

INTERNATIONAL INDIAN SCHOOL BURAIDAH
CLASS: XII SUBJECT:PHYSICS WORKSHEET
LESSON :ALTERNATING CURRENT

1. The instantaneous current and voltage of an a.c. circuit are given by $i = 10 \sin 300 t$ A and $V = 200 \sin 300 t$ V. What is the power dissipation in the circuit?
2. A $15.0 \mu\text{F}$ capacitor is connected to 220 V, 50 Hz source. Find the capacitive reactance and the rms current.
3. State the principle of working of a transformer. Can a transformer be used to step up or step down a d.c. voltage? Justify your Answer.
4. A light bulb is rated 100 W for 220 V ac supply of 50 Hz. Calculate
 - (i) the resistance of the bulb;
 - (ii) the rms current through the bulb.
5. Why is the use of a.c. voltage preferred over d.c. voltage?
6. Plot a graph showing variation of capacitive reactance with the change in the frequency of the AC source.
7. An alternating voltage given by $V = 280 \sin 50\pi t$ is connected across a pure resistor of 40Ω . Find
 - (i) the frequency of the source.
 - (ii) the rms current through the resistor.
8. 2. The instantaneous current and voltage of an a.c. circuit are given by $i = 10 \sin 314 t$ A and $v = 50 \sin 314 t$ V. What is the power dissipation in the circuit?
9. When an ac source is connected across an ideal inductor, show on a graph the nature of variation of the voltage and the current over one complete cycle
10. A heating element is marked 210 V, 630 W. What is the value of the current drawn by the element when connected to a 210 V dc source?