SIR CV RAMAN COACHING CENTRE IDAPPADI, SALEM

XLL PHYSICS UNIT – 4

IMPORTANT DIAGRAMS

PREPARED BY

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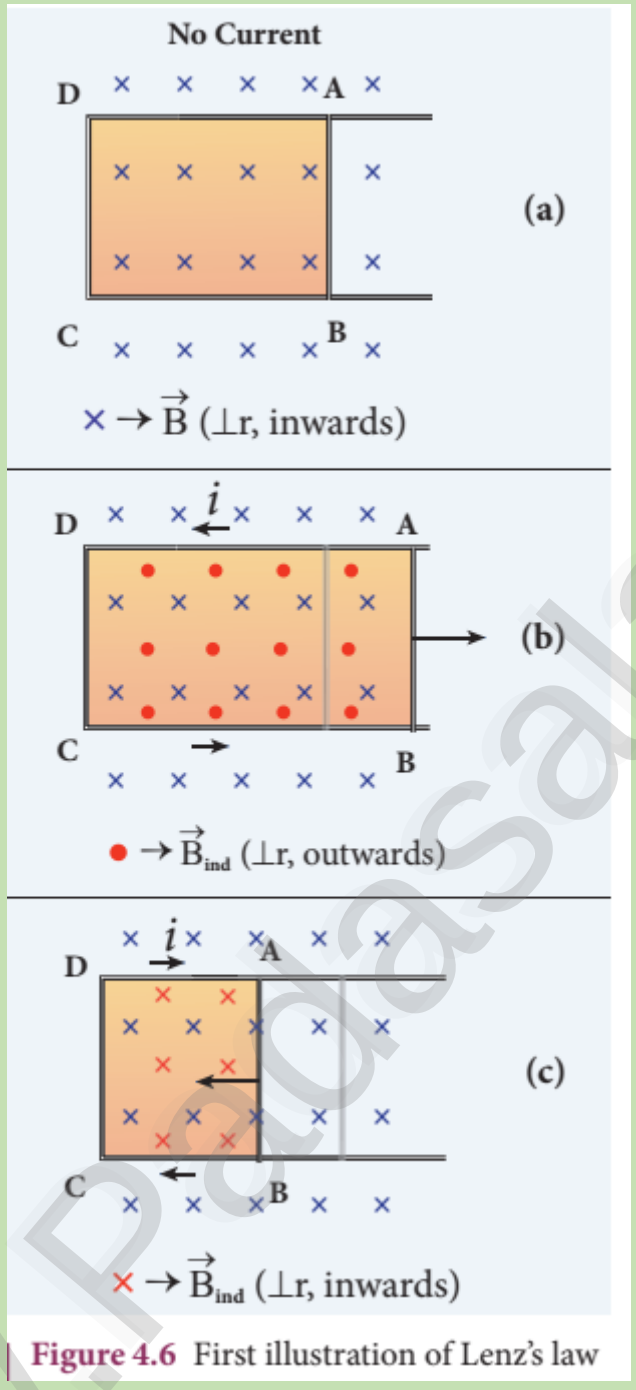


Figure 4.6 First illustration of Lenz's law

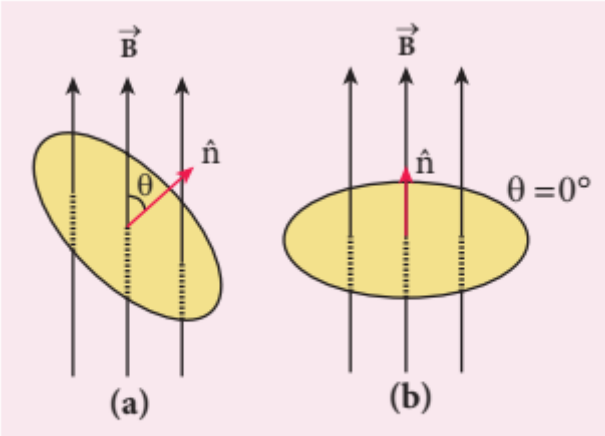


Figure 4.1 Magnetic flux

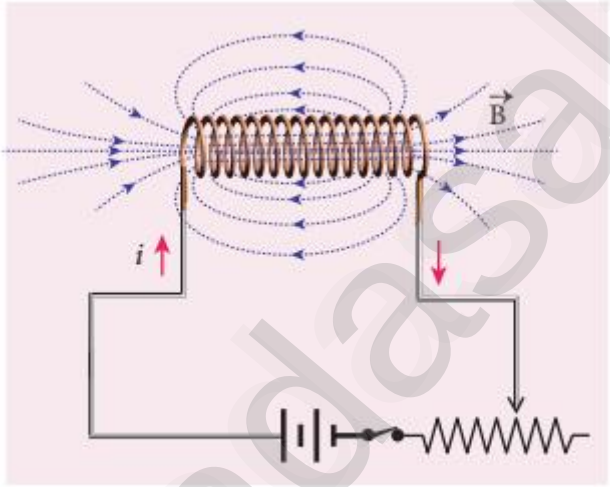


Figure 4.18 Self-Induction

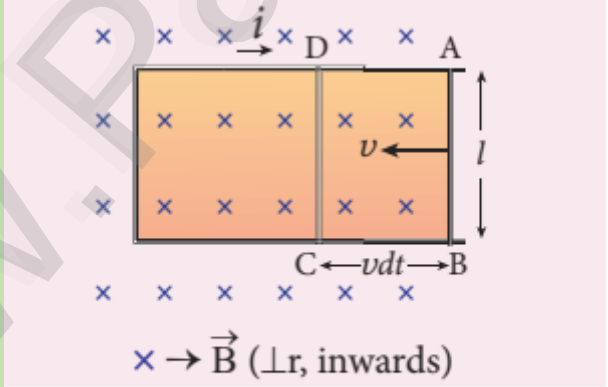


Figure 4.23 Production of induced emf by changing the area enclosed by the loop

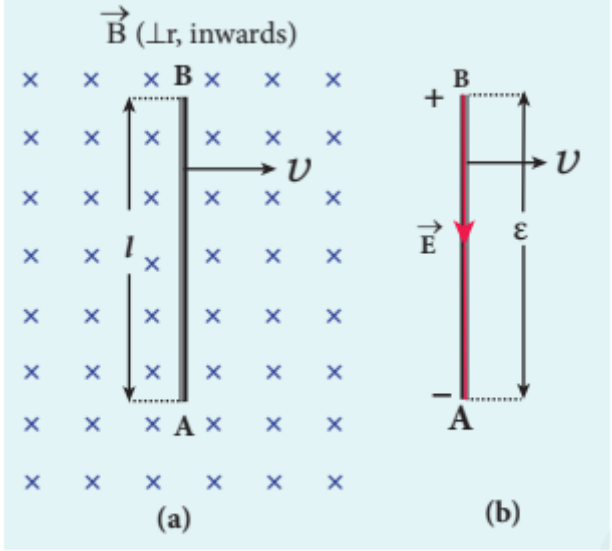


Figure 4.9 Motional emf from Lorentz force

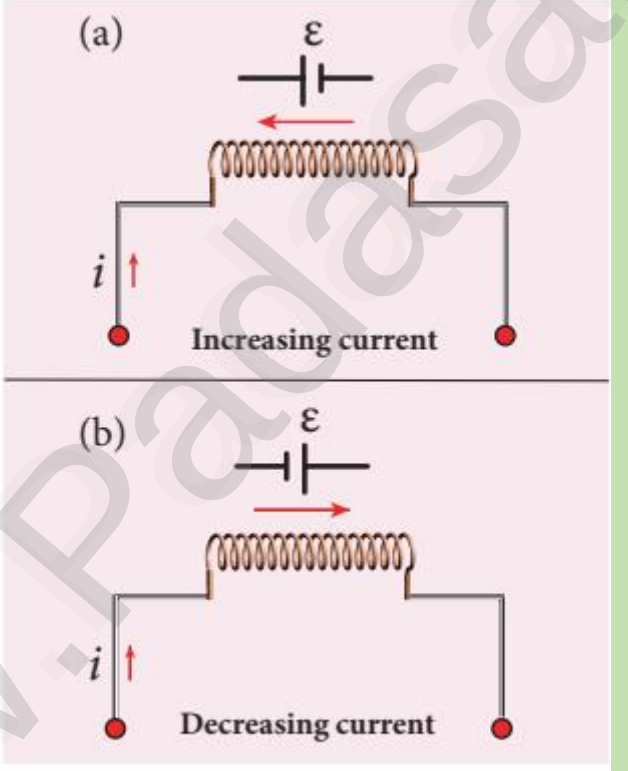


Figure 4.19 Induced emf ε opposes the changing current *i*

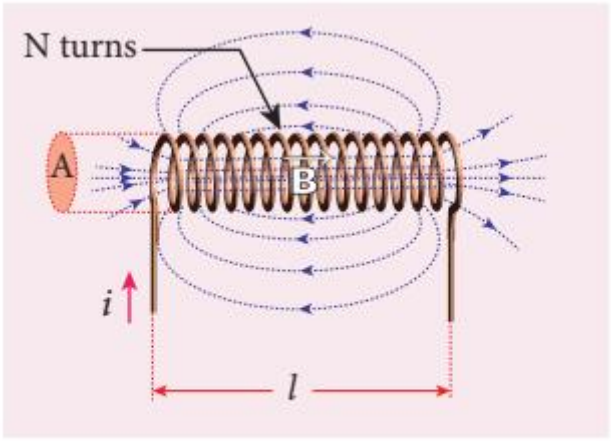
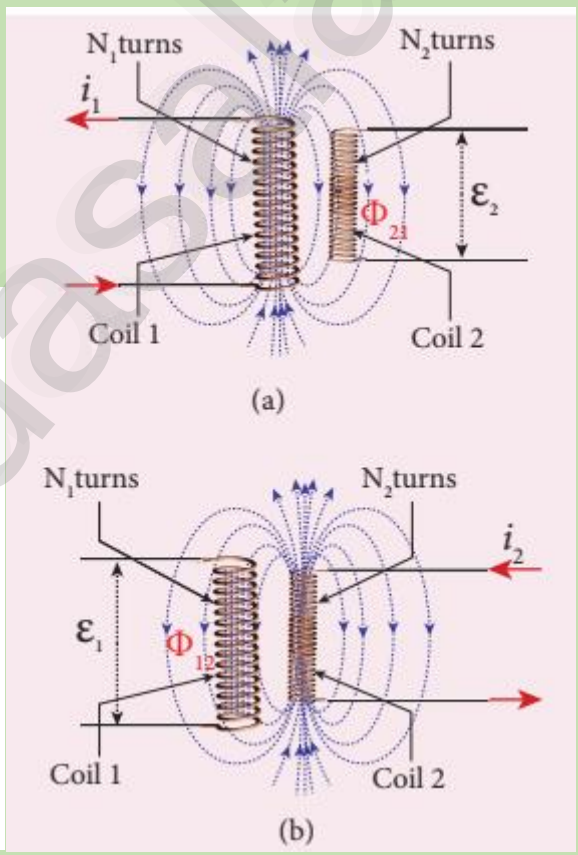


Figure 4.20 Self-inductance of a long solenoid



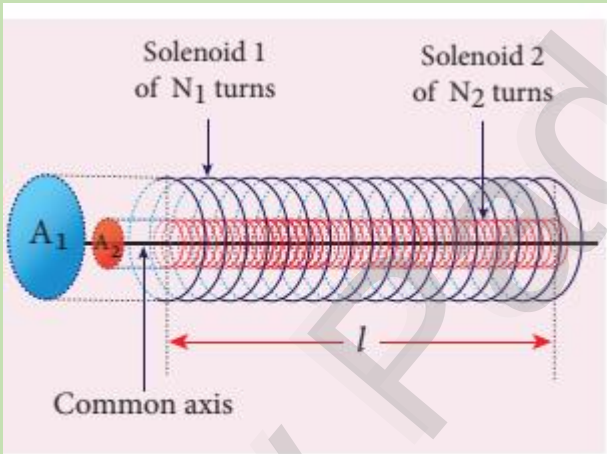


Figure 4.22 Mutual inductance of two long co-axial solenoids

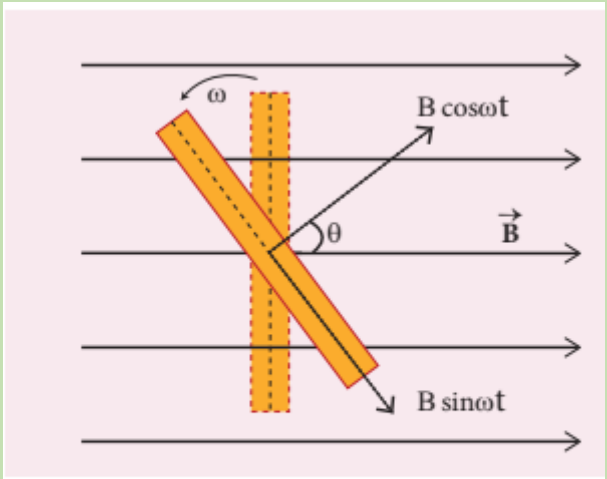


Figure 4.24 The coil has rotated through an angle $\theta = \omega t$

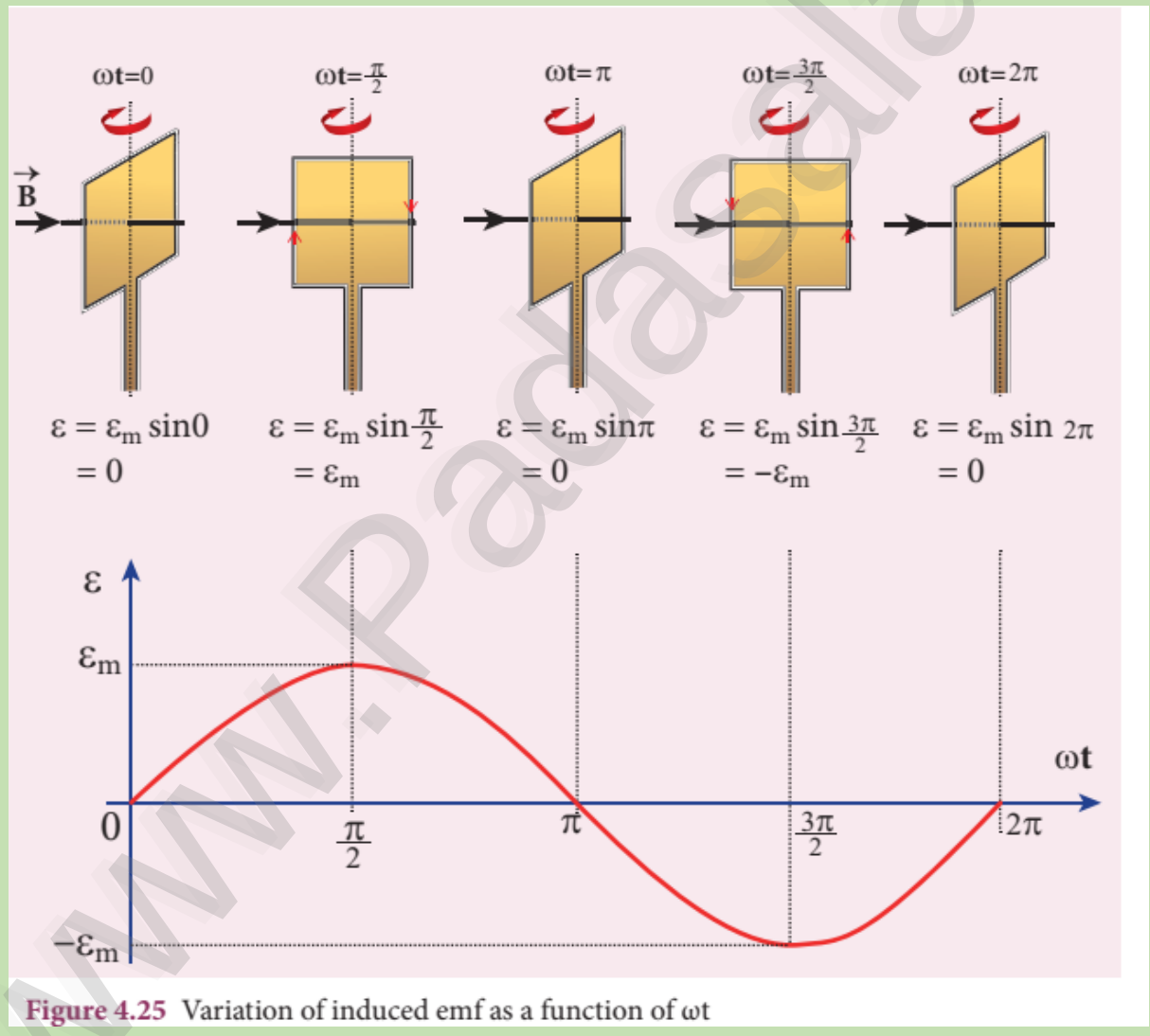


Figure 4.25 Variation of induced emf as a function of ωt

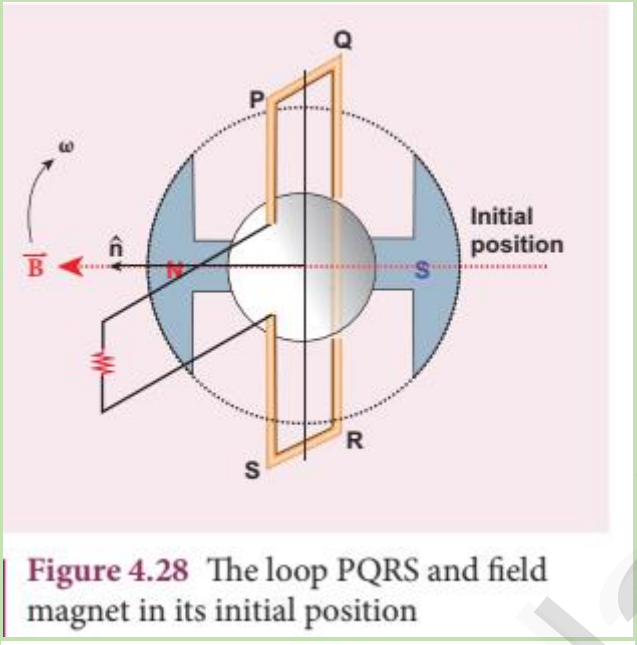


Figure 4.28 The loop PQRS and field magnet in its initial position

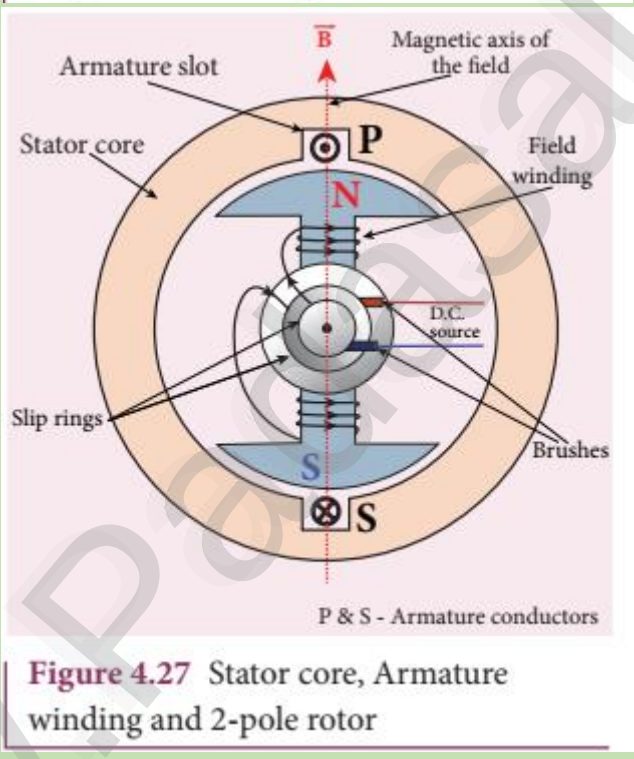


Figure 4.27 Stator core, Armature winding and 2-pole rotor

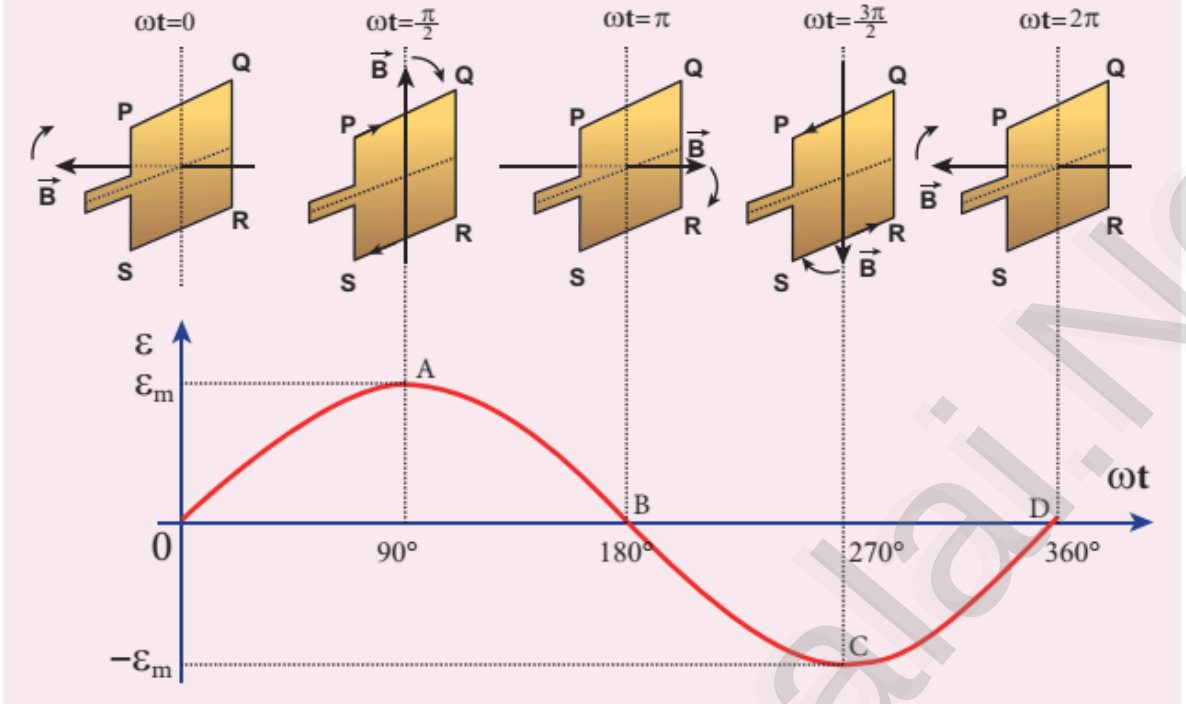


Figure 4.29 Variation of induced emf with respect to time angle

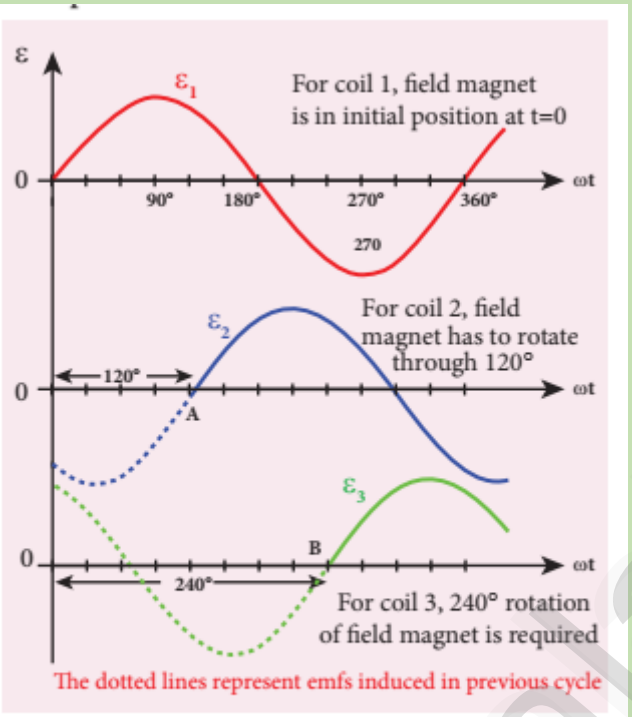


Figure 4.31 Variation of emfs ε_1, ε_2 and ε_3 with time angle.

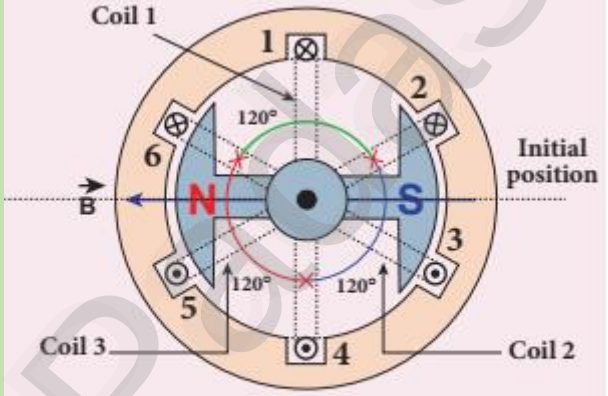


Figure 4.30 Construction of three-phase AC generator

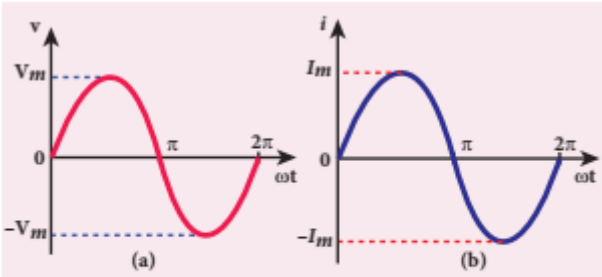


Figure 4.35 (a) Sinusoidal alternating voltage **(b)** Sinusoidal alternating current

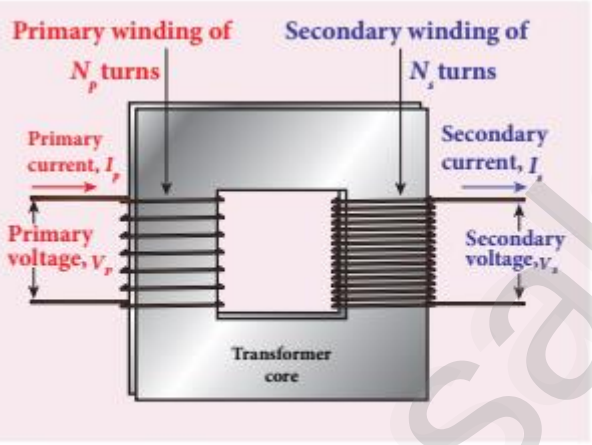


Figure 4.32(a) Construction of transformer

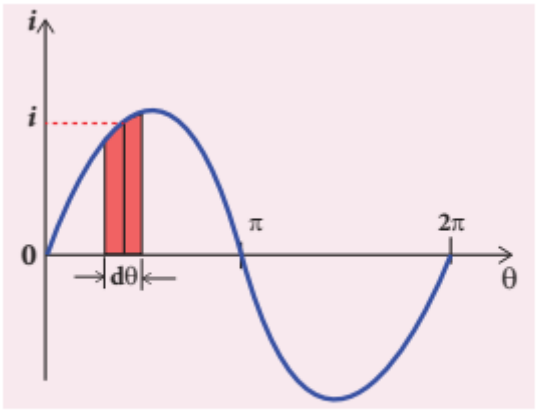


Figure 4.36 Sine wave of an alternating current

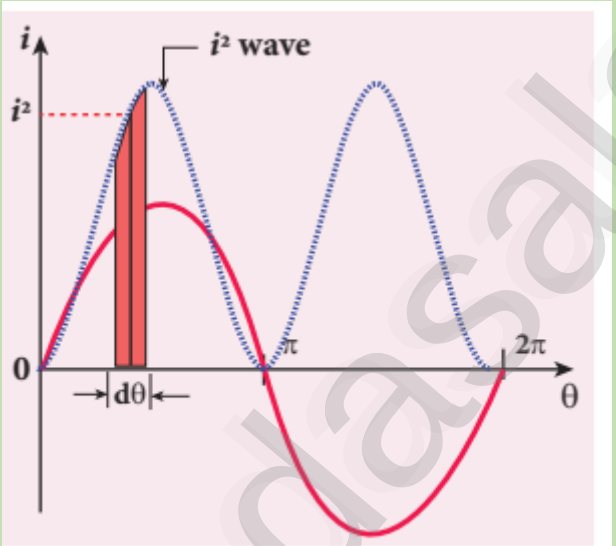


Figure 4.37 Squared wave of AC

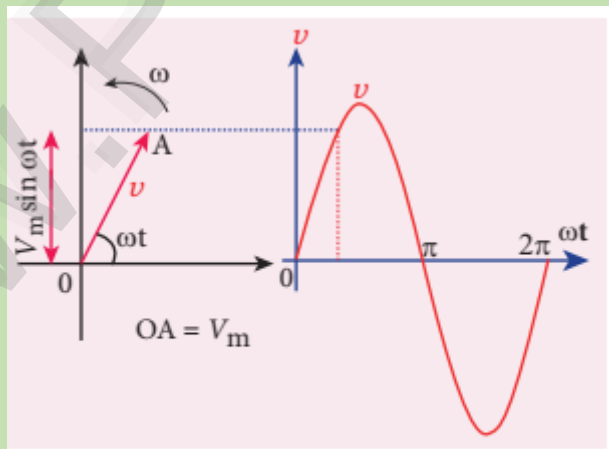


Figure 4.38 Phasor diagram for an alternating voltage $\upsilon = V_m \sin \omega t$

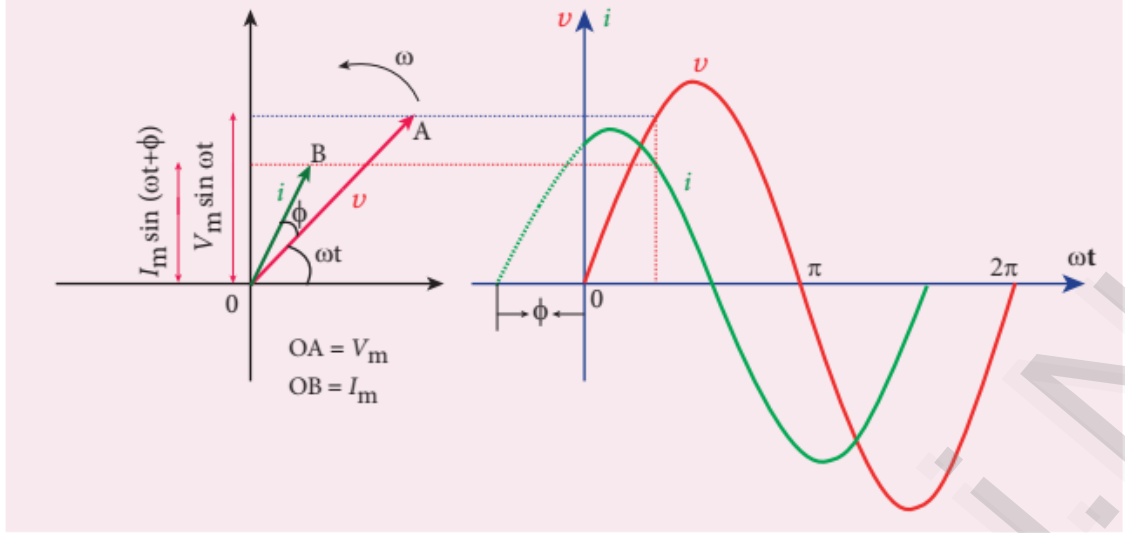


Figure 4.39 Phasor diagram and wave diagram say that i leads v by ϕ

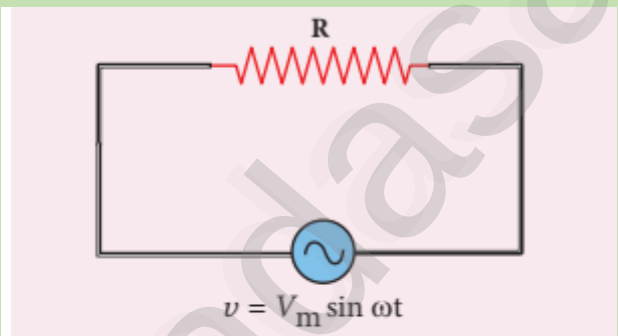


Figure 4.40 AC circuit with resistor

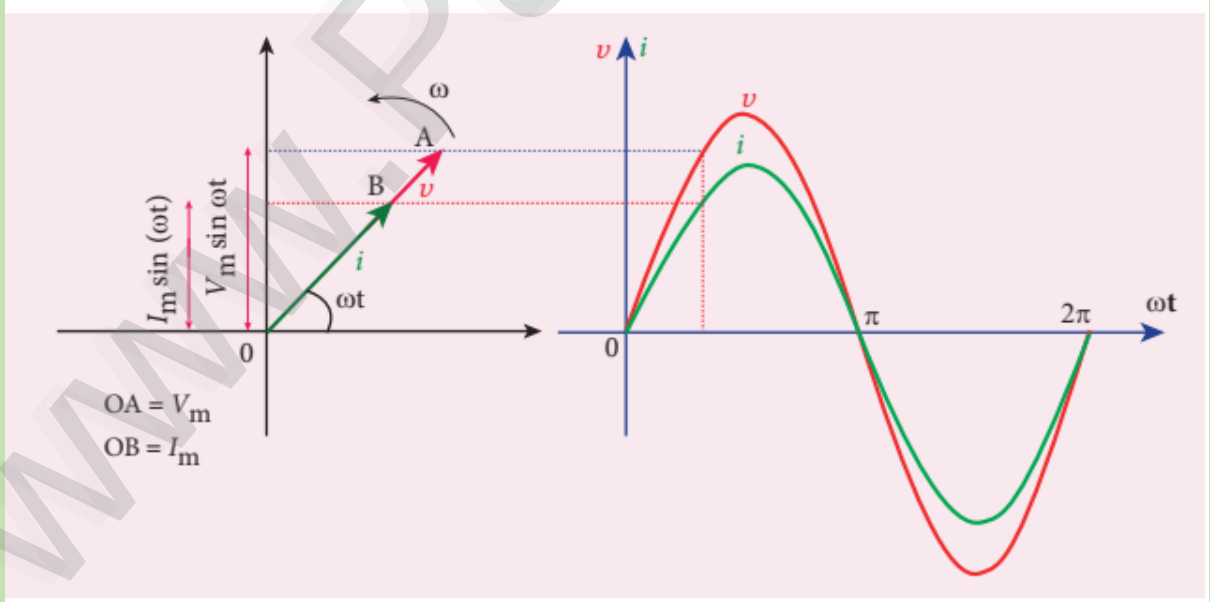


Figure 4.41 Phasor diagram and wave diagram for AC circuit with R

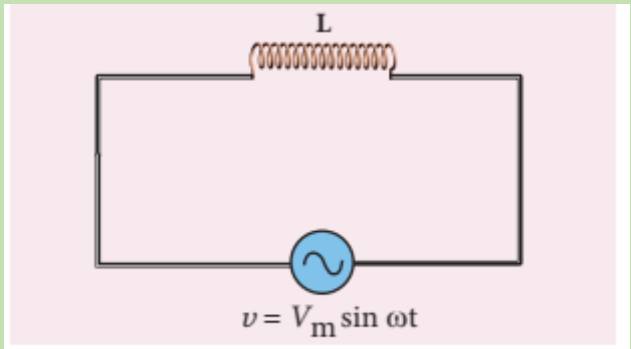


Figure 4.42 AC circuit with inductor

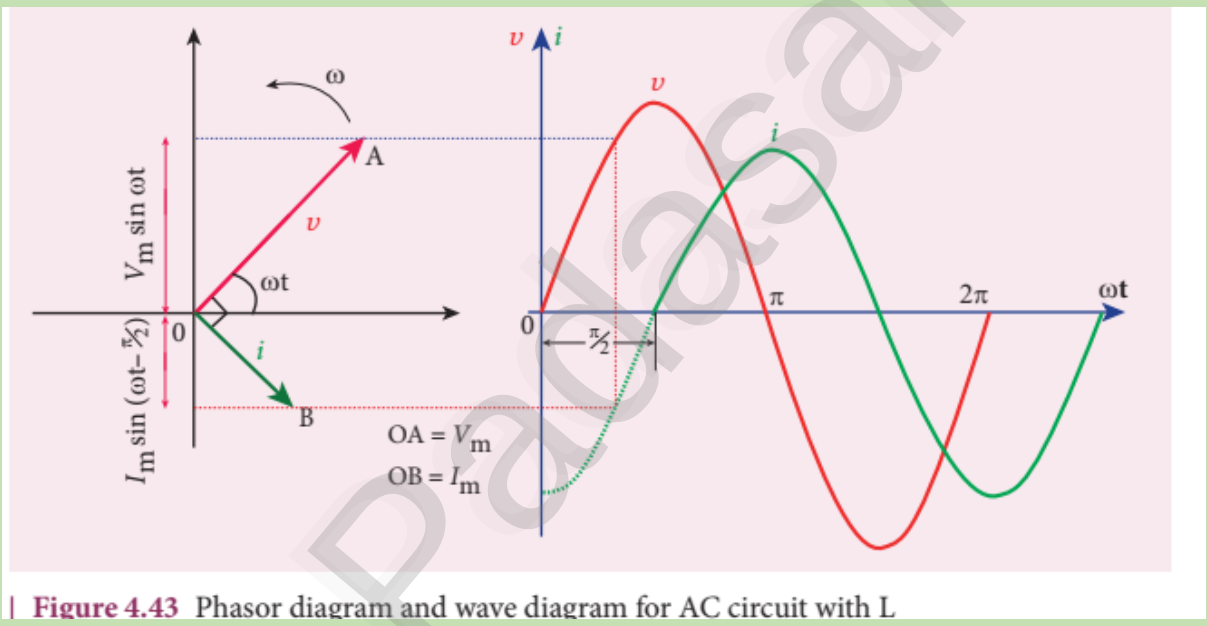


Figure 4.43 Phasor diagram and wave diagram for AC circuit with L

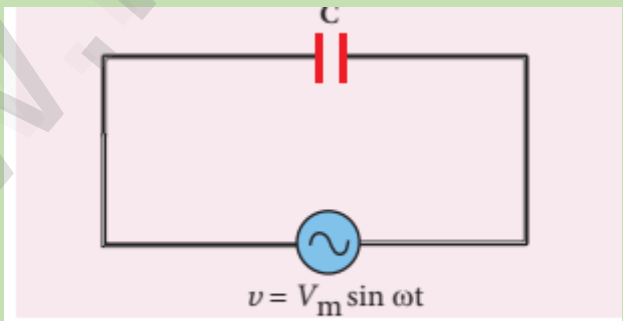


Figure 4.44 AC circuit with capacitor

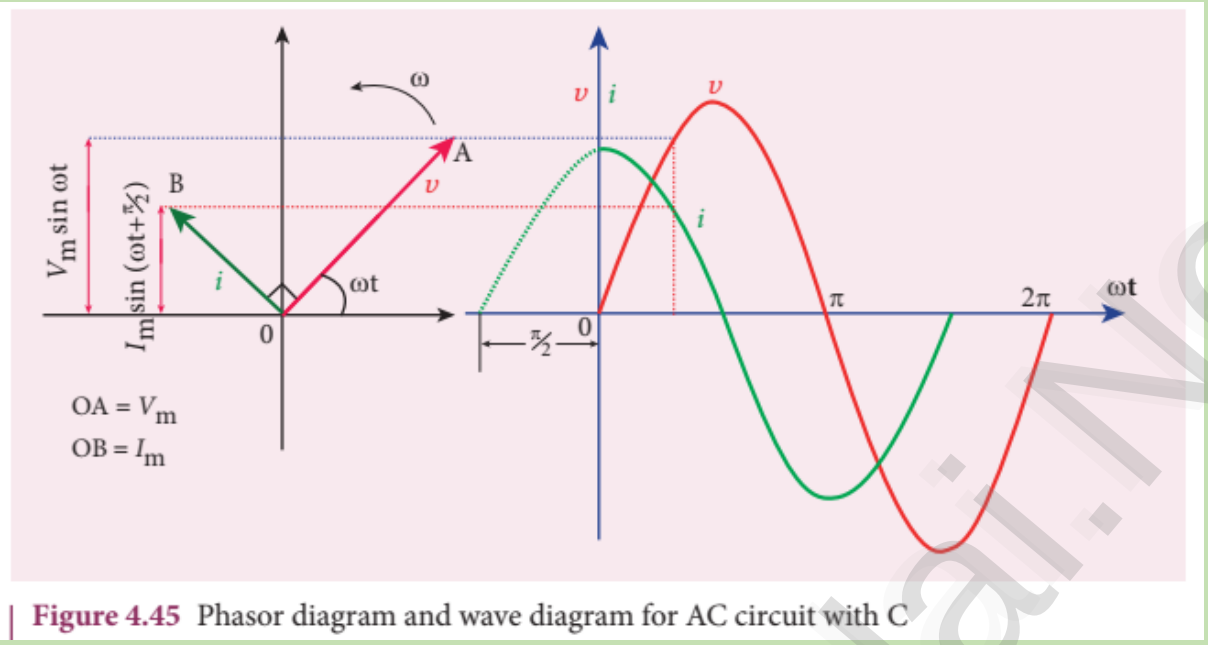
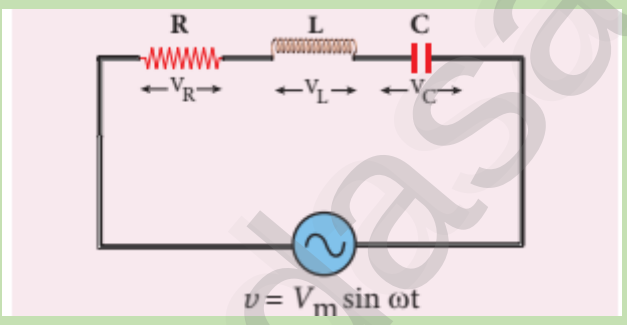


Figure 4.45 Phasor diagram and wave diagram for AC circuit with C



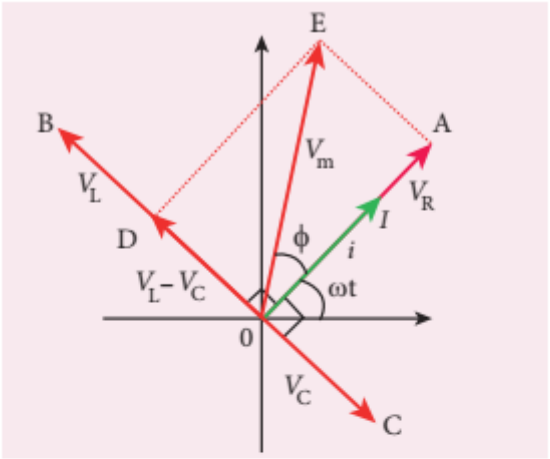


Figure 4.47 Phasor diagram for a series *RLC* – circuit when $V_L > V_C$

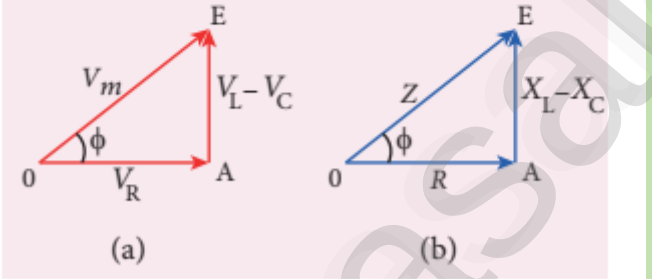


Figure 4.48 Voltage and impedance triangle when $X_L > X_C$

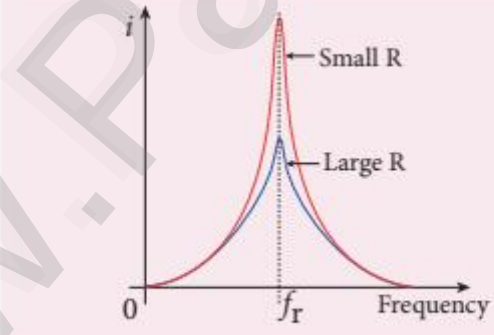


Figure 4.49 Resonance curve

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