ATTINGAL EDUCATIONAL DISTRICT

STANDARD 10 PHYSICS (EM)

UNIT:-EFFECTS OF ELECTRIC CURRENT

Answer key

WORK SHEET NO.1

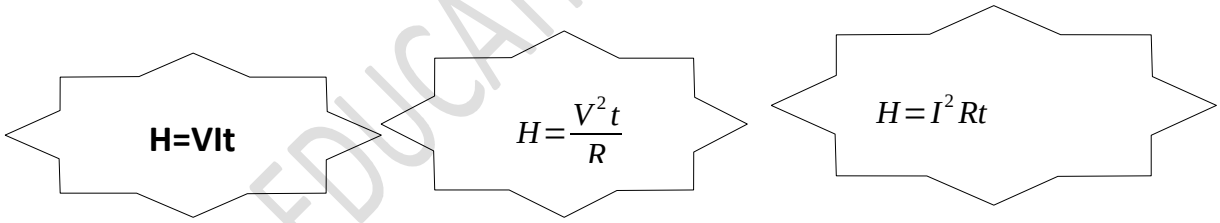
1.

Sl .No.	Device	Energy change
1	Electric Bulb	Electrical Energy → Light energy
2	Storage Battery (while charging)	Electrical Energy → Chemical Energy
3	Mixie	Electrical Energy → Mechanical energy
4	Electric oven	Electrical Energy → Heat Energy
5	Electric iron	Electrical Energy → heat energy

2.

A	B	C
Electric current(I)	Q/t	Ampere(A)
Work done(W)	QV	Joule(J)
Power (P)	W/t	Watt(W)

3



4

Sl.No	Resistance of Conductor R(Ω)	Intensity of current I(A)	Time for which current flows t (s)	Heat generated **I^2Rt (J)**	Change in Heat (H)
1	2R	I	t	$2I^2Rt$	Twice(2H)
2	R	2I	t	$4I^2Rt$	4 time(4H)
3	R/2	I	t	½ I^2Rt	Half(H/2)
4	R	I/2	t	¼ I^2Rt	¼ (H/4)
5	R	I	2t	$2I^2Rt$	Double (2H)
6	R	I	t/2	½ I^2Rt	Half(H/2)

5.Current

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WORK SHEET NO.2

1. (a)Nichrome wire, High resistance

(b) Intensity of current (I),Resistance(R), Time of flow (t)

(c)Joules law $H=I^2Rt$

2.

Mode of connection of resistances in Ω	Voltage obtained in resistance (V)			Current in resistance (I)			Effective resistance(by analysing the current)
	2.Ω V_1	1Ω V_2	Effective Voltage	2.Ω I_1	1Ω I_2	A I	
2Ω 1Ω	4	2	6	2	2	2	Increases
2Ω 1 Ω	6	6	6	3	6	9	decreases

3.

Mode of connection of the resistances	Effective resistance	Voltage obtained in Each Resistance	Current through each resistance
2Ω 1Ω	increases	different	Same
2Ω 1Ω	decreases	Same	different

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WORK SHEET NO.3

1. Soldering iron ,electric heater, immersion heater

2. (a) Heating coil
   (b) Nichrome
3. high resistivity, high melting point, sufficient ductility, ability to remain red hot for a long time Without get oxidised
4. Chromium and iron
5. Heating effect of electric current is the working principle of safety fuse . Fuse wire is the main part of a safety fuse and it is an alloy of tin and led and which have low melting point. When the current that flows in to the circuit exceeds the permissible limit, the heat generated become excessive .Since more heat is generated in unit time than the heat transmitted, the fuse wire melts.
6. * The ends of the fuse wire must connected firmly at appropriate points
   *The fuse wire should not project out of the career base
   *Use only a fuse wire with suitable amperage
7. If the positive and negative terminals of a battery or the two wires of the main come in to contact without the presence of a resistance in between, they are said to be short circuit
   A circuit is said to be overloaded if the total power of all the appliances are connected to it is more than what the circuit can with stand .
8. Short circuit and over loading
9. It have low melting point
10. Power of the equipment(P)and Voltage applied (V)
    W/V