# INTERNATIONAL INDIAN SCHOOL BURAIDAH <br> Worksheet for the Academic Year 2023-24 <br> CLASS: XII SUBJECT:PHYSICS DATE:9/6/23 <br> LESSON :ALTERNATING CURRENT 

1. The instantaneous current and voltage of an a.c. circuit are given by $\mathrm{i}=10$ $\sin 300 \mathrm{t} \mathrm{A}$ and $\mathrm{V}=200 \sin 300 \mathrm{t} \mathrm{V}$. What is the power dissipation in the circuit?
2. A $15.0 \mu \mathrm{~F}$ capacitor is connected to $220 \mathrm{~V}, 50 \mathrm{~Hz}$ 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 $\mathrm{V}=280 \sin 50 \pi t$ is connected across a pure resistor of $40 \Omega$. 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 $\mathrm{i}=10$ $\sin 314 \mathrm{t} \mathrm{A}$ and $\mathrm{v}=50 \sin 314 \mathrm{t} \mathrm{V}$. What is the power dissipation in the circuit?
1. 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 $210 \mathrm{~V}, 630 \mathrm{~W}$. What is the value of the current drawn by the element when connected to a 210 V dc source?
