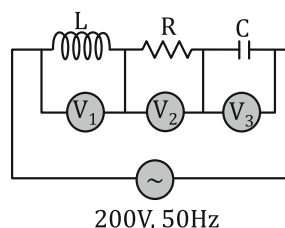


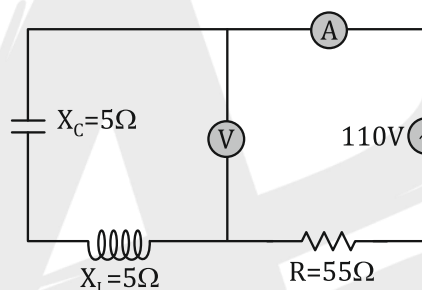
DPP - 02

- Q.1 If the readings of V_1 and V_3 are 100 volt each then reading of V_2 is $50x$. the value of x is ____

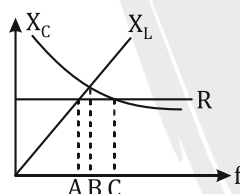


- Q.2 If a current I given by $I_0 \sin\left(\omega t - \frac{\pi}{2}\right)$ flows in an ac circuit across which an ac potential of $E = E_0 \sin \omega t$ has been applied, then the power consumption P in the circuit is $100 - 10^\alpha$. Then value of α is

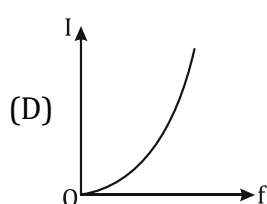
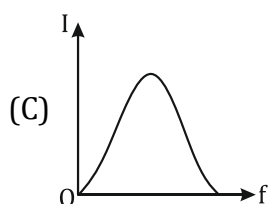
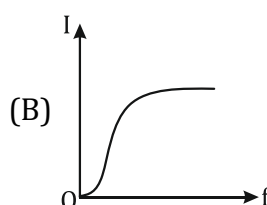
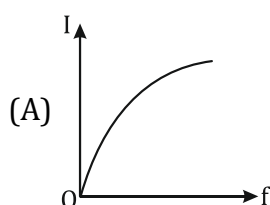
- Q.3 The reading of voltmeter in the circuit shown will be ____



- Q.4 The figure shows variation of R , X_L and X_C with frequency f in a series L, C, R circuit. Then for what frequency point, the circuit is inductive?



- (A) A (B) B (C) C (D) All points
- Q.5 An ac source of variable frequency f is connected to an LCR series circuit. Which one of the graphs in figure. represents the variation of current of current I in the circuit with frequency f ?



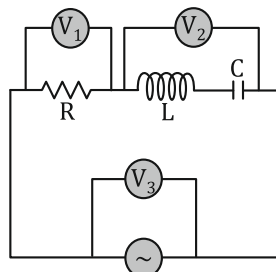
(Physics)

ALTERNATING CURRENT

Q.6 In the non-resonant circuit, what will be the nature of the circuit for frequencies higher than the resonant frequency?

- (A) Resistive (B) Capacitive (C) Inductive (D) None of the above

Q.7 In the figure shown, three A.C. voltmeters have been connected. At resonance, the reading of



- (A) V_1 is zero (B) V_2 is zero (C) V_3 is zero (D) $V_1 = V_2 = V_3 = \text{zero}$

Q.8 Power factor is maximum in an LCR circuit when

- (A) $X_L = X_C$ (B) $R = 0$ (C) $X_L = 0$ (D) $X_C = 0$

Q.9 An rms voltage of 110 V is applied across a series circuit having a resistance 11Ω and impedance 22Ω . The power consumed is

- (A) 275 W (B) 366 W (C) 550 W (D) 1100 W

Q.10 Match List-I with List-II.

List-I		List-II	
(A)	$\omega L > \frac{1}{\omega C}$	(i)	Current is in phase with emf
(B)	$\omega L = \frac{1}{\omega C}$	(ii)	Current lags behind the applied emf
(C)	$\omega L < \frac{1}{\omega C}$	(iii)	Maximum current occurs
(D)	Resonant frequency	(iv)	Current leads the emf

Choose the correct answer from the options given below:

- (A) (A)-(iv), (B)-(iii), (C)-(ii), (D)-(i) (B) (A)-(ii), (B)-(i), (C)-(iv), (D)-(iii)
 (C) (A)-(iii), (B)-(i), (C)-(iv), (D)-(ii) (D) (A)-(ii), (B)-(i), (C)-(iii), (D)-(iv)

Q.11 You are given many resistances, capacitors and inductors. These are connected to a variable DC voltage source (the first two circuits) or an AC voltage source of 50 Hz frequency (the next three circuits) in different ways as shown in Column II. When a current I (steady state for DC or rms for AC) flows through the circuit, the corresponding voltage V_1 and V_2 , (indicated in circuits) are related as shown in Column I. Match the two.

	Column-I		Column-II
(a)	$I \neq 0, V_1$ is proportional to I	(p)	
(b)	$I \neq 0, V_2 > V_1$	(q)	
(c)	$V_1 = 0, V_2 = V$	(r)	
(d)	$I \neq 0, V_2$ is proportional to I	(s)	
		(t)	

ANSWER KEY

1. (4) 2. (2) 3. (0) 4. (C) 5. (C) 6. (C) 7. (B)
 8. (A) 9. (A) 10. (B) 11. (a) \rightarrow r, s, t; (b) \rightarrow q, r, s, t; (c) \rightarrow p, q; (d) \rightarrow q, r, s, t

Home Work

Ex. 1	Q. 4,5,9,11,
Ex. 2	Q. 2, 4,5,6,7,8,10,11,12,13,15
Ex.3	Q.7,8,9
Ex.4	Q.1,2,6,11,13,17
Ex.5	Q.1,6,15,17,20,21