$

**(c)** 1 **(d)** $\propto$

**81.** The positive value of current and voltage over a cycle is:

**(a)** Positive **(b)** Zero

**(c)** Negative **(d)** None of the above

**82.** A capacitor is a perfect insulator for:

**(a)** Direct current **(b)** Alternating current

**(c)** Both (a) and (b) **(d)** None of above

**83.** In comparison to D.C transmission losses in A.C are:

**(a)** Low **(b)** High

**(c)** Negligible **(d)** None of the above

**84.** In A.C circuits, the A.C instruments indicate:

**(a)** Peak values **(b)** Square of peak values

**(c)** Square root of peak values **(d)** Virtual values

**85.** When resistance is increased in a series LCR circuit:

**(a)** Impedance decreases **(b)** Reactance increases

**(c)** Phase angle increases **(d)** phase angle decreases

**86.** In an L.C.R, A.C circuit, the current becomes minimum when:

**(a)** $X_L > X_C$ **(b)** $X_L = X_C$

**(c)** $\sqrt{X_L X_C} = 1$ **(d)** $X_L < X_C$

**87.** The resonance frequency in case of series resonance circuit is given by:

**(a)** $f = \frac{1}{4\pi\sqrt{LC}}$ **(b)** $f = \frac{1}{2\pi\sqrt{L C}}$

**(c)** $f = \frac{1}{5\pi\sqrt{L C}}$ **(d)** None of the above

**88.** Which current can pass through a capacitor continuously:

**(a)** Direct current **(b)** Electronic current

**(c)** Alternating current **(d)** Both (a) and (b)

**89.** An inductor may store energy in its:

**(a)** Magnetic field **(b)** Electric field

**(c)** Coil **(d)** None of the above

**90.** The reactance of inductor depends upon:

**(a)** L **(b)** $\omega L$

**(c)** $\omega$ **(d)** All of the above

**91.** A device that allows only the continuous flow of AC through a circuit is:

**(a)** Capacitor **(b)** Inductor

**(c)** Dynamo **(d)** D.C motor

**92.** A.C varies as function of:

**(a)** Time **(b)** Voltage

**(c)** Current **(d)** Displacement

**93.** In electromagnetic waves, the electric and magnetic fields are:

**(a)** Perpendicular **(b)** Parallel

**(c)** Antiparallal **(d)** At an angle of 45°

**94.** The impedance of a series circuit containing capacitance C, inductance L and resistance R is:

**(a)** $R + L - \frac{1}{C}$ **(b)** $\frac{1}{R} + L - C$

**(c)** $R + L + C$ **(d)** None of the above

**95.** The effective value of any sinusoidal alternating current or voltage is:

**(a)** $\sqrt{3}$ times its maximum value **(b)** $\frac{1}{\sqrt{2}}$ times its maximum value

**(c)** $\sqrt{2}$ times its maximum value **(d)** None of the above

**96.** In modulation, low frequency signal is known as:

**(a)** Loaded signal **(b)** Fluctuated signal

**(c)** Harmonic signal **(d)** Modulation signal

**97.** As a result of modulation, the resultant wave is known as:

**(a)** Energetic carriers wave **(b)** Carrier wave

**(c)** Modulated carrier wave **(d)** None of the above

**98.** The reactance $X_C$ for a capacitor across an alternating source of frequency is:

**(a)** $X_c = \frac{f}{2\pi c}$ **(b)** $X_c = 2\pi fc$

**(c)** $X_c = \frac{fc}{2\pi}$ **(d)** $X_c = \frac{1}{2\pi fc}$

**99.** In A.C circuits, current and voltage is controlled by:

**(a)** Inductor L **(b)** Resistance R

**(c)** Capacitance C **(d)** All of the above

**100.** A pure inductive coil is that which has:

**(a)** No impedance **(b)** No ohmic resistance

**(c)** Some ohmic resistance **(d)** None of these

**101.** If X be the reactance, Z be impedance then in a series L.C.R circuit:

**(a)** $X^2 = (Z + R)^2$ **(b)** $X^2 = (Z - R)^2$

**(c)** $X^2 = Z^2 - R^2$ **(d)** $X^2 = Z^2 + R^2$

**102.** In a series L.C.R circuit, the total reactance of the circuit is:

**(a)** $(X_L - X_C)^2$ **(b)** $\sqrt{X^2_L - X^2_C}$

**(c)** $X_L + X_C$ **(d)** $\sqrt{(X_L - X_C)^2}$

**103.** Electrical resonance in an LCR A.C circuit is very sharp if:

**(a)** R is large **(b)** R is small

**(c)** $R = X_L$ or $X_C$ **(d)** None of these

**104.** The instantaneous voltage across a pure inductance is:

**(a)** In phase with current **(b)** Lags the current by 90°

**(c)** Leads the current by 90° in phase **(d)** None of these

**105.** The process of combining low frequency signal with high frequency radio waves is called:

**(a)** Resonance **(b)** Fluctuation

**(c)** Modulation **(d)** Amplitude

**106.** For parallel resonant circuit, the resonance current is:

**(a)** Zero **(b)** Minimum

**(c)** Maximum **(d)** One

**107.** In L.C parallel circuit, the coil draws:

**(a)** Leading current **(b)** Lagging voltage

**(c)** Lagging current **(d)** Leading voltage

**108.** The reciprocal of impedance is called:

**(a)** Admittance **(b)** Capacitance

**(c)** Inductance **(d)** Resistance

**109.** The circuit in which current and voltage are in phase, the power factor is:

**(a)** Double **(b)** three times

**(c)** One **(d)** Zero

**110.** Capacity time constant is given by:

**(a)** $\frac{1}{RC}$ **(b)** R/C

**(c)** RC **(d)** $\frac{C}{R}$

**111.** In which of the following, the loss of energy is less:

**(a)** Alternating current **(b)** Direct current

**(c)** Photo electric current **(d)** None of the above

**112.** At high frequency, the current through a capacitor is:

**(a)** Small **(b)** Infinity

**(c)** Zero **(d)** Large

**113.** The reactance of 1 farad capacitance when connected to D.C circuit is:

**(a)** Infinite **(b)** One

**(c)** Zero **(d)** None of these

**114.** Pure choke consumes:

**(a)** Minimum power **(b)** Maximum power

**(c)** No power **(d)** Average power

**115.** Radio frequency choke is:

**(a)** Iron cored **(b)** Air Cored

**(c)** Air as well as iron cored **(d)** None of these

**116.** A choke is preferred to a capacitor to decrease the A.C in a circuit because the capacitor:

**(a)** Has power factor $\cos \phi = 1$ **(b)** May not be a leak proof wattless resistance

**(c)** Leak proof wattless resistance **(d)** None of these

**117.** The peak value of alternating voltage is 423 volts, its rms value is:

**(a)** 300 volts **(b)** 423 volts

**(c)** 150 volts **(d)** 211.5 volts

**118.** The purpose of choke in a fluorescent lamp is:

**(a)** Increase the current **(b)** Decrease the current

**(c)** Decrease the voltage **(d)** Increase the voltage

**119.** The power dissipation in a pure inductive or capacitive circuit is:

**(a)** Zero **(b)** Maximum

**(c)** Opposite **(d)** Negative

**120.** As series resonance in L.C.R circuit, the impedance is equal to:

**(a)** Inductive reactance **(b)** Ohmic resistance

**(c)** Capacitive reactance **(d)** None of these

**121.** The frequency of an A.C may be associated by:

**(a)** $f = \frac{IV}{T}$ **(b)** $f = \frac{I}{T}$

**(c)** $f = \frac{1}{T}$ **(d)** None of these

**122.** The reactance of magnitude $X_C$ of a capacitor joined across a alternating source can be found by a relation:

**(a)** $X_C = \frac{V_{rms}}{I_{rms}}$ **(b)** $X_C = V_{rms} + I_{rms}$

**(c)** $X_C = \frac{I_{rms}}{V_{rms}}$ **(d)** None of these

**123.** The magnitude of r.m.s value of voltage can be expressed as:

**(a)** $V_{rms} = \frac{V_o + V}{\sqrt{2}}$ **(b)** $V_{rms} = \frac{V_o}{\sqrt{2}}$

**(c)** $V_{rms} = \frac{V_o + V_o}{2}$ **(d)** None of these

**124.** Modulation is the process of:

**(a)** Combining low frequency signal with carrier

**(b)** Separating the low frequency signal from higher frequency radio wave

**(c)** Combing low frequency signal with high frequency radio waves

**(d)** Both (a) and (c)

**125.** For modulation purpose, high frequency radio waves are called:

**(a)** Carrier waves **(b)** Transverse waves

**(c)** Radio waves **(d)** Longitudinal waves

**126.** The low frequency signal used for modulation is called:

**(a)** Carrier signal **(b)** Radio signal

**(c)** Modulating signal **(d)** None of these

**127.** The amplitude modulation A.M transmission frequencies range from:

**(a)** 540 Hz to 1600 Hz **(b)** 540 Hz to 1500 MHz

**(c)** 540 KHz to 1600 KHz **(d)** None of these

**128.** In frequency modulation, the amplitude of carrier waves is:

**(a)** Increases **(b)** Remains constant

**(c)** Decreases **(d)** None of these

**129.** Modulation is achieved by changing the:

**(a)** Frequency and amplitude of the carrier waves

**(b)** Only frequency of the carrier wave

**(c)** Only amplitude of the carrier wave

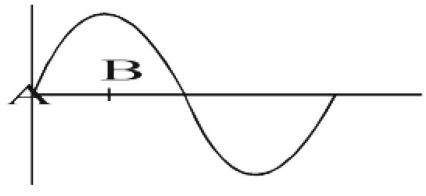
**(d)** None of these

**130.** If frequency of rotating coil of an A.C. generator is f Hz then frequency of e.m.f. produced is:

**(a)** 50 Hz **(b)** 60 Hz

**(c)** f Hz **(d)** None of these

**131.** In figure phase at B is:




**(a)** $\frac{\pi}{2}$ **(b)** $\pi$

**(c)** $\frac{3\pi}{2}$ **(d)** $2\pi$

**132.** The basic circuit element in a D.C. circuit is:

**(a)** Capacitor **(b)** Transistor

**(c)** Resistor **(d)** Inductor

**133.** For q – t graph, slope shows:

**(a)** Current **(b)** Voltage

**(c)** e.m.f. **(d)** None of these

**134.** Slope of a horizontal line is:

**(a)** Zero **(b)** Infinite

**(c)** Maximum **(d)** None of these

**135.** For A.C. through a capacitor, current ———— voltage.

**(a)** Lags by $\frac{\pi}{2}$ **(b)** Leads by $\frac{\pi}{2}$

**(c)** $\tan^{-1}\frac{1}{\omega CR}$ **(d)** $\tan^{-1}\frac{\omega^2}{R}$

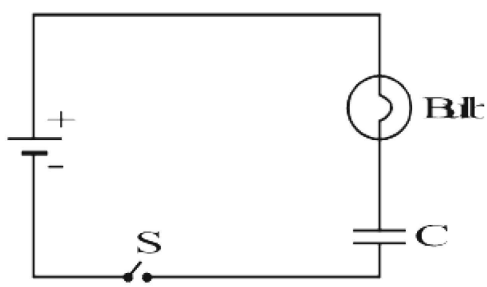
**136.** When switch S in closed bulb is:

**(a)** ON

**(b)** OFF

**(c)** Both (a), (b)

**(d)** None of these




**137.** When A.C. pass through an inductor, voltage leads the current by:

**(a)** Half cycle **(b)** Quarter cycle

**(c)** Full cycle **(d)** None of these

**138.** In case of inductor, in third quarter power is:

**(a)** Positive **(b)** Negative

**(c)** Both (a), (b) **(d)** None of these

**139.** Since an inductor does not consume energy coil is used for controlling A.C. Such a coil is called:

**(a)** Resistor **(b)** Choke

**(c)** Starter **(d)** None of these

**140.** When 10 V are applied to an A.C. circuit, the current flowing in it is 100 mA. Its impendence is:

**(a)** 100 Ω **(b)** 200 Ω

**(c)** 10 Ω **(d)** 300 Ω

**141.** In a R-C series circuit, current ———— applied voltage by θ =

**(a)** Lead, $\tan^{-1}\frac{1}{\omega CR}$ **(b)** Lead, $\frac{\pi}{2}$

**(c)** Lags, $\tan^{-1}\frac{1}{\omega CR}$ **(d)** Lags, $\frac{\pi}{2}$

**142.** In a R-L series circuit, current ———— applied voltage by 0 =

**(a)** Lags, $\frac{\pi}{2}$ **(b)** Lags, $\tan^{-1}\frac{\omega L}{R}$

**(c)** Leads, $\tan^{-1}\frac{\omega L}{R}$ **(d)** None of these

**143.** Series resonance circuit is also called:

**(a)** R-L-C series circuit **(b)** Acceptor circuit

**(c)** Both (a), (b) **(d)** None of these

**144.** The resonance frequency is:

**(a)** $\frac{1}{2\pi\sqrt{2LC}}$ **(b)** $\frac{1}{4\pi\sqrt{LC}}$

**(c)** $\frac{0.0159}{\sqrt{LC}}$ **(d)** None of these

**145.** Parallel resonance circuit is also called:

**(a)** LC parallel **(b)** Tank

**(c)** Rejector **(d)** All of these

**146.** At resonance, impedance of parallel resonance circuit is ———— and it is equal to ————.

**(a)** Maximum, $\frac{L}{Cr}$ **(b)** Minimum, $\frac{L}{Cr}$

**(c)** Zero **(d)** None of these

**147.** For L-C parallel circuit, power factor is:

**(a)** Zero **(b)** One

**(c)** Two **(d)** Three

**148.** If capacitance of L-C parallel circuit is made four times then f = ————.

**(a)** Twice **(b)** Four times

**(c)** One fourth **(d)** One half

**149.** A 100 μF capacitor will offer a reactance of:

**(a)** 60 Ω **(b)** 90 Ω

**(c)** 32 Ω **(d)** 42 Ω

**150.** If a glass plate is placed between plates of a capacitor, in series with a lighted bulb, the brightness of the bulb.

**(a)** Remains same **(b)** Decreases

**(c)** Increases **(d)** Bulb turns off

**151.** Three phase supply also provides:

**(a)** 230 V **(b)** 460 V

**(c)** 400 V **(d)** None of these

**152.** The electromagnetic spectrum contains:

**(a)** Radio waves **(b)** X-rays

**(c)** Microwaves **(d)** All of these

**153.** Who proved that light waves are electromagnetic?

**(a)** Faraday **(b)** Einstein

**(c)** Maxwell **(d)** Enderson

**154.** Formula to prove speed of electromagnetic wave is equal to speed of light is:

**(a)** $V = \frac{S}{t}$ **(b)** $\frac{1}{\sqrt{\in_o \mu_o}}$

**(c)** $\sqrt{\frac{\in_o}{\mu_o}}$ **(d)** $\sqrt{\in_o \mu_o}$

**155.** Value of $\mu_o$ is:

**(a)** $4\pi \times 10^{-7}\ Hm^{-1}$ **(b)** $4\pi \times 10^{-7}\ wbA^{-1}m^{-1}$

**(c)** $4\pi \times 10^{-7}$ wb Am **(d)** Both (a), (c)

**(e)** Both (a), (b)

**156.** A capacitor of capacitance 30 μF is charged by a constant current of 10 mA. If initially capacitor is uncharged, what is time taken for potential difference across capacitor to reach 300 V?

**(a)** 0.9 sec. **(b)** 15 sec.

**(c)** $1.5 \times 10^{-5}$ s **(d)** $0.9 \times 10^{-3}$ s

# ANSWERS

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **1.** | (c) | **2.** | (b) | **3.** | (d) | **4.** | (c) | **5.** | (a) |
| **6.** | (d) | **7.** | (a) | **8.** | (b) | **9.** | (c) | **10.** | (a) |
| **11.** | (a) | **12.** | (c) | **13.** | (d) | **14.** | (b) | **15.** | (d) |
| **16.** | (d) | **17.** | (a) | **18.** | (d) | **19.** | (a) | **20.** | (a) |
| **21.** | (d) | **22.** | (b) | **23.** | (a) | **24.** | (a) | **25.** | (b) |
| **26.** | (a) | **27.** | (d) | **28.** | (b) | **29.** | (b) | **30.** | (b) |
| **31.** | (a) | **32.** | (b) | **33.** | (d) | **34.** | (d) | **35.** | (a) |
| **36.** | (b) | **37.** | (d) | **38.** | (a) | **39.** | (c) | **40.** | (a) |
| **41.** | (b) | **42.** | (a) | **43.** | (c) | **44.** | (a) | **45.** | (d) |
| **46.** | (a) | **47.** | (a) | **48.** | (a) | **49.** | (b) | **50.** | (a) |
| **51.** | (b) | **52.** | (d) | **53.** | (a) | **54.** | (a) | **55.** | (c) |
| **56.** | (b) | **57.** | (a) | **58.** | (a) | **59.** | (a) | **60.** | (a) |
| **61.** | (b) | **62.** | (a) | **63.** | (c) | **64.** | (d) | **65.** | (d) |
| **66.** | (c) | **67.** | (d) | **68.** | (d) | **69.** | (c) | **70.** | (c) |
| **71.** | (a) | **72.** | (b) | **73.** | (b) | **74.** | (a) | **75.** | (d) |
| **76.** | (a) | **77.** | (a) | **78.** | (b) | **79.** | (d) | **80.** | (d) |
| **81.** | (b) | **82.** | (a) | **83.** | (c) | **84.** | (d) | **85.** | (d) |
| **86.** | (b) | **87.** | (b) | **88.** | (c) | **89.** | (a) | **90.** | (b) |
| **91.** | (a) | **92.** | (a) | **93.** | (a) | **94.** | (d) | **95.** | (b) |
| **96.** | (d) | **97.** | (c) | **98.** | (d) | **99.** | (d) | **100.** | (b) |
| **101.** | (c) | **102.** | (d) | **103.** | (b) | **104.** | (c) | **105.** | (c) |
| **106.** | (b) | **107.** | (c) | **108.** | (a) | **109.** | (c) | **110.** | (a) |
| **111.** | (a) | **112.** | (d) | **113.** | (a) | **114.** | (c) | **115.** | (b) |
| **116.** | (b) | **117.** | (a) | **118.** | (b) | **119.** | (b) | **120.** | (b) |
| **121.** | (c) | **122.** | (a) | **123.** | (b) | **124.** | (d) | **125.** | (a) |
| **126.** | (c) | **127.** | (c) | **128.** | (b) | **129.** | (a) | **130.** | (c) |
| **131.** | (a) | **132.** | (c) | **133.** | (a) | **134.** | (a) | **135.** | (b) |
| **136.** | (b) | **137.** | (b) | **138.** | (a) | **139.** | (b) | **140.** | (a) |
| **141.** | (c) | **142.** | (c) | **143.** | (c) | **144.** | (c) | **145.** | (d) |
| **146.** | (a) | **147.** | (b) | **148.** | (d) | **149.** | (c) | **150.** | (b) |
| **151.** | (c) | **152.** | (d) | **153.** | (c) | **154.** | (b) | **155.** | (c) |
| **156.** | (a) | | | | | | | | |