

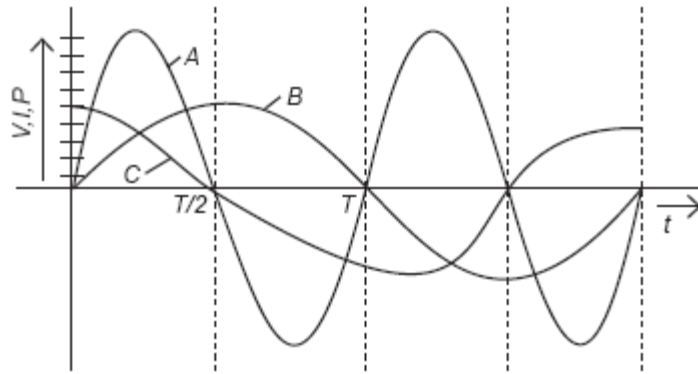
O P JINDAL SCHOOL, SAVITRINAGAR

ASSIGNMENT

CLASS XII PHYSICS

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- 11 The instantaneous current and voltage of an ac circuit are given by $I = 10 \sin 314 t$ A and $V = 50 \sin (314 t + \pi/2)$ V. What is the power of dissipation in the circuit? 1
- 12 Is there are any device by which direct current can be controlled without any loss of energy? 1
- 13 A 110 V dc heater is used on an ac source, such that the heat produced is the same. What would be the value of the alternating voltage? 1
- 14 Can ever the rms value be equal to the peak value of an ac? 1
- 15 Which is more dangerous 220 ac or 220 dc and why? 1
- 16 Does a step down transformer violate the principle of conservation of energy? 1
- 17 Why does a low power factor imply large power loss in transmission for circuits used for transporting electric power? 1
- 18 At an airport, a person is made to walk through the doorway of a metal detector, for security reasons. Is she/he is carrying anything made of metal, the metal detector emits a sound. On what principle does this detector work? 1
- 19 A bulb and a capacitor are connected in series to an ac source of variable frequency. How will the brightness of the bulb change on increasing the frequency of the ac source? 1

- 20 A device X is connected to an ac source $V = V_0 \sin \omega t$. The variation of voltage, current and power in one complete cycle is shown in the following figure.



- (i) Which curve shows power consumption over a full cycle?
(ii) Identify the device X .