DPP - 01

Q.1 Alternating current cannot be measured by dc ammeter because

(A) ac cannot pass through dc ammeter

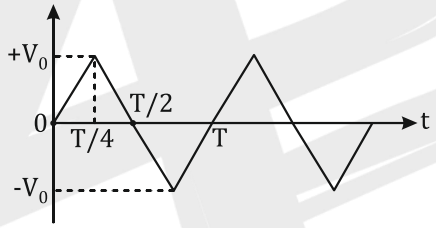
(B) average value of complete cycle is zero

(C) ac is virtual

(D) ac changes its direction

Q.2 An A.C. is given by equation $I = I_1 \cos\ \omega t + I_2 \sin\ \omega t$. The r.m.s. value of current is by $\frac{1}{\sqrt{k}}\sqrt{I_1^2 + I_2^2}$. given then find the value of k is

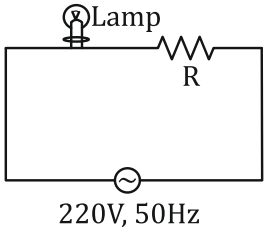
Q.3 The voltage time $(V - t)$ graph for triangular wave having peak value. V_0 is as shown in figure. The average value of voltage V in time interval from $t = 0$ to T is ____



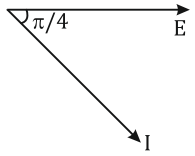
Q.4 A periodic voltage V varies with time t as shown in figure. T is the time period. The rms value of the voltag is $\frac{V_0}{k}$. Find k.

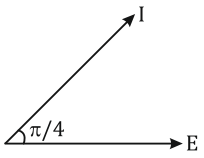
Q.5 To light, a 50 W, 100 V lamp is connected, in series with a capacitor of capacitance $\frac{50}{\pi\sqrt{x}}\mu F$, with 200 V, 50 Hz AC source. The value of x will be ____.

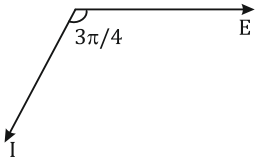
Q.6 A 220 V, 50 Hz AC source is connected to a 25 V, 5 W lamp and an additional resistance R in series (as shown in figure) to run the lamp at its peak brightness, then the value of R (in ohm) will be _____.

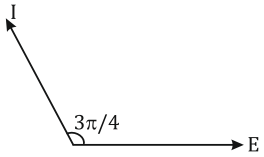


Q.7 In a certain circuit $E = 200\cos(314t)$ and $I = \sin(314t + \pi/4)$. Their vector representation is

(A) 

(B) 

(C) 

(D) 

Q.8 An alternating emf $E = 440\sin 100\pi t$ is applied to a circuit containing an inductance of $\frac{\sqrt{2}}{\pi}$ H. If an a.c. ammeter is connected in the circuit, its reading will be

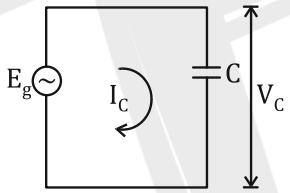
(A) 4.4 A (B) 1.55 A

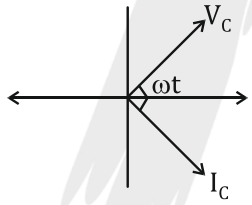
(C) 2.2 A (D) 3.11 A

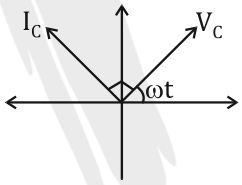
Q.9 A resistance of 40Ω is connected to a source of alternating current rated 220 V, 50 Hz. Find the time taken by the current to change from its maximum value to the rms value.

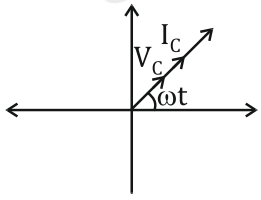
(A) 2.5 ms (B) 1.25 ms (C) 2.5 s (D) 0.25 s

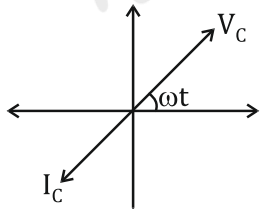
Q.10 In a circuit consisting of a capacitance and a generator with alternating emf $E_g = E_{g0}\sin\ \omega t$, V_C and I_C are the voltage and current. Correct phasor diagram for such circuit is



(A) 

(B) 

(C) 

(D) 

Q.11 What happens to the inductive reactance and the current in a purely inductive circuit if the frequency is halved?

(A) Inductive reactance will be halved and current will be doubled.

(B) Inductive reactance will be doubled and current will be halved.

(C) Both, inductive reactance and current will be doubled.

(D) Both, inductive reactance and current will be halved.

Q.12 An alternating voltage $v(t) = 220\sin\ 100\pi t$ volt is applied to a purely resistive load of 50Ω. The time taken for the current to rise from half of the peak value to the peak value is

(A) 3.3 ms (B) 5 ms

(C) 2.2 ms (D) 7.2 ms

Q.13 The phase difference between the alternating current and emf is $\pi/2$. Which of the following cannot be the constituent of the circuit?

(A) LC (B) L alone

(C) C alone (D) R, L

ANSWER KEY

1.	(B)	**2.**	(2)	**3.**	(0)	**4.**	2	**5.**	3	**6.**	975	**7.**	(A)
8.	(C)	**9.**	(A)	**10.**	(B)	**11.**	(A)	**12.**	(A)	**13.**	(D)		

Home Work

Ex. 1	Q. 1,2,3,10,12,13,15,16,17,18,19,20,21
Ex. 2	Q.1,3,16,17,18,20
Ex.3	Q.1
Ex.4	Q.
Ex.5	Q.