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The correct answer is item 2), i.e. Tan-1 ( $\hat{A} = \hat{A} \cos \theta - \hat{A} \sin \theta$ ). Concept: LCR circuit: An  $i\hat{A}$  circuit that constitutes an inductor (L), capacitor (C) and resistor (R) connected in  $s\hat{A}$  or parallel  $\hat{A}\hat{C}$  circuit called LCR circuit. For an inductor (L), if we consider the current (i) as the axis of reference, the item leads to  $90^\circ$ . For the capacitor (C), the item leads to  $90^\circ$ . This is represented by the phasor diagram. Phase diagrams are  $\mu$  of the relationship of items (v) - current (i) in AC circuits. A phaser There is a vector that rotates on the origin. The Angle between the phasor and the current is called the phase angle and is indicated by  $\hat{A} @ \hat{A}$ . From the phasor diagram,  $\langle \tan \hat{A} @ \hat{A} \rangle = \frac{1}{\sqrt{1 + C^2}}$  where  $\hat{A}$  is the angular frequency given by:  $\hat{A} = 2\pi f$  and  $\hat{A} = \omega$  the frequency in Hz. Calculation: Since  $v = 220 V$   $f = 50 \text{ Hz}$   $\hat{A} = 2 \pi f = 2 \pi \times 50 \text{ Hz} = 314 \text{ rad/s}$  Therefore,  $\hat{A} @ \hat{A}$  news =  $\tan^{-1}(314 / 100)$   $\approx 18^\circ$ . As the capacitor is absent, we can assume  $C = 0$ . Therefore,  $\hat{A} @ \hat{A}$  is  $90^\circ$ .

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