

# SUMMATIVE ASSESSMENT-I, 2016

## SCIENCE

Time : 3 hrs.

Class X

M.M. : 90

Date – 10.09.2016

### General Instructions :

1. The question paper comprises of **two Sections, A and B**. You are to attempt both the sections.
2. **All** questions are **compulsory**
3. **All** questions of **Section-A** and **all** questions of **Section-B** are to be attempted separately.
4. Question numbers **1 to 3** in **Section-A** are **one mark** questions. These are to be answered in **one word** or in **one sentence**.
5. Question numbers **4 to 6** in **Section-A** are **two marks** questions. These are to be answered in about **30 words** each.
6. Question numbers **7 to 18** in **Section-A** are **three marks** questions. These are to be answered in about **50 words** each.
7. Question numbers **19 to 24** in **Section-A** are **five marks** questions. These are to be answered in about **70 words** each.
8. Question numbers **25 to 33** in **Section-B** are multiple choice questions based on practical skills. Each question is a **one mark** question. You are to select one most appropriate response out of the four provided to you.
9. Question numbers **34 to 36** in **Section-B** are questions based on practical skills. Each question is of **two marks**.

### SECTION-A

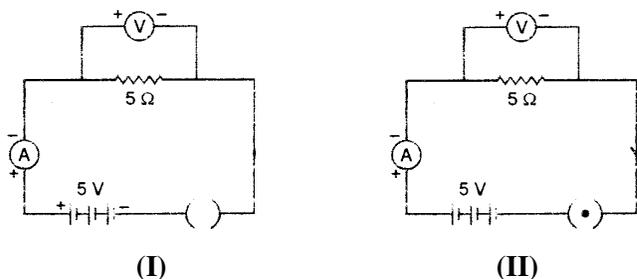
- Q.1** Why does a compass needle get deflected when brought near a bar magnet? (1)
- Q.2** List two gases generated in a bio-gas plant. (1)
- Q.3** What happens between the two neurons at the synapse? (1)
- Q.4** Why does the colour of copper sulphate solution change when an iron nail is dipped in it ? Write two observations. (2)
- Q.5** a) Why does a milkman add a very small amount of baking soda to fresh milk? (2)  
b) Write the chemical formula of baking soda.
- Q.6** How is the small intestine designed to absorb the digested food? (2)
- Q.7** a) Define the unit of current. Name the instrument used to measure electric current. How is it connected in a circuit? (3)  
b) Draw an electric circuit to describe ohm's law. Label the circuit components used to measure electric current and potential difference.
- Q.8** Write one application of each of the following - (3)  
a) Right hand thumb rule  
b) Fleming's left hand rule  
c) Fleming's right hand rule
- Q.9** A coil of insulated copper wire is connected to a galvanometer. What will happen if a bar magnet is (3)  
a) pushed into the coil  
b) withdrawn from inside the coil  
c) held stationary inside the coil?
- Q.10** a) Why is hydrogen considered a better and cleaner fuel than CNG? (3)  
b) Mention any two areas where solar cells are used as source of energy.  
c) State the biggest hindrance in trapping geothermal energy.

- Q.11** Shivam's father is a builder. While working on a project of developing a residential complex, he ensured that the surrounding was made green by planting trees. He also installed solar water heaters on the roof tops and solar panel for lightning streets of the complex at night. (3)
- By opting the devices based on solar energy in the residential complex, how has Shivam's father made all the future residents of the complex contribute to save energy crises?
  - Explain two values exhibited by Shivam's father.
- Q.12** Write the balanced equations for the following reactions and identify the type of reaction in each case. (3)
- Barium chloride + potassium sulphate  $\rightarrow$  Barium sulphate + potassium chloride
  - Silver chloride  $\xrightarrow{\text{sunlight}}$  Silver + chlorine
- Q.13** A compound which is prepared from gypsum has the property of hardening when mixed with proper quantity of water. (3)
- Identify the compound
  - Write the chemical equation for its preparation.
  - Mention one important use of this compound.
- Q.14** A metal 'X' acquires a reddish brown coating on its surface on exposure to moist air. (3)
- Identify the metal 'X' and name the process responsible for this change.
  - Name and write chemical formula of the Reddish Brown Coating on the metal.
  - Name a method to prevent the process.
- Q.15** Explain with the help of an activity that ionic compounds conduct electricity in aqueous solution. Also draw a neat labelled diagram. (3)
- Q.16** (3)
- State the role of –
    - Diaphragm
    - Alveoli
  - Write the function of –
    - Renal artery
    - Renal vein
  - What are the raw materials required for photosynthesis?
- Q.17** (3)
- How are fats digested in our bodies? Where does this process take place?
  - What is the role of saliva in the digestion of food?
- Q.18** (3)
- What is a tropic movement?
  - How do auxin promote the growth of a tendril around a support?
  - Which plant hormone inhibit growth?
- Q.19** (5)
- Distinguish between the terms, electrical resistance and resistivity of a conductor.
  - A copper wire of resistivity  $1.6 \times 10^{-8} \Omega\text{m}$  has a cross-sectional area of  $20 \times 10^{-4} \text{cm}^2$ . Calculate the length of the wire required to make a  $10\Omega$  coil.
- Q.20** (5)
- How many joule is equivalent to 1 kWh ?
  - Derive the expression for the heat produced due to a current 'I' flowing for a time interval 't' through a resistor 'R' having a potential difference 'V' across its ends.
  - Compute the heat generated while transferring 96000 coulomb of charge in one hour through a potential difference of 50V.
- Q.21** (5)
- Draw the pattern of magnetic field lines through and around a current-carrying solenoid. What does the magnetic field pattern inside the solenoid indicate? How can this principle be utilized to make an electromagnet? State two ways by which strength of this electromagnet can be increased?

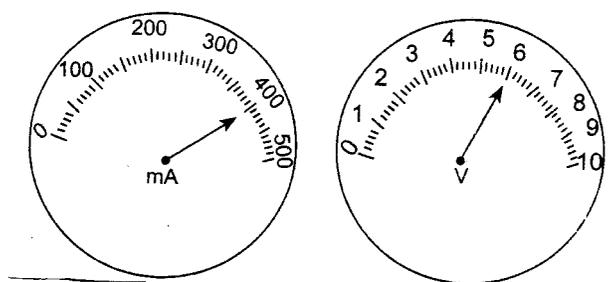
- Q.22** a) Write two differences between Roasting and calcination. (5)  
 b) How is impure copper purified by electrolytic refining? Draw a labelled diagram also.
- Q.23** A student dropped few pieces of marble in dil. HCl contained in a test tube. The evolved gas was then passed through lime water. What change would be observed in lime water? What will happen if excess of the gas is passed through lime water? Also write balanced chemical equations for all the chemical reactions involved. (5)
- Q.24** a) Draw a labelled structure of a neuron and explain its function. (5)  
 b) What is the role of thyroxin in our body?  
 c) State two important functions of fore brain in human being.

### SECTION – B

- Q.25** For the circuits shown in figures I and II, the ammeter readings would be – (1)



- a) 1 A in circuit I and 0 A in      b) 0 A in both circuits  
 c) 1 A in both circuits              d) 0 A in circuit I and 1 A in circuit II.
- Q.26** The current flowing through a conductor and the potential difference across its two ends, as per readings of the ammeter and the voltmeter, are shown below. (1)

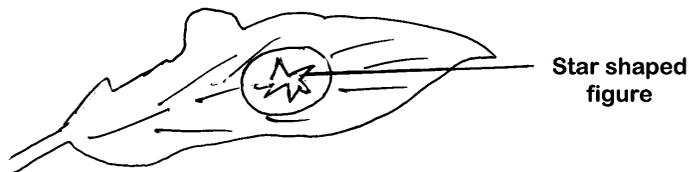


The resistance of the conductor would be –

- a)  $0.15 \Omega$                       b)  $1.5 \Omega$                       c)  $15 \Omega$                       d)  $150 \Omega$
- Q.27** The pH value of four solution A, B, C, and D are 6, 8, 10 and 5 respectively. Arrange the solution in the increasing order of Hydrogen ion concentration. (1)  
 a)  $A < B < C < D$                       b)  $C < A < D < B$   
 c)  $D < C < B < A$                       d)  $C < B < A < D$
- Q.28** A colourless sample was tested with a strip of pH paper. The colour of the strip changes to green. The sample should be – (1)  
 a) dil. HCl                              b) sodium hydroxide  
 c) distilled water                      d) citric acid
- Q.29** Which of the following reaction is possible (1)  
 a)  $\text{Cu} + \text{FeSO}_4 \rightarrow \text{CuSO}_4 + \text{Fe}$                       b)  $\text{Fe} + \text{ZnSO}_4 \rightarrow \text{FeSO}_4 + \text{Zn}$   
 c)  $\text{Zn} + \text{CuSO}_4 \rightarrow \text{ZnSO}_4 + \text{Cu}$                       d)  $\text{Cu} + \text{ZnSO}_4 \rightarrow \text{CuSO}_4 + \text{Zn}$
- Q.30** When dil. HCl is added to granulated Zinc placed in a test tube. The observation made is- (1)  
 a) Surface of metal turns shining                      b) Reaction mixtures turn milky  
 c) Odour of chlorine is observed                      d) A colourless and odourless gas is evolved with bubbles
- Q.31** Aluminium metal powder is placed in each of the four test tubes containing  $\text{FeSO}_4$ ,  $\text{CuSO}_4$ ,  $\text{ZnSO}_4$  and  $\text{Al}_2(\text{SO}_4)_3$  respectively to determine the reactivity of metals. The student will observe the chemical reaction in the test tube containing. (1)

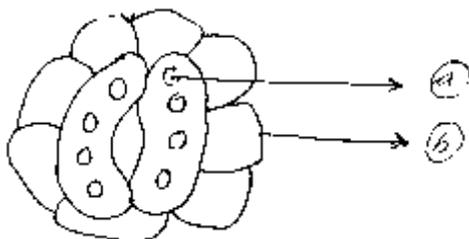
- a)  $\text{FeSO}_4$ ,  $\text{CuSO}_4$  and  $\text{ZnSO}_4$                       b)  $\text{CuSO}_4$  and  $\text{ZnSO}_4$  only  
 c)  $\text{CuSO}_4$  only    d)  $\text{ZnSO}_4$  and  $\text{Al}_2(\text{SO}_4)_3$  only

**Q.32** A star shaped figure was cut in the black paper strip used for covering the leaf of a destarched plant, used for demonstrating that light is necessary for photosynthesis. At the end of the experiment when the leaf was tested for starch with iodine, the star shaped figure on the leaf was found to be – (1)



- a) Colourless    b) Brown in colour  
 c) Green in colour                                      d) Blue black in colour

**Q.33** In the diagram of stomata shown below, the labellings a & b refers to – (1)



- a) Stoma and guard cell                              b) Chloroplast and epidermal cell  
 c) Epidermal cell and stoma                      d) Epiblema and epidermal cell

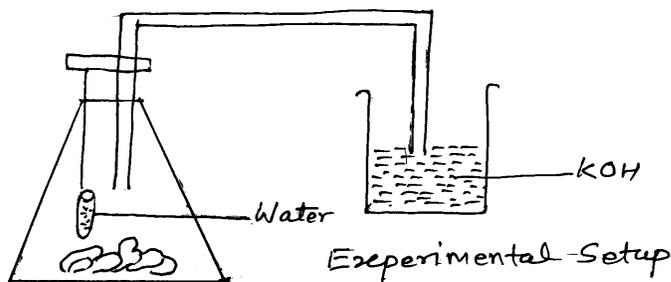
**Q.34** Name the following electrical circuit components- (2)

- a)                      b)                      c)                      d)

**Q.35** Burning of Magnesium ribbon and heating of ferrous sulphate crystals are two chemical changes. (2)

- a) State one difference between these two chemical changes.  
 b) Name the products obtained from both the chemical reactions.

**Q.36** (2)



A student set of an experiment to show that  $\text{CO}_2$  is evolved during respiration, committed some errors. The setup was as above –

- A) How can the experimental set up be corrected for desirable result ?  
 i) Water should be taken in the beaker and KOH solution in the conical flask.  
 ii) Water should be taken in the conical flask and KOH solution in the small test tube.  
 iii) KOH solution should be taken in the conical flask.  
 iii) KOH solution should be taken in the small test tube inside the flask and water should be taken in the beaker.  
 B) Define respiration.

