

## 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

- 1 ✓ Name the process used by single-celled organisms for taking in food, exchange of gases or removal of wastes. 1
- 2 ✓ Name the device that helps to maintain a potential difference across a conductor. 1
- 3 Mention the purpose of blackening the interior of a solar cooker. 1
- 4 ✓ What is meant by water of crystallisation? How would you show that copper sulphate crystals contain water of crystallisation? 2
- 5 Explain the terms : 2  
(i) Malleability and (ii) Ductility.
- 6 (a) ✓ State the function of the following plant hormones : 2  
(i) Abscisic acid  
(ii) Cytokinin  
(b) Define chemotropism
- 7 (a) Define an acid - base indicator. Mention one synthetic acid - base indicator. 3  
(b) If someone in the family is suffering from a problem of acidity after overeating, which of the following substances would you suggest as a remedy? lemon juice, vinegar or baking soda solution.  
Mention the property on the basis of which you will choose the remedy.
- 8 Define a chemical equation. What is an unbalanced chemical equation called? Which law governs the balancing of a chemical equation? State it. 3

- 9 Explain the process of electrolytic refining for copper with the help of a labelled diagram. 3
- 10 (a) Name one natural source of each of the following acids : 3  
 (i) Citric acid  
 (ii) Oxalic acid  
 (iii) Lactic acid  
 (iv) Tartaric acid  
 (b) Which ion is commonly produced by all acids?
- 11 Classify the following into 'Reflex actions' and in voluntary actions of brain. 3  
 (i) Beating of heart.  
 (ii) Withdrawing your hand immediately on touching a hot object.  
 (iii) Change in size of pupil in response to intensity of light.  
 (iv) Riding a bicycle  
 (v) Sneezing  
 (vi) Pulling up the leg immediately when foot falls on some sharp object.
- 12 Explain how lungs are designed in human beings to maximize the area for exchange of gases. 3  
 Why the air passage does not collapse when there is no air in it ?
- 13 Draw a diagram showing the correct positions of pancreas, thyroid gland, pituitary gland, 3  
Adrenal gland in human being.
- 14 What is meant by "electrical resistance" of a conductor? State how resistance of a conductor is 3  
 affected when (i) a low current passes through it for a short duration; (ii) a heavy current passes through it for about 30 seconds.
- 15 What are magnetic field lines? List two characteristic properties of these lines. 3
- 16 Describe an activity with diagram to demonstrate the presence of magnetic field around a 3  
 current carrying straight conductor.
- 17 There was a poster making competition in a school on a topic 'SAVE ENERGY'. The students 3  
 were also asked to give write ups on this topic. A student of the school is unable to make the write up on this topic.  
 (a) Suggest him two steps to 'SAVE ENERGY' ?  
 (b) Mention the value which the school is trying to imbibe in his students by holding such a competition.
- 18 Write any three advantages of using charcoal over wood. 3
- 19 Explain the type of reactions represented by the following equations : 5  
 (i)  $\text{CaO} + \text{CO}_2 \rightarrow \text{CaCO}_3$   
 (ii)  $2\text{Na} + \text{H}_2\text{O} \rightarrow 2\text{NaOH} + \text{H}_2$   
 (iii)  $\text{Mg} + \text{CuSO}_4 \rightarrow \text{MgSO}_4 + \text{Cu}$   
 (iv)  $\text{NH}_4\text{NO}_2 \rightarrow \text{N}_2 + 2\text{H}_2\text{O}$   
 (v)  $\text{CuSO}_4 + 2\text{NaOH} \rightarrow \text{Cu}(\text{OH})_2 + \text{Na}_2\text{SO}_4$
- 20 (a) Define a universal indicator. Mention its one use. 5  
 (b) Solution A gives pink colour when a drop of phenolphthalein indicator is added to it. Solution B gives red colour when a drop of methyl orange is added to it. What type of solutions are A and B and which one of the solutions A and B will have a higher pH value ?  
 (c) Name one salt whose solution has pH more than 7 and one salt whose solution has pH less than 7.
- 21 (a) Draw the structure of a nephron and label the following parts on it : 5  
 (i) Renal artery (ii) Bowman's capsule  
 (iii) Glomerulus (iv) Collecting duct.



- (b) Name four substances in the initial filtrate which are selectively reabsorbed as the filtrate flows along the tubule.
- 22 (a) State the function of 'a fuse' in an electric circuit. How is it connected in the domestic circuit? 5  
 (b) An electric fuse of rating 3A is connected in a circuit in which an electric iron of power 1.5 kilo watt is connected which operates at 220 V. What would happen? Explain.
- 23 (a) Name two safety measures commonly used in an electric circuit and appliances. 5  
 (b) What precaution should be taken to avoid the overloading of domestic electric circuits?
- 24 Draw a labelled circuit diagram to study the relationship between the current (I) flowing through a conductor and the potential difference (V) applied across its two ends. State the formula co-relating the I in a conductor and the V across it. Also show this relationship by drawing a diagram. 5  
 What would be the resistance of a resistor if the current flowing through it is 0.15 A when the potential difference across it is 1.05 V?

### SECTION - B

- 25 Observe the following figures : 1



I  
Hydrochloric acid



II  
Sodium hydroxide

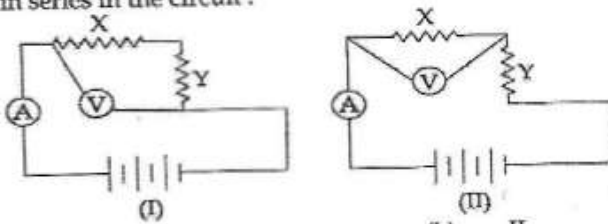


III  
Water

Choose the correct option :

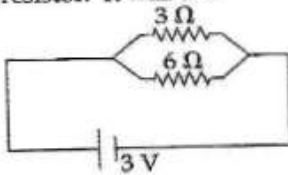
- (a) pH value of (I) is greater than pH of (II) and (III)  
 (b) pH value of (III) is greater than pH of (I) and (II)  
 (c) pH value of (I), (II) and (III) is equal  
 (d) pH value of (II) is greater than pH of (I) and (III)
- 26 Four students took the following samples of solution in the laboratory and find their pH. For which of the samples of equal concentration the pH value of its sample will be highest : 1  
 (a) dilute NaOH solution  
 (b) dilute HCl  
 (c) dilute sodium bicarbonate solution  
 (d) dilute  $\text{CH}_3\text{COOH}$  solution
- 27 A student after observing the reaction between dil. HCl on zinc granules, noted the properties of hydrogen gas evolved. Correct observation would be that hydrogen is : 1  
 (a) colourless (b) odourless  
 (c) burns with a pop sound (d) all the above are correct
- 28 A student added a piece of zinc metal each to four different test - tubes containing different solutions as given below. The test tube in which no reaction was observed, contains : 1  
 (a)  $\text{Al}_2(\text{SO}_4)_3$  (b)  $\text{ZnSO}_4$   
 (c)  $\text{FeSO}_4$  (d)  $\text{CuSO}_4$
- 29 Solutions of ferrous sulphate, zinc sulphate, copper sulphate and aluminum sulphate were separately taken in four test tubes and two iron nails were added in each one of them. After 20 minutes it would be observed that the colour of : 1  
 (a) Solutions of zinc sulphate and aluminium sulphate only changed.  
 (b) Solution of only zinc sulphate changed.  
 (c) Copper sulphate solution only changed.  
 (d) Solutions of zinc sulphate, copper sulphate and aluminium sulphate changed and that of ferrous sulphate did not change.

- 30 Out of the two circuits given below, the two resistors X and Y have been correctly connected in series in the circuit : 1



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

- 31 When performing the experiment of finding the equivalent resistance of a parallel combination of resistance, a student was asked to measure the potential drop across the  $3\Omega$  resistor. It will be : 1



- (a) 1V  
(b) 1.5V  
(c) 2V  
(d) 3V

- 32 Leaves are destarched by keeping the plant in : 1

- (a) 10-12 hours in night  
(b) 10-12 hours in day  
(c) 2 hours in sunlight  
(d) 2 hours in night

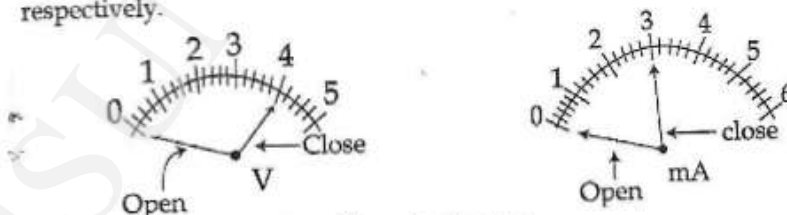
- 33 In the experiment to show respiration in germinating seeds, which chemical is used in the small tube and which gas is released by seeds : 1

- (a) KOH,  $\text{CO}_2$   
(b) KOH,  $\text{O}_2$   
(c) KCl,  $\text{CO}_2$   
(d)  $\text{CaCl}_2$ ,  $\text{CO}_2$

- 34 While demonstrating a reaction in laboratory, a teacher added small amount of sodium sulphate solution to barium chloride solution in a test tube. 2

- (i) Name the products obtained. Are the products soluble in each other?  
(ii) Write the type of chemical reactions in this case.

- 35 To study the dependence of potential difference (V) on current (I) flowing across a resistor, a student takes readings through voltmeter and ammeter when key is open and closed respectively. 2



- (i) Find the correct reading of voltmeter.  
(ii) Find the correct reading of ammeter.

- 36 After preparing a temporary mount of leaf peel, Harshit recorded his observations as - 2

- In an epidermal peel we see multiple layer of cells.
  - Each guard cell has one chloroplast and many nuclei.
- Do you agree with Harshit's observations,. Justify your answer.

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