

SEETA HIGH Physics Seminar Paper - Answers (Items 21-25)

Item 21: Water Drawing Machine and Heat Use

- (a) Use pulley system; improve by reducing friction.
- (b) Heat for boiling = mcT , add pan heat.

Item 22: Motor as Dynamo

- (a) Motor uses coil and magnet to rotate.
- (b) Rotating wheel turns motor lights lamp.
- (c) Improve with stronger magnets, LEDs.

Item 23: Kettle Explosion from Wrong Voltage

- (a) Wires: Red (Live), Blue (Neutral), Green (Earth).
- (b) $R = 6.05$.
- (c) Overvoltage blew element; use proper supply and fuse.

Item 24: Hydro Power and Transmission Loss

- (a) High current at 500 V causes big power loss.
- (b) Loss = 80%; (c) Use transformers.
- (d) A.C is better for long-distance, easily transformed.

Item 25: Electricity Bills and Heat from Bulbs

- (a) 60 units = 60 kWh.
- (b) Usage 60 kWh/week; no cheating.
- (c) Filament bulbs give off heat.
- (d) Use LEDs, unplug appliances, solar heaters.