

PHYSICS

91. (3)

92. (2)

93. (3)

$$V_3 = 220 \text{ V}, I = \frac{220}{100} = 2.2 \text{ A}$$

94. (1)

For better tuning, Q-factor must be high

$$Q = \frac{\omega_0 L}{R} = \frac{1}{\sqrt{LC}} \left(\frac{L}{R} \right) = \frac{1}{R} \sqrt{\frac{L}{C}}$$

R and C should be small and L should be high.

95. (1)

At half power frequency

$$\text{Power} = \frac{P_{\max}}{2} = \frac{1}{2} \times \frac{\left(\frac{200}{\sqrt{2}} \right)^2}{20} = 500 \text{ W}$$

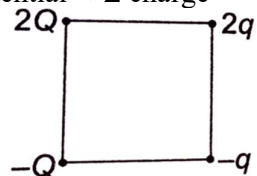
96. (2)

$$\text{Potential} \propto \frac{1}{\text{Radius}}$$

97. (1)

98. (3)

Distance from charges is equal so at centre potential $\propto \Sigma$ charge



$$\text{So, } -Q -q + 2q + 2Q = 0 \Rightarrow q = -Q$$

99. (1)

$$E = -\frac{dV}{dr} = \text{slope of } V\text{-}r \text{ curve}$$

At $r = 3$, slope = 0, so $E = 0$

100. (1)

$$\text{Potential energy} = -\vec{p} \cdot \vec{E}$$

