

**PHYSICS**

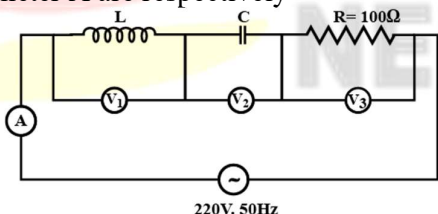
91. Current in LCR ac circuit will be maximum when  $\omega$  is

- (1) As large as possible
- (2)  $\sqrt{LC}$
- (3)  $\sqrt{\frac{1}{LC}}$
- (4)  $\sqrt{LCR}$

92. In a LCR ac circuit, the potential difference between the terminals of the inductance is 60 V, between the terminals of the capacitor is 30 V and that between the terminals of resistance is 40 V. The supply voltage will be

- (1) 25 V
- (2) 50 V
- (3) 100 V
- (4) 200 V

93. In the given circuit the reading of voltmeter  $V_1$  and  $V_2$  are 300 volts each. The reading of the voltmeter  $V_3$  and ammeter A are respectively



- (1) 100 V, 2.0 A
- (2) 150 V, 2.2 A
- (3) 220 V, 2.2 A
- (4) 220 V, 2.0 A

94. Which of the following combination should be selected for better tuning of an L.C.R circuit used for communication?

- 1.  $R = 15 \Omega, L = 3.5 \text{ H}, C = 30 \mu\text{F}$
- 2.  $R = 25 \Omega, L = 1.5 \text{ H}, C = 45 \mu\text{F}$
- 3.  $R = 25 \Omega, L = 1.5 \text{ H}, C = 35 \mu\text{F}$
- 4.  $R = 25 \Omega, L = 2.5 \text{ H}, C = 45 \mu\text{F}$

95. In a series L-C-R circuit  $L = 10 \text{ mH}$ ,  $C = 10 \mu\text{F}$ ,  $R = 20 \Omega$  connected to an AC source of  $V = 200 \sin \omega t$ . Find power at half power frequencies.

- (1) 500 W
- (2) 2000 W
- (3) 3000 W
- (4) 4000 W

96. A soap bubble is charged to a potential of 16 V. Its radius is, then doubled. The potential of the bubble now will be

- (1) 16 V
- (2) 8 V
- (3) 4 V
- (4) 2 V

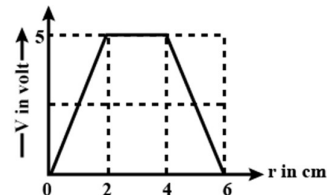
97. Equipotential surface associated with an electric field which is increasing in magnitude along the x-direction is

- (1) planes parallel to yz-plane
- (2) planes parallel to xy-plane
- (3) planes parallel to xz-plane
- (4) coaxial cylinders of increasing radii around the x-axis

98. Four point charges  $-Q, -q, 2q$  and  $2Q$  are placed, one at each corner of the square. The relation between  $Q$  and  $q$  for which the potential at the centre of the square is zero is

- (1)  $Q = q$
- (2)  $Q = \frac{1}{q}$
- (3)  $Q = -q$
- (4)  $Q = -\frac{1}{q}$

99. The variation of potential with distance  $r$  from a fixed point is shown in figure. The electric field at  $r = 3 \text{ cm}$  is



- (1) zero
- (2)  $-2.5 \text{ V cm}^{-1}$
- (3)  $+2.5 \text{ V cm}^{-1}$
- (4)  $+5 \text{ V cm}^{-1}$

100. In which of the following states is the potential energy of an electric dipole maximum?

