Rohan Nayyar SFS

2O2PXCV

SUMMATIVE ASSESSMENT – I, 2015-16
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. Each question is of two marks.

SECTION-A

1 Name the organisms which utilize complex substances and break them down to simpler forms. 1

2 A bulb can not be used in place of a resistor to verify ohms law. Justify this statement with reason. 1

3 Name any one element used in making solar cells and also mention the approximate power produced by a single solar cell. 1

4 Define the term alloy. Give two advantages of making alloys. 2

5 On heating copper powder in air the surface of copper powder becomes coated with black CuO. How can this black coating be converted into brown copper ? Write chemical equation for the reaction that occurs during the colour change. 2

6 Name the plant hormones responsible for the following functions : 3

(i) growth of the stem
(ii) promotes cell division
(iii) wilting of leaves
(iv) inhibits growth

7 Rama wanted her house to be whitewashed. She bought some quicklime from the market and dissolved. it in water in a big tub. She noticed that the container became hot without any heating. Give reason for her observation with equation and name the product formed. What happens when it is applied on the walls? 3

8 State what happens when : 3

(i) Gypsum is heated at 373 K.
(ii) Blue Crystals of copper sulphate are heated.
(iii) excess of carbon dioxide gas is passed through lime water.

9 Describe how sodium and chlorine form sodium chloride? Name the type of bonding shown in the structure. 3
(Atomic number : Na=11, Cl=17)

10 On passing excess carbon dioxide gas through lime water, it first turns milky and then becomes colourless. Explain why ? Write all the chemical equations of the reactions involved. 3

11 Draw a neat diagram of open stomata and label any four parts on it. 3

12 Name the secretion of the following glands and state in brief their functions : 3

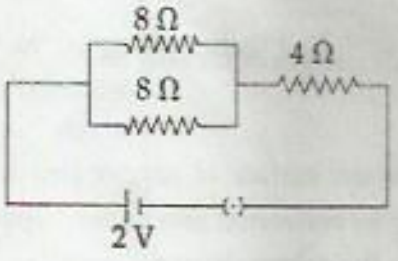
(i) pituitary gland
(ii) testes
(iii) thyroid gland

13 Mention the three kinds of cells present in blood. Write one function of each. 3

14 Study the following electric circuit and calculate : 3

(i) the current flowing through the 4 Ω resistor and

(ii) potential difference across the combination of two resistors of 8 Ω each



15 (a) A current carrying conductor is placed perpendicular in a magnetic field. Name the rule which can be used to find the direction of force acting on the conductor. 3

(b) State two ways to increase the force an a current carrying conductor in a magnetic field.

16 What is meant by short circuit and overloading ? Explain how does fuse provide safety against both ? 3

17 Shreya went to her friend Pallavi's house. There she saw a solar cooker kept in the courtyard with rice and dal kept in it for cooking. When Shreya asked Pallavi about the cooker, she told her that her mother uses solar cooker everyday for cooking, especially during summer and explained her the advantages of using it. Shreya went home and persuaded her mother too to use solar cooker. 3

(a) List two advantages of using a solar cooker which convinced shreya.

(b) Mention the values displayed by Pallavi's mother.

18 Explain how electrical energy is generated from nuclear energy? 3

19 (a) What is thermite reaction ? Giving chemical equations, explain how it is used to join railway tracks or cracked machine parts ? 5

(b) Differentiate between roasting and calcination by giving suitable examples.

20 Give suitable reason for the following statements : 5

(i) Rain water conducts electricity but distilled water does not.

(ii) We feel burning sensation in the stomach when we overeat.

(iii) A tarnished copper vessel regains its shine when rubbed with lemon.

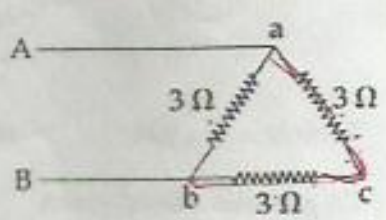
(iv) The crystals of washing soda change to white powder on exposure to air.

(v) An aqueous solution of sodium chloride is neutral but an aqueous solution of sodium carbonate is basic.

21 "Electrical impulses are considered an excellent means for the transference of informations". Give reason. Explain briefly. Mention two limitations of the use of electrical impulses. 5

22 For the parallel combination of resistors establish the relation : 5

$$\frac{1}{R} = \frac{1}{R_1} + \frac{1}{R_2} + \frac{1}{R_3}$$



where the symbols have their usual meanings.

Find the resistance between A and B in the following network

23 (a) Draw magnetic field lines of a bar magnet. "Two magnetic field lines never intersect each other". Why ? 5

(b) An electric oven of 1.5 kW is operated in a domestic circuit (220 V) that has a current rating of 5 A. What result do you expect in this case ? Explain.

24 (a) What are magnetic field lines ? Write any two properties of magnetic field lines. Why do two field lines never intersect each other ? 5

(b) What is the direction of magnetic field at the centre of current carrying circular loop ?

SECTION - B

25 Identify the sample, if its colour on pH paper matches with pH 2 in pH- colour chart. 1

(a) ethanoic acid (b) sodium hydroxide solution

(c) hydrochloric acid (d) water

26 A drop of colourless liquid was placed on blue litmus paper. The litmus paper turns red. The liquid could be : 1

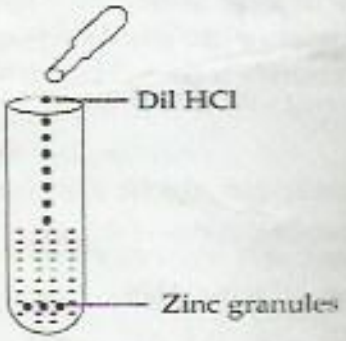
(a) distil water

(b) sodium bicarbonate solution

(c) dil. hydrochloric acid

(d) dil. sodium hydroxide solution

27 A student added dil hydrochloric acid to zinc granules as shown in figure.The correct observation would be : 1



(a) Evolution of a gas (b) Formation of a precipitate

(c) Zn granules turned green (d) No reaction occurs

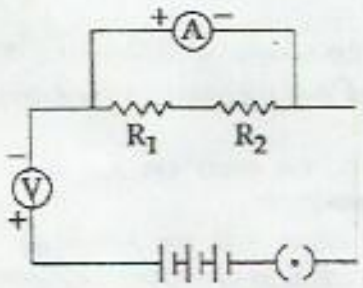
28 On adding aluminium strip to CuSO4 solution the correct observation made by Anindita is – 1

(a) Reddish brown deposit on aluminium strip
(b) Black deposit on aluminium strip
(c) A grey coating on the aluminium strip
(d) No reaction at all

29 Select the correct statement out of the four given below regarding reactivity of iron. Iron can displace : 1

(a) Zn from ZnSO4 (b) Al from Al2(SO4)3
(c) Cu from CuSO4 (d) Mg from MgSO4

30 1



To find the equivalent resistance of two resistors R1 and R2 connected in series, Rahul prepared a circuit as shown below. Another student Mohit observed the circuit and said that the circuit is not correct. What is the mistake in the circuit ?

(a) The two resistors and the ammeter have been connected correctly but not the voltmeter
(b) The two resistors, the voltmeter and the ammeter all have been connected correctly
(c) The two resistors have been connected correctly but not the voltmeter and the Ammeter
(d) The two resistors and the voltmeter have been connected correctly but not the ammeter

31 In the laboratory a student took a piece of wire of resistance R and cut it into five equal parts. These parts are then connected in parallel. If the equivalent resistance of this combinations is R', then the ratio R/R' is :- 1

(a) 1/25
(b) 1/5
(c) 5
(d) 25

32 To get result as shown in Fig.2, the leaf should be covered on : 1

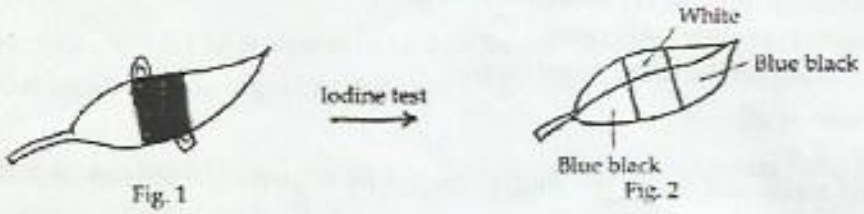


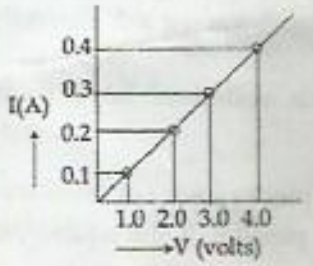
Fig. 1 Fig. 2

(a) Upper side (b) Lower side
(c) Both sides (d) Partially covered on both sides

33 Germinating seeds are used to indicate the release of 'CO2 during respiration' because : 1
(a) Germinating seeds absorb more O2
(b) Germinating seeds are soft
(c) Germinating seed respire actively
(d) Germinating seeds release more oxygen

34 Iron filings were added to an aqueous solution of copper sulphate. After ten minutes, it was observed that the blue colour of the solution has changed and there is a coat on the iron filings. State the change in colour observed in the solution and also colour of the coat formed on the iron filings. 2

35 In an experiment to study the dependence of current on potential difference across a resistor, a student obtained a graph as shown below : 2



Calculate the value of resistance of the resistor.

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