

INTERNATIONAL INDIAN SCHOOL, RIYADH.

SAI WORKSHEET-2015-16

SUBJECT: PHYSICS

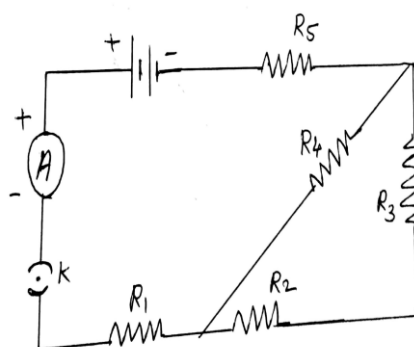
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CHAPTER 14. SOURCE OF ENERGY

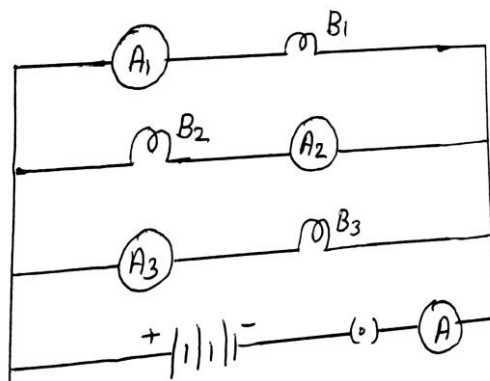
1. It is advantageous to convert biomass into a biogas rather than burning biomass directly. Why? List any four characteristics of biogas on account of which it is considered an ideal fuel.
2. Mention why is it not possible to make use of solar cells to meet all our energy needs? State three reasons to support your answer. Also mention three uses of solar cells?
3. (a) Charcoal is a better fuel than wood. Why? (b) How does biogas plant help to reduce the problem of pollution?
4. What are the limitations of extracting energy from? (a) The wind (b) waves (c) tides?
5. What is biomass? Explain the principle and working of a biomass plant using a labelled schematic diagram.
6. With the help of a diagram, explain how the design of a box type solar cooker ensure minimum loss of heat from its inside. List its three limitations.
7. Explain geothermal energy. How can it be harnessed to produce electrical energy?
8. Describe how hydro energy can be converted into electrical energy. Write any two limitations of hydro energy?
9. List three characteristics of good source of energy and mention any three quantities of good fuel.
10. What are the environmental consequences of the increasing demanding for energy? What steps would you suggest to reduce energy consumption?

CHAPTER. 12. ELECTRICITY

1. A given length of a wire is doubled on itself and this process is repeated once again. By what factor does the resistance of the wire change? What is the new resistance?
2. A wire of resistance 20Ω is bent to form a closed square. What is the resistance across a diagonal of the square?
3. Resistance of an incandescent filament of a lamp is comparatively much more than that when it is at room temperature. Why?
4. Give two examples for application of heating effect of electric current. State Joule's law of heating?
5. Two bulbs $60W, 220V$ and $40W, 220V$ are connected in series. Which of the bulb will glow brighter?
6. An electric bulb is rated at $60W, 240V$. Calculate its resistance. If the voltage drop to $192V$, calculate the power consumed and the current drawn by the bulb. (Assume that the resistance of the bulb remain unchanged).
7. (a) Through same current flows through the electric line wires and the filament of bulb, yet only the filament glows. Why? (b) The temperature of the filament of bulb is $2700^\circ C$ when it glows. Why does it not get burnt up at such high temperature? (c) The filament of an electric lamp, which draws current of $0.25A$, is used for four hours. Calculate the amount of charge flowing through the circuit? (d) An electric iron is rated $2kW$ and $220V$. Calculate the capacity of the fuse that should be used for the electric iron?
8. State ohm's law. How is it represented graphically? Apply this law to obtain the relation for the combined resistance when three resistors R_1, R_2 and R_3 are connected in series. List two disadvantage of connecting household appliances in series.
9. Consider the following circuit diagram. If $R_1=R_2=R_3=R_4=R_5=3\Omega$, find the equivalent resistance(R) of the circuit.



10. B1, B2 and B3 are three identical bulbs connected as shown in fig.
When all three bulbs glow, a current of 3A is recorded by the ammeter A. ($v=4.5v$)



- What happens to the glow of the other two bulbs when the bulb B_1 gets fused?
- What happens to the reading of A_1 , A_2 , A_3 and A when the bulb B_2 gets fused?
- How much power is dissipated in the circuit when all the three bulbs glow together?