

JITESH  
S2-B

GYAN BHARATI SCHOOL  
SUMMATIVE ASSESSMENT – I, 2015-16  
SCIENCE  
Class – X

Time Allowed : 3 hours

Maximum Marks : 90

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

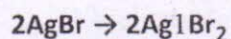
- |   |   |   |
|---|---|---|
| 1 | Define reflex action.   | 1 |
| 2 | Draw the magnetic field of a bar magnet.  | 1 |
| 3 | Write one property of charcoal that makes it a comparatively better fuel than wood.   | 1 |
| 4 | Name the reducing agent in the following reaction :<br>$3\text{MnO}_2 + 4\text{Al} \rightarrow 3\text{Mn} + 2\text{Al}_2\text{O}_3$ | 2 |
- State which is more reactive, Mn or Al and why ?

5 State what changes in the colour of iron nail and copper sulphate solution are observed when an iron nail is dipped in copper sulphate solution for about 20 minutes. Write the chemical equation for the reaction that takes place. Also name the type of reaction involved in the above process. 2

6 (i) Why cramps are caused in our muscles during sudden activity? 2

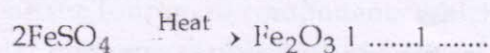
(ii) Name the type of respiration that takes place in yeast during fermentation

7 (a) Write the essential condition for the following reaction to take place : 3



Write one application of this reaction.

(b) Complete the following chemical equation of a chemical reaction



(c) What happens when water is added to quick lime. Write chemical equation.

8 (a) Define the term pH of a solution. The pH of gastric juices of the sample collected from the stomach of two persons A and B were found to be 1 and 3 respectively. The gastric juice of which person is more acidic? 3

(b) Name one salt whose solution has pH more than 7 and one salt whose solution has pH less than 7.

9 Give reason for the following : 3

(a) Ionic compounds are usually hard.

(b) Sodium chloride has a high melting point.

(c) Non-metals do not displace hydrogen from dilute acids.

10 State what happens when : 3


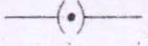
(i) Hydrated copper sulphate is heated.

(ii) Gypsum is heated at 373K.

(iii) Chlorine gas is passed through dry slaked lime.

Also write the chemical equation in each case.

- 11 Bile juice does not contain any enzyme but bile salts are important for digestion and absorption of fats. State reason. 3
- 12 The brain is contained in a fluid filled balloon like structure. Mention the purpose served by the fluid in this structure. Cranium and vertebral column protect two vital organs of central nervous system. Name these organs. Mention two types of nerves arising from these organs. 3
- 13 Write three points of difference between artery and vein. 3
- 14 400 Joules of heat is produced per second in a  $16\ \Omega$  resistor. Find the potential difference across the resistor. 3
- 15 Name, State and explain with the help of a diagram the rule to find the direction of magnetic field around a straight conductor carrying current. 3
- 16 How many 40 W; 220 V lamps can be safely connected to a 220 V, 5 A line? Justify your answer. 3
- 17 Solar cooker takes more time as compared to the LPG to boil potato or rice, yet Kunal uses solar cooker for such type of cooking : 3
- Why does Kunal use solar cooker instead of LPG? Give reason for your answer.
  - Name the phenomenon which is responsible for obtaining high temperature in solar cooker?
  - What is the motivation behind using solar cooker?
- 18 Mention any three limitations of harnessing wind energy on a large scale. 3
- 19 (a) Explain how the following metals are obtained from their compounds by reduction process : 5
- Metal X which is low in reactivity series.
  - Metal Y which is in the middle of the reactivity series.
  - Metal Z which is high in the reactivity series.
- (b) State your observation when a magnesium ribbon is burnt. Is magnesium oxidized or reduced?
- 20 (a) Define universal indicator. For what purpose it is used? 5
- (b) Two solutions A and B have pH values of 3.0 and 9.5 respectively Which of these will turn litmus solution from blue to red and which will turn phenolphthalein from colourless to pink?

- (c) Water is a neutral substance. What colour will you get when you add a few drops of universal indicator to a test tube containing distilled water ?
- 21 Name the hormone which is secreted by the adrenal gland. Explain the function of this hormone when we have to deal with scary situations. 5
- 22 State Ohm's law. Write the necessary condition for its validity. How is this law verified experimentally ? What will be the nature of graph between potential difference and current for a conductor ? Name the physical quantity that can be determined from this graph. 5
- 23 What is meant by the term magnetic field ? Draw the pattern of magnetic field lines due to a current carrying solenoid. How can the strength of this magnetic field be increased ? Explain. List two properties of magnetic field lines. 5
- 24 (a) Name an instrument that measures electric current in a circuit. Define unit of electric current. 5  
 (b) What are the following symbols mean in an electric circuit.  
 (i)  (ii)   
 (c) Draw a closed circuit diagram consisting of 0.5 m long nichrome wire XY, an ammeter, a voltmeter, four cells of 1.5 V and a plug key.

#### SECTION - B

- 25 Four samples A, B, C and D turns pH paper to light green, dark red, light orange and dark blue respectively. The correct sequence of increasing order of the pH value for samples is : 1
- (a)  $A < B < C < D$  (b)  $A < D < C < B$   
 (c)  $C < B < A < D$  (d)  $B < C < A < D$
- 26 Solid  $\text{NaHCO}_3$  was placed on a strip of pH paper. The colour of strip - 1
- (a) turned blue (b) did not change  
 (c) turned to green yellow (d) turned to light pink
- 27 Four students P, Q, R and S studied the chemical reactions between zinc metal and dilute hydrochloric acid. They recorded their observation as given in the table : 1

Student	Observations		
	Colour of the gas liberated	Smell of the gas liberated	Combustibility test of the gas
P	Brown	Like rotten egg	Burns with pop sound
Q	Colourless	Odourless	Burns with pop sound
R	Pale yellow	Odourless	Does not burn
S	Colourless	Pungent smell	Burns with red flame

The right set of observations is that of student.

- (a) P (b) Q (c) R (d) S

28 To turn an aqueous solution of  $\text{CuSO}_4$  colourless, we can add to it :

1

- (a) Only zinc (b) Only Iron  
(c) Only Aluminium (d) Zinc or Aluminium.

29 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

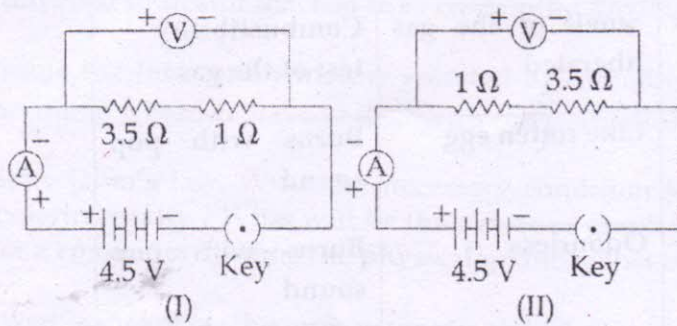
- (i) No reaction occurred  
(ii) Reaction occurred and aluminium sulphate was formed  
(iii) Zinc is more reactive than aluminium.  
(iv) Aluminium is more reactive than zinc.

The correct observations are :

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

30 To determine the equivalent resistance of two resistors connected in series, a student 1

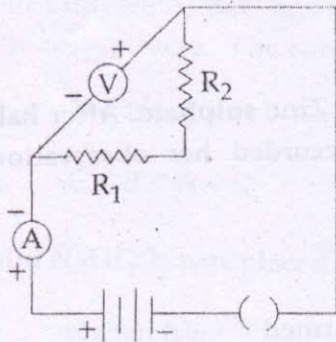
prepared two electric circuits, correct reading of ammeter in the circuits is :



- (a) In circuit I, 1.0 A and in II, 0.1 A
- (b) In both circuits I and II, 1.0 A
- (c) In circuit I, 0.1 A and in II, 1.0 A
- (d) In both circuits I and II, 0.1 A

31

For carrying out experiment on finding the equivalent resistance of two resistors connected in parallel, a student sets up his circuit as shown below. The teacher checks it and tells him that his circuit has one or more of the following 'faults' :



- (i) The resistors  $R_1$  and  $R_2$  have not been correctly connected in parallel.
  - (ii) The Voltmeter has not been correctly connected in the circuit
  - (iii) The ammeter and the key have not been correctly connected in the circuit.
- Out of these three, the actual fault in his circuit is/are :

- (a) Both (i) and (ii)
- (b) Only (i)
- (c) Both (ii) and (iii)
- (d) only (ii)

32 The photosynthetic pigments are located in :

- (a) chloroplasts (b) leucoplast  
(c) nucleus (d) ribosomes

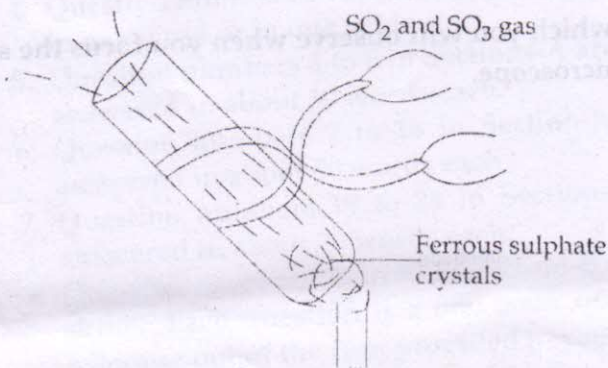
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33 In the experimental set up of 'CO<sub>2</sub> released during respiration,' the kind of seeds that are taken are:

- (a) Germinating seeds (b) Wet seeds  
(c) Boiled seeds (d) Dry seeds

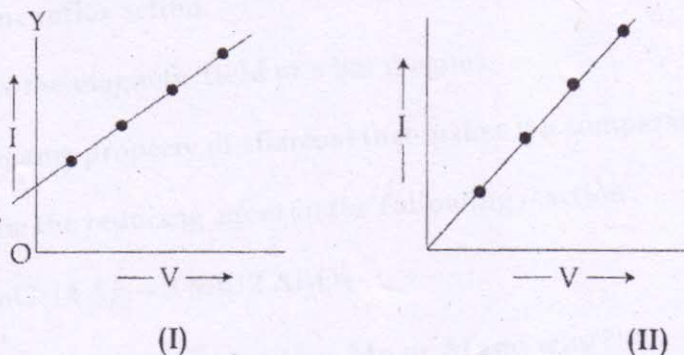
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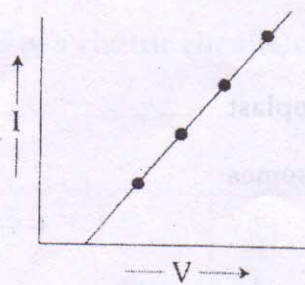
34 About 2.5g of ferrous sulphate crystals were heated as shown in the figure given below : 2



After heating for one minute, (i) what change in colour of ferrous sulphate crystals would you observe (ii) on smelling the gases carefully, what would you feel ?

35 To show dependence of potential difference (V) on current (I) across a resistor, three 2 students drew graphs between V and I based on their readings.





(III)

- (i) Which student drew correct graph ?
- (ii) From the values of V, I and R which physical quantity can be calculated by graph.

36 Name the four main components which you will observe when you focus the stomata slide under high power objective of a microscope. 2

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