

## SUMMATIVE ASSESSMENT – I, 2016-17

SCIENCE

Class – X

Time Allowed : 3 hours

Maximum Marks : 90

### General Instructions :

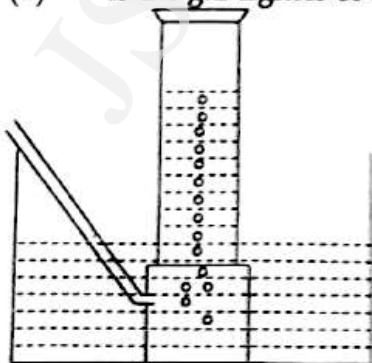
1. The question paper comprises of two Sections, A and B. You are to attempt both the sections.
2. All questions are compulsory
3. All questions of Section-A and all questions of Section-B are to be attempted separately.
4. Question numbers 1 to 3 in Section-A are one mark questions. These are to be 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

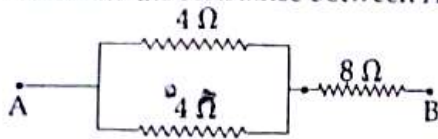
- |    |   |   |
|----|---|---|
|    | Differentiate between gustatory receptors and olfactory receptors.  | 1 |
| 2  | List two sources of magnetic fields.  | 1 |
| 3  | Name any two non-conventional sources of energy.  | 1 |
| 4  | Write a chemical equation to describe how baking soda is produced on a large scale. Also write chemical names of the products obtained in this reaction.  | 2 |
| 6  | Define the term alloy. Give two advantages of making alloys.  | 2 |
| 7  | Why do herbivores have longer, small intestine than carnivores ?  | 2 |
| 7  | (a) Two Solutions X and Y are tested with universal indicator. Solution X turns orange whereas solution Y turns red. Which of the solutions is a stronger acid?   | 3 |
| 8  | (b) State the meaning of strong acids and weak acids. Give one example of each.   | 3 |
| 8  | Name the substance oxidised and the substance reduced, and also identify the oxidizing agent and reducing agents in the following reactions :   | 3 |
|    | (a) $3\text{MnO}_2 + 4\text{Al} \rightarrow 3\text{Mn} + 2\text{Al}_2\text{O}_3$  |   |
|    | (b) $\text{Fe}_2\text{O}_3 + 3\text{CO} \rightarrow 2\text{Fe} + 3\text{CO}_2$  |   |
|    | (c) $\text{SO}_2 + 2\text{H}_2\text{S} \rightarrow 3\text{S} + 2\text{H}_2\text{O}$   |   |
| 9  | A solution of a metal salt was kept in a copper pot. After a few days, the copper pot was found to have a number of holes on it. Explain the reason with the help of equation. Which metal salt could it possibly be? | 3 |
| 10 | What is meant by electrolytic reduction ? How is sodium obtained from its molten chloride ?   | 3 |

Explain.

- 11 Write one example each of the following tropic movements :  
 (i) Positive phototropism  
 (ii) Negative phototropism  
 (iii) Positive geotropism  
 (iv) Negative geotropism  
 (v) Hydrotropism  
 (vi) Chemotropism
- 12 Draw a neat diagram of sectional view of human heart and label on it : 3  
 (i) Pulmonary artery (ii) Pulmonary vein
- 13 Explain the feed back mechanism to regulate the action of the hormones with the help of one suitable example. 3
- 14 400 Joules of heat is produced per second in a  $16 \Omega$  resistor. Find the potential difference across the resistor 3
- 15 Generally in domestic electric circuits two separate circuits, one for high power appliances and the other for low power appliances are used. Give reason for this practise. 3
- 16 Give reason for the following : 3  
 (i) Why are copper and aluminium wires used as connecting wires ?  
 (ii) Why is tungsten used for filaments of electric lamps?  
 (iii) Why is lead - tin alloy used for fuse wires?
- 17 There are upcoming tidal power plants in Gujarat and West Bengal. But tides as a source of energy have not been tapped properly in India. 3  
 (i) Is tidal energy a renewable or a non renewable source of energy ? Give reason for your answer.  
 (ii) How is tidal energy produced ?  
 (iii) Why are tidal power plants not being developed extensively ?
- 18 (a) State two uses of biogas. 3  
 (b) Slurry left in biogas plant is considered a useful product. Justify this statement by giving two reasons.
- 19 Define a chemical reaction. State four observations which help us to determine that a chemical reaction has taken place. Write one example of each observation with a balanced chemical equation. 5
- 20 A metal is treated with dilute sulphuric acid. The gas evolved is collected by the method shown in the figure. Answer the following questions : 5  
 (i) Name the gas evolved.  
 (ii) Name the type of chemical reaction that takes place.  
 (iii) Name the method of collection of gas.  
 (iv) Is the gas soluble or insoluble in water ?  
 (v) Is the gas lighter or heavier than air ?



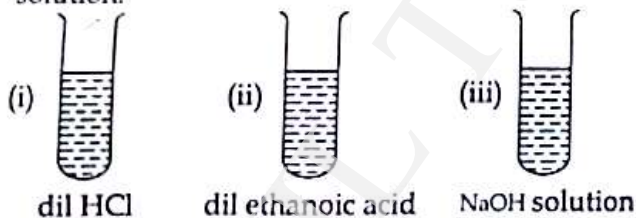
- 21 Define excretion. State the basic filtration unit in the kidney. Draw a labeled diagram of its structure. Explain the mechanism of urine formation in human beings. 5
- 22 Establish a relation for the equivalent resistance of three resistors connected in parallel. 5  
Calculate the resistance between A and B in the network shown below.



- 23 (a) How is the strength of the magnetic field at a point near a straight conductor related to the strength of the electric current flowing in the conductor? 5  
(b) With the help of a diagram describe an activity to show that a straight conductor carrying current produces a magnetic field around it. State the rule which may be used to determine the direction of magnetic field thus produced.  
(c) Why do two magnetic field lines never intersect each other? Explain.
- 24 (a) State Ohm's law. Give the relationship between potential difference, electric current and resistance of a conductor. 5  
(b) An electric circuit consisting of a 1.0 m long metallic wire AB, an ammeter, a voltmeter, 3 cells of 2.0 volts each and plug key was set up. Draw a diagram of this electric circuit in the on position.  
(c) Find the resistance of an electric lamp, if the lamp uses 20 A. When connected to a 220 V line.

### भाग-ब

- 25 Suggest the solution which you would choose for testing pH of given sample : 1  
(a) Blue litmus (b) Red litmus  
(c) Universal indicator solution (d) Lime water
- 26 Given below are diagrams of three test tubes containing dil. HCl, dil. ethanoic acid and NaOH solution. 1

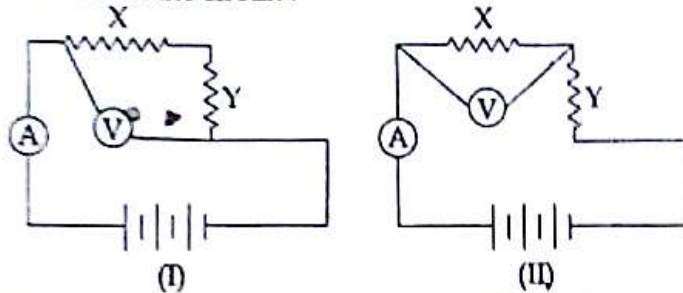


Choose the correct statement :

- (a) pH of I is greater than pH of II and III.  
(b) pH of III is greater than pH of I and II.  
(c) pH of I, II, III is equal.  
(d) pH of II is greater than pH of I and III.
- 27 When dil HCl is added to  $\text{Na}_2\text{CO}_3$  the gas liberated is : 1  
(a) hydrogen (b) carbon dioxide  
(c) carbon monoxide (d) chlorine
- 28 An iron nail was dipped in a solution kept in test tube. After half an hour, it was observed that colour of the solution has changed. The solution in test tube was : 1  
(a)  $\text{ZnSO}_4$  (b)  $\text{CuSO}_4$   
(c)  $\text{FeSO}_4$  (d)  $\text{Al}_2(\text{SO}_4)_3$
- 29 Renu added some iron filings to 100 ml of copper sulphate solution. After sometime she observed that the colour of the solution changed and noticed some deposits on the iron filings. The colour of the solution and the coating would respectively be : 1

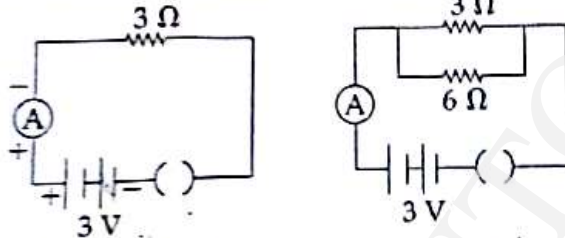
- (a) brown and blue                      (b) red and blue  
 (c) green and reddish-brown        (d) yellow and green

30 Out of the two circuits given below, the two resistors X and Y have been correctly connected in series in the circuit :



- (a) I    (b) II  
 (c) both I and II                          (d) none of these

31 A student found that when a resistance of  $3\Omega$  was joined with  $3V$  battery as per fig shown below, the current flowing through it was  $1A$ . He then joined another resistance of  $6\Omega$  in parallel with  $3\Omega$  resistance. The reading in the ammeter will now be :



- (a)  $9A$                       (b)  $1.5A$                       (c)  $1A$                       (d)  $6A$

32 In the experiment to show that 'light is necessary for photosynthesis', if the plant leaf is not destarched, then its covered as well as uncovered part show blue colour in iodine test. The reason for the observation is that :

- (a) Leaf has no starch left  
 (b) Leaf has starch left from photosynthesis occurred earlier  
 (c) Leaf is only respiring  
 (d) Leaf is dead

33 During the experiment to show that 'CO<sub>2</sub> is released during respiration,' the partial vacuum created in the conical flask results in :

- (a) decrease of the water level in the bent tube  
 (b) there is no change in the water level in the bent tube  
 (c) Rise of the water level in the bent tube  
 (d) decrease and then increase of the water level in the bent tube

34 When an iron nail, rubbed with sand paper, is dipped in copper sulphate solution, what two observations would you make after some time ?

35 Draw a diagram of a circuit showing a resistor and a voltmeter connected in parallel. 2

36 Kishan was asked to write any two precautions while preparing temporary mount of a leaf peel. He wrote the precautions as follows : 2

- (i) While removing the epidermal peel, ensure that you remove the bulky scrap of leaf.  
 (ii) Avoid air bubbles formation while putting a drop of glycerine over the peel. If Kishan is not correct, then correct him.