INTERNATIONAL INDIAN SCHOOL BURAIDAH

Worksheet for the Academic Year 2023-24

CLASS: XII SUBJECT: PHYSICS DATE: 9/6/23

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 μ 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 40 Ω . 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?