



Class 12 Physics | Alternating Current

MCQ WORKSHEET • 15 questions • Choose one correct option • Suggested time: 25 minutes

1. An AC current has peak $10\sqrt{2}$ A. Its rms value is:

- A. 5 A B. $10\sqrt{2}$ A C. 10 A D. 20 A

2. A sinusoidal voltage has rms value 220 V. Peak voltage is:

- A. $220\sqrt{2}$ V B. 440 V C. $220/\sqrt{2}$ V D. 110 V

3. Mean sinusoidal current over a complete cycle is:

- A. $I_0/\sqrt{2}$ B. Zero C. I_0 D. $2I_0$

4. In a pure resistor AC circuit, current and voltage are:

- A. In phase
B. 90° out of phase
C. 45° out of phase always
D. 180° out of phase

5. In a pure inductor, current:

- A. Is in phase
B. Lags voltage by 90°
C. Lags by 180°
D. Leads voltage by 90°

6. In a pure capacitor, current:

- A. Lags by 180°
B. Leads voltage by 90°
C. Is in phase
D. Lags voltage by 90°

7. Inductive reactance is:

- A. ω/L B. $1/(\omega L)$ C. L/ω D. ωL

8. Capacitive reactance is:

- A. $1/(\omega C)$ B. C/ω C. ω/C D. ωC

9. If frequency doubles, capacitive reactance becomes:

- A. Unchanged B. Four times C. Twice D. Half

10. A series RLC circuit resonates when:

- A. $X_L=0$ only B. $X_C=0$ only
C. $X_L=X_C$ D. $R=X_L+X_C$

11. At series resonance, impedance equals:

- A. $2R$ B. X_L+X_C C. Zero for every circuit D. R

12. A series circuit has $R=3\ \Omega$ and net reactance $4\ \Omega$. Impedance magnitude is:

- A. $5\ \Omega$ B. $7\ \Omega$ C. $12\ \Omega$ D. $1\ \Omega$

13. An AC circuit has $V_{rms}=100$ V, $I_{rms}=2$ A and power factor 0.8. Mean power is:

- A. 200 W B. 160 W C. 80 W D. 250 W

14. An ideal transformer has $N_s/N_p=5$ and $V_p=20$ V. V_s is:

- A. 100 V B. 25 V C. 4 V D. 400 V

15. An ideal transformer steps voltage up by factor 4. Secondary current relative to primary is:

- A. Equal B. Twice C. Four times D. One-fourth

ANSWER KEY — check after completing all 15 questions

1.C 2.A 3.B 4.A 5.B 6.B 7.D 8.A 9.D 10.C 11.D 12.A 13.B 14.A 15.D

Original exam-style practice • Reference notes: www.physics.guru/cbse-practice-papers/ • Not an official paper