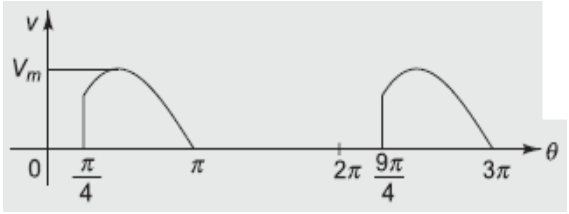
BEEE QB IA-2_2026

Q.1.

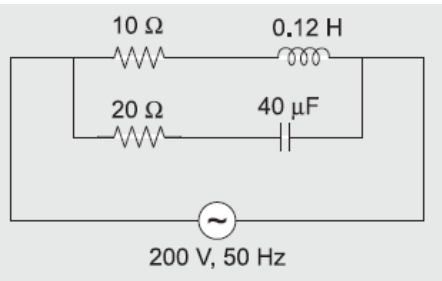
1. An alternating current takes 3.375 ms to reach 15 A for the first time after becoming instantaneously zero. The frequency of the current is 40 Hz. Find the maximum value of the alternating current.
2. A voltage of 150 V, 50 Hz is applied to a coil of negligible resistance and inductance 0.2 H. Write the time equation for voltage and current.
3. A coil having a resistance of 20 Ω and inductance of 0.2 H is connected across a 230 V, 50 Hz supply. Calculate circuit current and power factor.
4. Three identical coils each of (4.2 +j 5.6) ohms are connected in star across a 415 V, 3-phase 50 Hz supply. Determine V_{ph} and I_{ph}.
5. Compare core type and shell type single phase transformer.
6. Define efficiency of single phase transformer.
7. Write the classification of DC motor.
8. Explain the concept of slip in three phase induction motor.

Q.2

1. Find the average and rms value of the waveform shown in fig.



2. A resistor of 20 Ω, inductor of 0.05 H and capacitor of 50μF are connected in series. A supply voltage 230 V, 50 Hz is connected across the series combination. Calculate impedance and current drawn by the circuit, power factor, active power and reactive power.
3. A 415 V, 50 Hz, three-phase voltage is applied to three star-connected identical impedances. Each impedance consist of a resistance of 15 Ω, a capacitance of 177 μF and an inductance of 0.1 henry in series. Find power factor, phase current, line current, active power and reactive power.
4. For the circuit shown in fig, find supply current, and current in each branch and total power factor.



Q.3.

1. Discuss in detail working principle of single-phase transformer.
2. Draw and explain the construction and operation of DC motor.
3. Draw and explain the construction and operation of BLDC motor.
4. Write short note on Actual and Ideal transformer.

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