Subject Code : **83E**
SSLC Summative Assessment – 1 for the Year 2024 – 25

SCIENCE
(English Version)

Time : 10.00 a.m. to 1.15 p.m.]   [Max. Marks : 80

Instructions *: 1) There are three Parts in the question paper :*
        Part – A : Physics, Part – B : Chemistry, Part – C : Biology*.*
     *2) This question paper consists of **38** questions.*
     3) Follow the instructions given against the questions.
     4) Figures in the right hand margin indicate maximum marks for the questions.
     *5) The maximum time to answer the paper is given at the top of the question paper. It includes **15** minutes for reading the question paper.*

PART – A
(Physics)

I. Four alternatives are given for each of the following questions/incomplete statements. Choose the correct alternative and write the complete answer along with its letter of alphabet.   **3×1=3**

   1) The S.I. Unit of potential difference is
     A) Ampere   B) Volt   C) Ohm   D) Coulomb

   2) In Fleming's left hand rule, the forefinger indicates
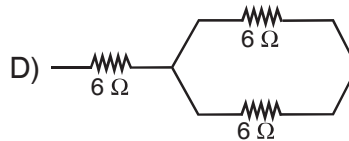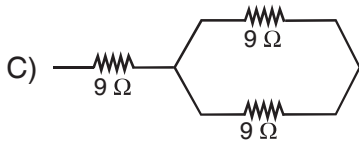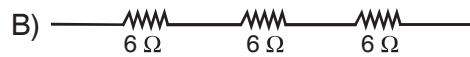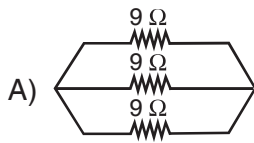   A) Magnetic field   B) Electricity
     C) Motion   D) Potential difference

   3) Among the following arrangements of resistors, a combination that gives the total resistance of 13.5 Ω is

II. Answer the following questions.   **3×1=3**

   4) 'Cross section of a conductor is directly proportional to the flow of current.' Give reason.

   5) The magnetic field produced in a circular coil of conductor having ten turns is ten times as large as that is produced by a single turn. Give reason.

   6) Can an electric heater of 2 kW be connected to a domestic circuit rated 5 A and has a potential difference of 220 V ? Support your answer.

P.T.O.

III. Answer the following questions.   **2×2=4**

7) Draw a circuit diagram that shows combination of resistors in parallel.

8) Draw the diagram that indicates the field lines of magnetic field around current carrying straight conductor.

IV. Answer the following questions.   **3×3=9**

9) An electric lamp whose resistance 25 Ω and a conductor of 5 Ω resistance are connected to a 5 V battery in series. Calculate

   i) The total resistance of the circuit

   ii) The current flowing in the circuit

   iii) Potential difference across the electric lamp and the conductor.

   OR

   50 J of heat is produced each second in a 2 Ω resistance. Find the potential difference across the resistor.

10) In domestic circuit,

   a) What are the reasons for overloading ?

   b) What is the need of 15 A and 5 A circuit ?

11) Explain an activity to determine the flow of current is different for different components.

V. Answer the following questions.   **2×4=8**

12) Explain an activity to draw the field lines around a bar magnet using a compass and a bar magnet. Write the properties of magnetic field lines.

   OR

   Explain an activity to show that "a current carrying conductor in a magnetic field experiences mechanical force." Explain the rule that helps to find the direction of force exerted on conductor.

13) a) Resistivity of materials A, B and C at 20°C are given in table. Which material can be used as conductor and which material can be used as an insulator ? Justify your answer.

A	B	C
2.63×10^{-8} Ωm	1.62×10^{-8} Ωm	10^{12} Ωm

   b) Why does the cord of an electric heater not glow while the heating element does ?

PART – B
(Chemistry)

VI. Four alternatives are given for each of the following questions/incomplete statements. Choose the correct alternative and write the complete answer along with its letter of alphabet.   **3×1=3**

14) An endothermic reaction among the following is

   A) Burning of natural gas   B) Heating of lead nitrate

   C) Decomposition of organic matter   D) Breaking down of complex food

15) The litmus paper that changes its colour when exposed to the fumes of nitric acid is

   A) Wet blue litmus paper   B) Dry blue litmus paper

   C) Wet red litmus paper   D) Dry red litmus paper

16) On heating, the copper powder becomes black. This is due to

    A) burning of copper

    B) the formation of copper carbonate

    C) oxidation of copper

    D) the absorption of heat

VII. Answer the following questions.   **3×1=3**

    17) What are alkalis ?

    18) Keeping food in air tight containers is a better practice. Why ?

    19) Dentists recommend the use of basic tooth paste. Why ?
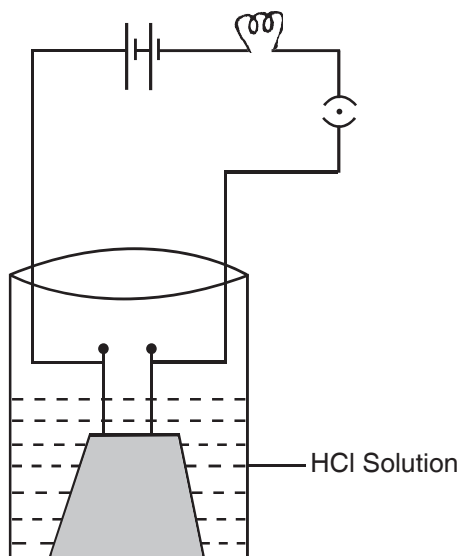
VIII. Answer the following questions.   **3×2=6**

    20) Balance the following chemical equations.

        a) $BaCl_2 + H_2SO_4 \longrightarrow BaSO_4 + HCl$

        b) $Al + CuCl_2 \longrightarrow AlCl_3 + Cu$

        OR
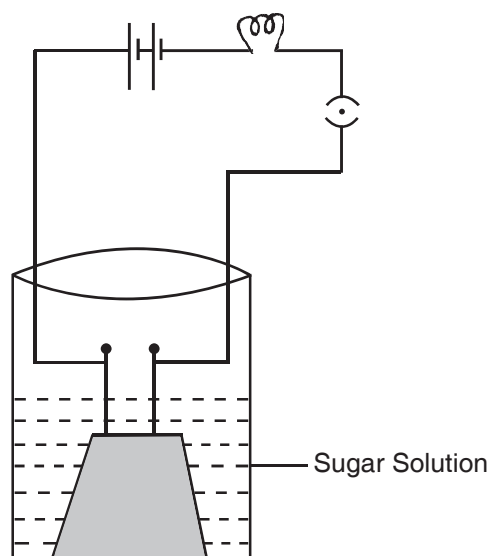
    Translate the following statement into chemical equation and balance the equation.

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

    21) Observe the below figure. Answer the question given.
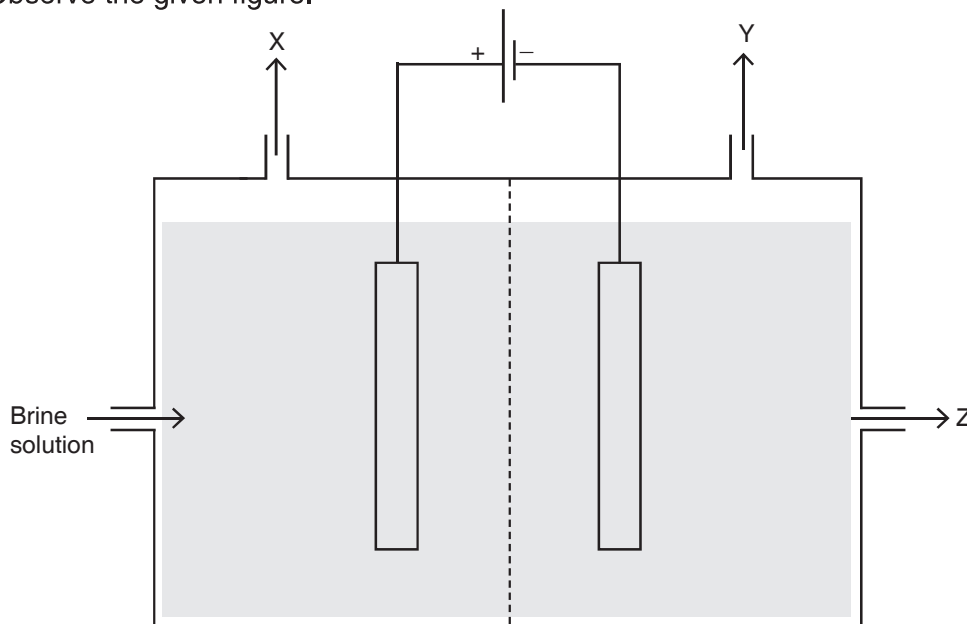

        SET 1   SET 2

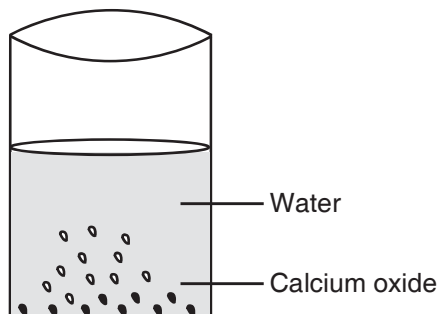   In which set does the bulb glow ? Give reason for your answer.

        OR

Observe the given figure.

a) Name X, Y and Z in the above figure.
b) Name the product produced by the action of 'X' on dry slaked lime.

22) Observe the given figure that demonstrates a chemical change and answer the following questions.

a) A product 'P' is obtained in this reaction. On passing carbon dioxide on P, a salt 'Q' is obtained. Name 'P' and 'Q'.

b) What happens when product 'Q' is heated ?

IX. Answer the following questions.   **3×3=9**

23) Draw the diagram showing the arrangement of apparatus for the reaction of zinc granules with dilute sulphuric acid and testing hydrogen gas by burning.
Label (i) Zinc granules (ii) Delivery tube.

24) a) What observations helps to determine whether a chemical reaction has taken place ?
    b) Name the gases that liberate at cathode and anode during the electrolysis of water.

25) Applying baking soda to the honeybee stung area is an immediate relief. How ? Explain.

OR

A student detects the pH of A, B, C and D solutions as 12, 3, 6 and 7 respectively. Predict the nature of these solutions. Justify your answer.

X. Answer the following question.   **1×4=4**

26) An iron nail is kept immersed in a beaker having copper sulphate solution. After few minutes, a brownish coat develops on the iron nail and the blue colour of copper sulphate solution fades.

   i) Mention the type of chemical reaction and write the chemical equation for the same.

   ii) What are the reasons for the changes that happen in this reaction ?

PART – C
(Biology)

XI. Four alternatives are given for each of the following questions/incomplete statements. Choose the correct alternative and write the complete answer along with its letter of alphabet.   **2×1=2**

27) Glucose breaks down into pyruvate in

   A) Mitochondria   B) Yeast cells

   C) Muscle cells   D) Cytoplasm

28) Cerebrum : Thinking : : Medulla : _____

   A) Vomiting   B) Dilation of the pupil

   C) Smelling   D) Walking on straight line

XII. Answer the following questions.   **2×1=2**

29) The arteries have thick elastic wall whereas the veins have thin wall with valves. Why ?

30) Observe the figure given below.
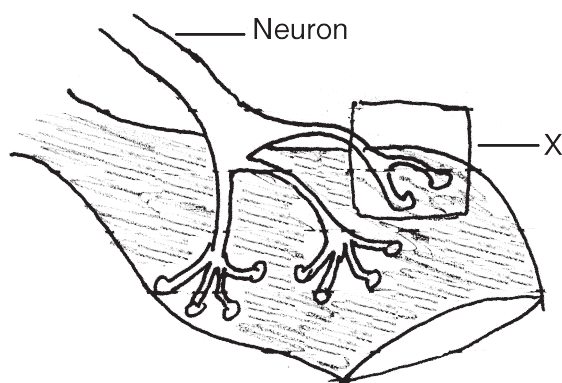
   What is the significance of the junction 'X' ?

XIII. Answer the following questions.   **3×2=6**

31) Mention the importance of thyroxine hormone and the effect caused due to the under secretion of this hormone in our body.

32) Draw the diagram to show the structure of nephron and label Bowman's capsule.

33) How does growth independent movement occur in touch me not plant ? Explain.

   OR

   A potted bean plant is kept in a dark room with a small ventilation. What changes can be observed in this plant after three or four days ? Give reason for your answer.

XIV. Answer the following questions. **3×3=9**

34) "The structure of the human heart is complement to obtain more oxygen and to yield more energy in our body." Justify the statement scientifically.

35) Draw the diagram to show the structure of human brain. Label (i) Pons (ii) Cerebellum.

36) The heart beat increases as soon as we see a snake. Explain the chemical co-ordination that takes place in our body during this situation.

XV. Answer the following question. **1×4=4**

37) a) Mention the different strategies of excretion in the plants.

b) What is the function of guard cells in stomata ?

OR

a) Mention the role of the following enzymes in the human alimentary canal.

i) Salivary amylase

ii) Pepsin

iii) Trypsin.

b) What is peristaltic movement ?

XVI. Answer the following question. **1×5=5**

38) Briefly explain the following events that take place in the plant body.

a) Conversion of solar energy into food.

b) Creation of suction pressure during inorganic translocation.

c) Translocation of food to the tissues that have less pressure.

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