



# DELHI PUBLIC SCHOOL

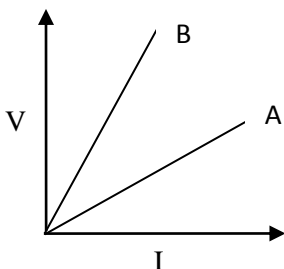
SAIL TOWNSHIP, RANCHI

HALF YEARLY EXAMINATION (2017-18)

Class:- X  
Time- 3 Hrs

Subject:- General Science  
M.M. - 80

- Q1. V-I graphs for the two wires A and B are as shown in figure, If we connect both the wires one by one to the same battery which of the two will produce more heat per unit time? [1]



- Q2. The magnetic field lines of two pairs of magnets are shown in fig. Does it represent correct pattern of field lines? Give reason of your answer. [1]



- Q3. Consider the following chemical reaction  
 $X + \text{Barium chloride} \rightarrow Y + \text{Sodium Chloride}$   
(White precipitate)  
(a) Identify X and Y.  
(b) Identify the type of reaction. [1+1=2]
- Q4. In the experiment 'to show that light is necessary for photosynthesis', the destarched leaf is boiled in alcohol. Answer the following:  
(a) Why is the leaf boiled in alcohol?  
(b) What precaution must be taken while boiling the leaf in alcohol and why? [2]
- Q5. In a voltmeter there are 20 divisions between the 0 mark and 0.5V mark. Calculate the least count of the voltmeter. If the pointer coincides with 8<sup>th</sup> division of the scale what will be the reading of the voltmeter? [1+1=2]
- Q6. Using the electronic configuration, explain how magnesium atom combines with oxygen atom to form magnesium oxide by transfer of electrons. [1+1=2]
- Q7. Write the molecular formula of the following compounds and draw their electron dot structure.  
(i) Ethene and (ii) Ethyne [1+1=2]
- Q8. (i) State any two differences between AC & DC.  
(ii) Name the device that convert  
(a) electrical energy into mechanical energy  
(b) mechanical energy into electrical energy [1+1=2]
- Q9. (a) In the experimental set-up to show that carbon dioxide is produced during respiration what is the role of KOH suspended in the flask?  
(b) What will happen if the set-up is not air tight? Explain. [2]

Q10. Draw a schematic circuit diagram of a circuit consisting of a 9V battery, a 10Ω & 5Ω resistors are connected in series, an ammeter, a rheostat, a plug key and a voltmeter which connected across 10Ω and 5Ω. What is the ammeter and voltmeter reading? [1+1/2+1/2=2]

Q11. Name the products in each case when  
(a) Granulated zinc reacts with sodium hydroxide.  
(b) Carbon-dioxide is passed through lime water. [1+1=2]

Q12. Name two safety measures commonly used in a domestic electric circuit. An electric oven of 2.5kW power rating is operated in domestic electric circuit of 220V that has a current rating of 5A. What result do you expect? Explain. [1/2+1/2+2=3]

OR

(a) Draw a sketch of the pattern of field lines of the magnetic field through and around a current carrying solenoid.  
(b) What is an electromagnet? Which material is used in making an electromagnet?  
(c) How the strength of electromagnet can be increased? [1+1+1=3]

Q13. (a) What are amphoteric oxides? Choose the amphoteric oxides from amongst the following oxides: Na<sub>2</sub>O, ZnO, Al<sub>2</sub>O<sub>3</sub>, CO<sub>2</sub>, H<sub>2</sub>O  
(b) Why non metals do not displace hydrogen from acids? [2+1=3]

OR

A student was given Mn, Zn, Fe, and Cu metals. Identify which of them  
(a) will not displace hydrogen from dilute hydrochloric acid.  
(b) will react with steam to give hydrogen.  
(c) will give hydrogen with dilute nitric acid.  
Write the chemical reactions involved. [1+1+1=3]

Q14. Give reasons for the following:  
(a) The glottis is guarded by epiglottis.  
(b) A plant may die if its roots remain waterlogged for a long time.  
(c) Arteries have thick elastic walls while veins have valves. [1X3=3]

Q15. A coil of insulated copper wire is connected to a galvanometer. What will happen if a bar magnet is (i) pushed into the coil (ii) withdrawn from the coil (iii) held stationary inside the coil? Name the phenomenon involved in the above cases. State the rule to determine the direction of induced current in a coil rotating in a magnetic field. [1+1/2+1/2+1=3]

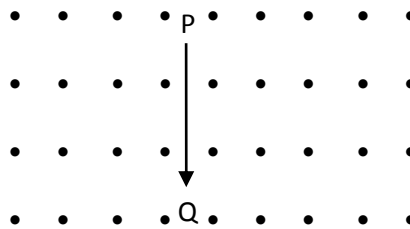
Q16. Write chemical reactions for the reactions taking place when  
a) Lead nitrate crystals are heated.  
b) Ammonia and hydrogen chloride gases are mixed.  
c) water is added to quicklime. [1+1+1=3]

Q17. (a) Which hormone is released into the blood when the sugar level rises? [1X 3=3]  
(b) Name the organ which produces the hormone and its effect on the blood sugar level.  
(c) Also name one digestive enzyme that this organ secretes and write the function of this enzyme.

Q18. With the help of ray diagram state the laws of reflection of light. Why a ray of light striking the reflecting surface normally retraces its path? Show it by ray diagram. [2+1=3]

Q19. State the chemical properties on which the following uses of baking soda are based.  
(i) As an antacid (ii) As soda acid fire extinguisher  
(iii) To make cake and bread soft and spongy. [1+1+1=3]

- Q20. With the help of schematic diagram trace the sequence of events occurring when you step on a sharp object. Name the action. [3]
- Q21. In a village people burn wood and cow dung as fuel for basic necessity. In other nearby village, they have biogas plant in which biowaste is used to prepare biogas. If we compare the situation of both villages, which practice will you prefer the best and why? [3]
- Q22. (a) What is the commercial unit of electrical energy? Express it in Joule.  
 (b) An electric lamp is marked 2.2 kW, 220V. Calculate (i) resistance of the heating element (ii) the cost of using it for 2 hours daily for the month of September, if each unit costs Rs.4.00.  
 (c) Should the heating element of an electric iron made of iron, silver or nichrome wire? Give reason of your answer. [1+3+1=5]
- Q23. (a) Describe an activity to determine the direction of magnetic field produced by a current carrying straight conductor. Also show that the direction of the magnetic field is reversed on reversing the direction of current.  
 (b) Dots represent a uniform magnetic field directed perpendicularly out of the paper. A conductor PQ placed in field carries current in P to Q direction. Show the direction of the force experienced by the conductor. What will happen to the direction of force if the direction of the field and direction of current both are reversed. [3+1+1=5]



- Q24. (i) Differentiate between roasting and calcinations. Explain the two with the help of suitable equations.  
 (ii) How is zinc extracted from zinc oxide? Give equation.  
 (iii) How is sodium obtained from molten sodium chloride? Give suitable chemical equation. [2+1+2=5]
- Q25. (i) List two reasons for carbon forming a large number of compounds. Name the type of bonding in most of its compounds.  
 (ii) Why carbon compounds generally have low melting point and boiling point.  
 (iii) Why carbon compounds generally not conduct electricity? [3+1+1=5]
- Q26. (a) Draw a neat and labeled diagram of human excretory system.  
 (b) Describe in brief the function of:  
 (i) Kidneys (ii) Ureters (iii) Urinary bladder (iv) Urethra [5]
- Q27. (a) Draw a neat diagram of a neuron and label:  
 (i) The part which acquires the information.  
 (ii) The part through which the information travels.  
 (iii) The part where the information is converted to chemical signals for onward transmission.  
 (b) Name the hormone secreted by thyroid gland. What is its function? Why is the use of iodized salt advisable? [5]

OR

- (a) Design an experiment to demonstrate that roots bend in the direction of water stimulus.  
 (b) Give the function of following plant hormones:  
 (i) Abscissic acid (ii) Cytokinin