

A.P. SET CODE
<b>C</b>

# MT - y

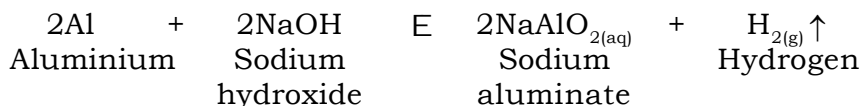
2017 \_\_ \_\_ 1100 - MT - y - SCIENCE & TECHNOLOGY (72) - I - SET - c (E)

**Time : 2 Hours      Preliminary Model Answer Paper      Max. Marks : 40**

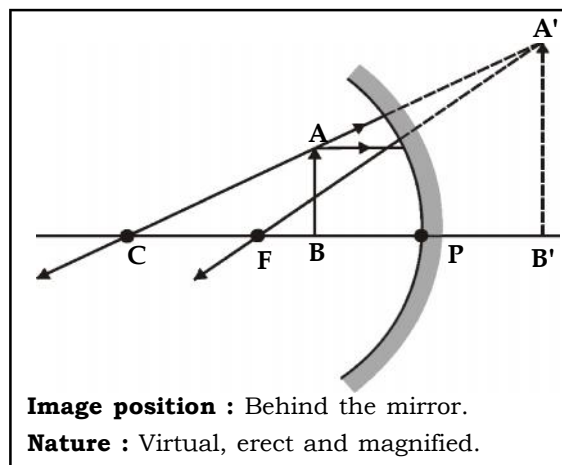
<b>A.1.</b>	<b>(A) Answer the following sub-questions :</b>	
(1)	<b>Fill in the blanks and rewrite the complete statements :</b>	
	(i) The element eka-silicon in Mendeleev's periodic table is known is <b>germanium</b> in the modern periodic table.	1
	(ii) The process of rusting of iron is <b>oxidation</b> process.	1
	(iii) The phenomenon of splitting of light into its component colours is <b>dispersion</b> .	1
(2)	<b>State whether the following statements are true or false and if false, write the correct statement:</b>	
	(i) True	1
(3)	<b>Find the odd man out :</b>	
	(i) Bar Magnet - Others are devices in which one form of energy is converted into another.	1
<b>Q.1.</b>	<b>(B) Rewrite the following statements by selecting the correct options :</b>	
(1)	When light travels from denser to rarer medium it will <b>bend away from the normal</b> .	1
(2)	Cu	1
(3)	Equivalent resistance of a series connection of resistors is <b>greater than the greatest resistance</b> .	1
(4)	<b>Litmus paper</b> is not required to find the pH of a solution.	1
(5)	<b><math>I \propto V</math> graph is linear</b> is true according to Ohm's law.	1

**A.2. Answer the following subquestions : (any five)**

- (1) When sodium hydroxide is added to test tube containing aluminium ribbon, aluminium being amphoteric in nature, reacts with sodium hydroxide to form hydrogen gas and sodium aluminate. **2**



- (2) **2**



- (3) (i) A magnifying glass works on the principle of simple microscope. **2**  
 (ii) When an object is placed within the focal length of a convex lens we get a virtual, erect and magnified image on the same side of the lens.  
 (iii) This principle is used by the watch repairer to see the small parts more clearly.  
 Hence, watchmakers use a magnifying glass while repairing wristwatches.

- (4) (i) Salts are usually solids. **2**  
 (ii) They have high melting point and boiling point.  
 (iii) Salts are usually soluble in water.  
 (iv) Like acids and bases, solutions of salts in water conduct electricity i.e salts are electrolytes. Salt solutions conduct electricity due to the presence of ions in them.  
 (v) Salts are ionic compounds. Every salt has a positively charged ions (cations) and negatively charged ions (anions).  
 (vi) E.g. : Sodium chloride (NaCl), Calcium chloride (CaCl<sub>2</sub>).

- (5) (i) The group number indicates the number of valence electrons i.e. electrons present in the outermost shell. **2**  
 (ii) The atoms of halogens have seven electrons in their outermost

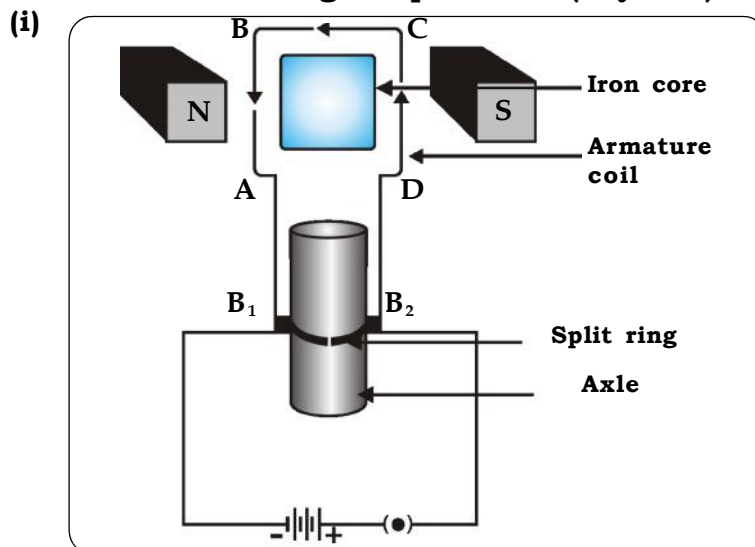
	orbit with outermost orbit incompletely filled. Hence, halogens are placed in group VII A.	
(6)	<p>(i) The Government of India has laid down laws and guidelines for prevention, control and abatement of pollution.</p> <p>(ii) The Central Pollution Control Board (CPCB) and Maharashtra Pollution Control Board (MPCB) are the government bodies who confirm these laws being followed by all the organisations like factories, industrial estates, municipalities, Zilla Parishads, Panchayat Samities and Grampanchayats.</p>	<b>2</b>
<b>A.3.</b>	<b>Answer the following subquestions : (any five)</b>	
(1)	<p>(a) Electric power : Electric power is the electric work done per unit time. OR Electric power is the rate at which electrical energy is consumed.</p> <p>(b) Given : Power = <math>\frac{750}{1000}</math> W,  <math>t = 2 \times 30</math>  <math>= 60</math> hrs  The energy consumed = Pt  <math>= \frac{750}{1000} \times 60</math>  <math>= \frac{450}{10}</math>  <math>= 45</math> kWh</p>	<b>3</b>
(2)	<p>(i) Hydrogen resembles alkali metals as well as halogens. Therefore, no fixed position could be given to hydrogen in the periodic table.</p> <p>(ii) Isotopes of same elements have different atomic masses; therefore each one of them should be given different position. On the other hand as isotopes are chemically similar, they had to be given same position.</p> <p>(iii) At certain places, an element of higher atomic mass has been placed before an element of lower atomic mass. For eg, cobalt (Co = 58.93) is placed before nickel (Ni = 58.71).</p> <p>(iv) Some elements placed in the same sub-group had different properties. Eg. Manganese (Mn) is placed with halogens which totally differ in the properties.</p>	<b>3</b>
(3)	<p>Characteristics of magnetic lines of force or magnetic field lines:</p> <p>(i) Magnetic lines of force (or magnetic field lines) are closed continuous curves. They start from the north pole and end on</p>	<b>3</b>

	<p>the south pole.</p> <p>(ii) The tangent at any point on a magnetic line of force gives the direction of the magnetic field at that point.</p> <p>(iii) No two magnetic lines of force can intersect each other.</p> <p>(iv) Magnetic lines of force are crowded where the magnetic field is strong and far from each other where the field is weak.</p>					
(4)	<table border="1"> <thead> <tr> <th data-bbox="320 508 834 548">Direct current</th> <th data-bbox="834 508 1339 548">Alternating current</th> </tr> </thead> <tbody> <tr> <td data-bbox="320 548 834 1012"> <p>(i) The magnitude and direction of current are constant.</p> <p>(ii) This type of current cannot be used for large scale use of electricity for house hold purpose.</p> <p>(iii) The frequency of direct current is zero.</p> <p>(iv) This current cannot be supplied over long distances through wires.</p> </td> <td data-bbox="834 548 1339 1012"> <p>(i) The magnitude and direction of current reverse periodically.</p> <p>(ii) This type of current is used in electrical household appliances such as iron, heater etc.</p> <p>(iii) The frequency of AC current in India is 50 Hz.</p> <p>(iv) This current can be supplied over long distances through wires.</p> </td> </tr> </tbody> </table>	Direct current	Alternating current	<p>(i) The magnitude and direction of current are constant.</p> <p>(ii) This type of current cannot be used for large scale use of electricity for house hold purpose.</p> <p>(iii) The frequency of direct current is zero.</p> <p>(iv) This current cannot be supplied over long distances through wires.</p>	<p>(i) The magnitude and direction of current reverse periodically.</p> <p>(ii) This type of current is used in electrical household appliances such as iron, heater etc.</p> <p>(iii) The frequency of AC current in India is 50 Hz.</p> <p>(iv) This current can be supplied over long distances through wires.</p>	3
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(5)	<p><b>Redox reaction -</b></p> <p>A chemical reaction in which oxidation and reduction takes place simultaneously is called redox reaction.</p> <p>Example of Redox reaction :</p> $  \begin{array}{ccc}  & \text{Oxidation (O}_2 \text{ added)} & \\  & \downarrow & \downarrow \\  2\text{H}_2\text{S} + \text{SO}_2 & \rightarrow & 3\text{S} + 2\text{H}_2\text{O} \\  & \uparrow & \uparrow \\  & \text{Reduction (O}_2 \text{ lost)} &   \end{array}  $ <p>In the above reaction SO<sub>2</sub> is reduced and H<sub>2</sub>S is oxidized.</p>	3				
(6)	<p>Each of us can contribute individually or through collective efforts to reduce pollution in the following ways:</p> <p>(i) Plant trees and develop gardens, parks and open grounds in the locality.</p> <p>(ii) Save fossil fuels and reduce pollution, minimise electricity consumption.</p> <p>(iii) Use public transport instead of private vehicles.</p> <p>(iv) Use nonconventional source of energy like solar, wind energy, tidal energy.</p> <p>(v) Maintain vehicles in tuned conditions.</p>	3				

- (vi) Keep your home and public places clean. Keep your own locality free from pollution.

**A.4. Answer the following subquestion : (any one)**

(1)



- (ii) **Principle :** An electric motor works on the principle that a current-carrying conductor placed in a magnetic field experiences a force. The forces acting on different parts of the coil of a motor produce the rotational motion of the coil.

(iii) **Uses of an electric motor :**

- (1) In domestic appliances such as a mixer, a blender, a refrigerator and washing machine.
  - (2) In an electric fan, a hair dryer, a record player, a tape recorder and a blower.
  - (3) In an electric car, a rolling mill, an electric crane, an electric lift and an electric train.
- (2) (a) The ability of the eye lens of adjusting focal length is known as power of accommodation.
- (b) (i) The earlier defect is myopia  
(ii) After 60 years Ramesh has presbyopia (old age hypermetropia).  
(iii) Bifocal glasses.



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