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SUMMATIVE ASSESSMENT – I, 2014
SCIENCE
Class – X

Time Allowed : 3 hours **Maximum Marks : 90**

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 **Sections-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 are two **marks** questions.

SECTION-A

1 Define photosynthesis. 1

2 Name the type of a current given by a cell. 1

3 Compare the energy produced during fission of a uranium atom with the energy produced with due to combustion of a carbon atom from coal. 1

4 A white powdery substance having strong smell of chlorine gas is used for disinfecting drinking water to make it free from germs. Identify the substance and write its chemical formula. Also write chemical equation for its preparation. 2

5 Write one word each for the following alloys : 2

(i) In which one of the metals present is mercury.

(ii) Which has a low melting point and is used in joining metals for electrical work.

(iii) Which is used for making utensils and decoration articles.

(iv) Which is used for making medals and statues.

6 Write two differences between the response of the plants and response of the animals to stimuli. 2

7 Complete and balance the following chemical equations : 3

(i) $CaCO_3 + HCl \rightarrow$

(ii) $Al + HCl \rightarrow$

(iii) $MnO_2 + HCl \rightarrow$

8 (a) Which metal will be extracted by : 3

(i) reduction with carbon

(ii) electrolytic reduction

(iii) reduction with aluminium

(iv) reduction with heat alone

(b) Write a chemical equation for any of the above four parts.

9 Explain how washing soda is obtained from sodium carbonate ? Which type of salt it is Write any one use of washing soda.

10 Explain how the following metals are obtained from their compounds by reduction process : 3
(a) Metal X which is low in reactivity series.
(b) Metal Y which is in the middle of reactivity series.
(c) Metal Z which is high in the reactivity series.

11 Mention three characteristics features of hormonal secretions in human beings. 3

12 Name three life processes which are essential for maintaining life and briefly explain the functioning of any one of them. 3

13 (a) Draw labelled diagram of neuron muscular junction. 3
(b) Identify the parts of a neuron :
(i) Where information is acquired.
(ii) Through which information travels.
(iii) Where the impulse must be converted into a chemical signal.

14 When a resistor R is connected to a battery of 3 V, it draws a current of 1 ampere, find the value of R. If an identical resistor is connected in parallel with it find the current that flow through the circuit. 3

15 Name and define the SI unit of current. Calculate the number of electrons that flows through a conductor in 1 second to constitute a current of 1 ampere. (Charge on an electron □1.6□10□19 coulomb) 3

16. Name and state the rule on which an electric motor works. List three electrical appliances in which these motors are used. 3

17 Ankita visited a village and saw that cow dung cakes are still being used as fuel there. She decided to educate the villagers to create awareness among them about the other sources of energy. Villagers were very happy to know about the alternative sources of energy. Now answer the following questions : 3
(i) Why is the burning of cow dung cake not advisable ?
(ii) Name two other sources of energy suggested by Ankita to the villagers.
(iii) What qualities of Ankita are reflected in her actions ?

18 any three qualities of an ideal source of energy. 3

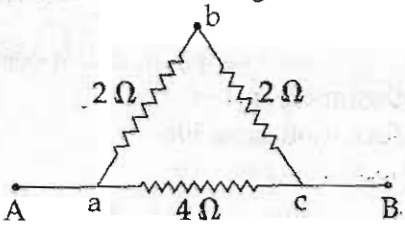
19 (a) A student dropped a few pieces of marble in dilute hydrochloric acid contained in a test tube. The evolved gas was passed through lime water. What change would be observed in lime water ? Write balanced chemical equations for both the changes observed. 5
(b) State the chemical property in each case on which the following uses of baking soda are based :
(i) as an antacid
(ii) as a constituent of baking powder.

20 Identify the type of chemical reaction in the following statements and define each of them : 5
(i) Digestion of food in our body
(ii) Rusting of iron
(iii) Heating of manganese dioxide with aluminium powder
(iv) Blue colour of copper sulphate solution disappears when iron filings are added to it
(v) Dilute hydrochloric acid is added to sodium hydroxide solution to form sodium chloride and water

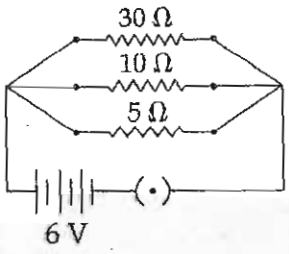
21 (a) State three common features of respiratory organs of animals. 5
(b) Write two points of difference between aerobic respiration and anaerobic respiration.

22 With the help of a circuit diagram prove that when a number of resistors are connected in parallel the reciprocal of the equivalent resistance of the combination is equal to the sum of the reciprocals of the individual resistances of the resistors. 5

Find the resistance between A and B in the following network



23 Two wires A and B are of equal length and have equal resistances. If the resistivity of A is more than that of B, which wire is thicker and why ? For the electric circuit given below calculate : 5



(i) current in each resistor,
(ii) total current drawn from the battery, and
(iii) equivalent resistance of the circuit.

24 (a) Consider a circular loop of wire lying in the plane of the table. Let the current pass through the loop clockwise. Apply the right hand rule to find out the direction of the magnetic field inside and outside the loop. 5

(b) What is a solenoid ? Draw a sketch of the pattern of field lines of the magnet field through and around a current carrying solenoid.

SECTION – B

25 Ion which is responsible for the change of red litmus to blue when it is dipped in an alkali is : 1

(a) Hydride (b) Sodium
(c) Hydronium (d) Hydroxyl

26 You are given solutions A and B whose pH values are 6 and 8 respectively. What do you infer from this information ? 1

(a) Strength of solution B is higher than A
(b) A is an acid while B is a base.
(c) Both are acid solutions.
(d) Both are base solutions.

27 The colour of anhydrous ferrous sulphate ($FeSO_4$) is : 1

(a) blue (b) white
(c) green (d) colourless

28 Betty added Aluminium metal to colourless solution of Zinc sulphate. After half an hour the solution was observed. It was colourless. She recorded her observations in the following statements. 1

(i) No reaction occurred
(ii) Reaction occurred and aluminium sulphate was formed
(iii) zinc is more reactive than Aluminium.
(iv) Aluminium is more reactive than Zinc.

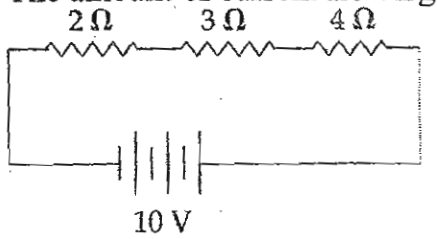
The correct observations are :

(a) (i), (ii) (b) (ii), (iii)
(c) (iii), (iv) (d) (ii), (iv)

29 A few small pieces of aluminium metal were added to ferrous sulphate solution. It was observed that :

(a) Pale green colour of solution disappears, and it becomes colourless.
(b) Pale green colour of solution persists.
(c) Pale green colour of solution turns blue.
(d) Pale green colour of solution turns red.

30 The amount of current flowing in the following circuit is : 1

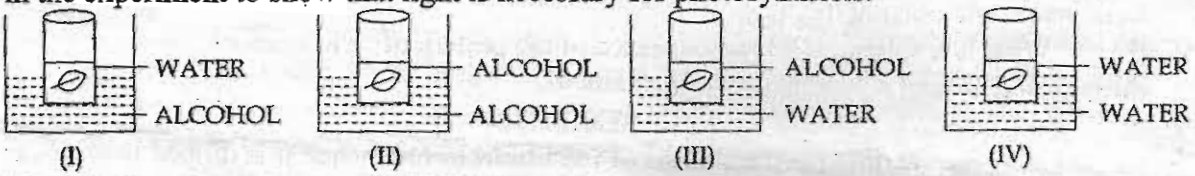


(a) 1.11 A (b) 5 A (c) 3.33 A (d) 2.5A

31 Two wires of resistance R_1 and R_2 are joined in parallel. The equivalent resistance of the combination is— 1

(a) R_1R_2/R_1+R_2
(b) R_1+R_2
(c) R_1xR_2
(d) R_1/R_2

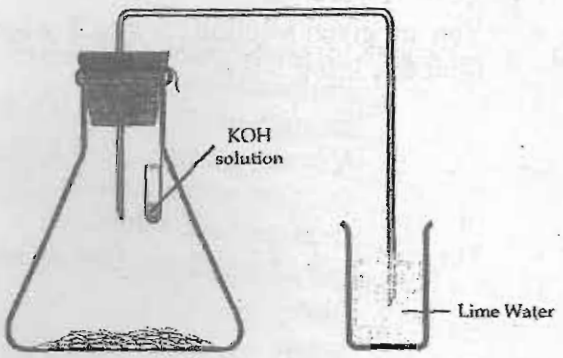
32 The figures given below illustrate boiling of leaf to remove chlorophyll. This is one of the steps in the experiment to show that light is necessary for photosynthesis. 1



The figure which shows correct method of boiling is :

(a) I (b) II (c) III (d) IV

33 Shashank was asked to carry out an experiment to show that carbon dioxide is given out during respiration. He constructed the following set-up and observed that lime water in the beaker did not turn milky. 1



The reason for the lime water not turning milky was:

(a) It was freshly prepared
(b) Germinating seeds were used
(c) KOH solution was placed in the conical flask
(d) The germinating seeds did not release carbon dioxide

34 A student prepares aqueous solutions of the following salts : 2
Copper sulphate, ferrous sulphate, Sodium sulphate, Barium chloride
Write the colour of each solution thus formed.

35 While doing an experiment of Ohm's law if you find that the deflection on the ammeter or voltmeter scale goes beyond the full scale, what would you infer ? What would you infer if you find that the deflection is in opposite direction ? 2

36 Identify the observed various parts of temporary mount of well stained leaf peel, when focussed under the high power of a microscope. STOMATA 2