

## Class X

## Science

### Holidays Homework

#### Physics homework to be done in physics notebook.

- (a) Define electric resistance of a conductor.  
(b) A wire of length  $L$  and resistance  $R$  is stretched so that its length is double and the area of cross section is halved. How will its  
(i) resistance change (ii) resistivity change?
- A house hold uses the following electric appliance:  
(i) Refrigerator of rating 400 W for ten hour each day  
(ii) Two electric fans of rating 80 W each for twelve hours each day  
(iii) Six electric tubes of rating 18 W each for six hours each day

Calculate the electricity bill of the household for the month of May if the cost per unit of electric energy is Rs 5.00.

- Three resistors of  $5\ \Omega$ ,  $10\ \Omega$  and  $15\ \Omega$  are connected in series and the combination is connected to battery of 30V. Ammeter and voltmeter are connected in the circuit. Draw a circuit diagram to connect all the devices in proper correct order. What is the current flowing and potential difference across  $10\ \Omega$  resistance?
- Nichrome wire of length  $l$  and radius 'r' has resistance of  $10\ \Omega$ . How would the resistance of the wire change when:  
(i) Only length of the wire is doubled?  
(ii) Only diameter of the wire is doubled? Justify your answer.
- State the Joule's law of heating. Derive the expression for the same.
- A torch bulb is rated at 3V and 600mA. Calculate its  
a) Power      b) Resistance      c) Energy consumed if it is lighted for 4 hrs.

#### Do biology and chemistry homework in the respective notebooks

- Write the balanced reactions for the following  
(i) Potassium Bromide (aq) + Barium iodide (aq)  $\rightarrow$  Potassium iodide (aq) + Barium Bromide(aq)  
(ii) Zinc carbonate (s)  $\rightarrow$  Zinc oxide (s) + carbon dioxide (g)  
(iii) Hydrogen (g) + chlorine (g)  $\rightarrow$  Hydrogen chloride
- When you mix solutions of lead (II) nitrate and potassium iodide,  
(a) What is the colour of the precipitate formed? Name the compound evolved?

(b) Write a balanced chemical reaction?

(c) Is this a double displacement reaction?

3. Write three equations for decomposition reaction where energy is supplied in the form of heat, light and electricity?

4. Translate the following into chemical equations and balance them.

(1) Hydrogen gas combines with nitrogen to form ammonia.

(2) Hydrogen sulphide gas burns in air to give water and sulphur dioxide.

(3) Potassium metal reacts with water to give potassium hydroxide and hydrogen gas.

5. Why is a Combustion reaction an oxidation reaction?

6. In the reaction  $\text{MnO}_2 + 4\text{HCl} \rightarrow \text{MnCl}_2 + 2\text{H}_2\text{O} + \text{Cl}_2$

(a) Name the substance oxidised.

(b) Name the oxidising agent.

(c) Name the reducing agent and the substance reduced.

7. Name the substrates for the following enzymes

a) trypsin            b) amylase

c) pepsin            d) lipase

8. Give an experiment to prove the essentiality of light for photosynthesis

9. What type of respiration takes place in human muscles during vigorous exercise and why?

10. (i) Draw a well labeled diagram of human digestive system

(ii) Describe the role of following in digestion.

a) Bile    b) Salivary amylase    c) HCl

11. What is the role of diaphragm during inhalation and exhalation?

12. Why and how does water enter continuously into the root xylem of plants?

13. With the help of a labelled diagram of human excretory system, Mention its important part and explain them.