

**SUMMATIVE ASSESSMENT – I, 2015-16**  
**SCIENCE**  
**Class – X**


Time Allowed : 3 hours

Maximum Marks : 90

**General Instructions :**

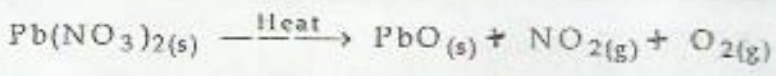
- The question paper comprises of two Sections, A and B. You are to attempt both the sections.
- All questions are compulsory
- All questions of Section-A and all questions of Section-B are to be attempted separately.
- Question numbers 1 to 3 in Section-A are one mark questions. These are to be answered in one word or in one sentence
- Question numbers 4 to 6 in Sections-A are two marks questions. These are to be answered in about 30 words each.
- Question numbers 7 to 18 in Section-A are three marks questions. These are to be answered in about 50 words each
- Question numbers 19 to 24 in Section-A are five marks questions. These are to be answered in about 70 words each.
- 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.
- Question numbers 34 to 36 in Section-B are questions based on practical skills. Each question is of two marks.

**SECTION-A**

- List two body functions that will be affected if cerebellum gets damaged. *body part* 1
- Draw a diagram to show uniform magnetic field in a given region.  1
- Name the part of a biogas plant where reactions take place in the absence of oxygen. *digester* 1
- Name the acid produced in our stomach. What happens if there is an excess of acid in the stomach? How can it be cured? 2
- Consider the following chemical reaction : 2  
 $X + \text{Water} \rightarrow \text{Slaked lime}$   
 (a) Write the chemical name of 'X' and the type of reaction that occurs.  
 (b) Write chemical equation of the reaction.

5 What is Lymph? Write its main function. *Ext cell? Imm E cells* 2

7 Consider the following reaction 3



- (i) Name the gases produced in the above reaction.
- (ii) Balance the above chemical equation.
- (iii) Name the type of chemical reaction. *comb. rxn*

8 Write the chemical name and formula of bleaching powder. How is it prepared? Write the chemical equation and state any two uses of bleaching powder. 3

9 Give reason for the following : 3

- (a) Ionic compounds are usually hard.
- (b) Sodium chloride has a high melting point. *metal and ionic*
- (c) Non-metals do not displace hydrogen from dilute acids. *A O D D C C*

10 Name the substance oxidised and the substance reduced. 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)  $\text{SO}_2 + 2\text{H}_2\text{S} \rightarrow 3\text{S} + 2\text{H}_2\text{O}$

11 Bile juice does not contain any enzyme but bile salts are important for digestion and absorption of fats. State reason. *bile juice* 3

12 Why do plants appear to bend towards light? *auxin against sunlight* 3

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

14 State three factors on which the heat produced by an electric current depends. How does it depend on these factors? *H I J K L* 3

15 In Faraday's experiment if instead of moving the magnet towards the coil we move the coil towards the magnet. Will there be any induced current? Justify your answer. Compare the two cases. 3

16 State Ohm's law. Draw a circuit diagram to verify this law indicating the positive and negative terminals of the battery and the meters. Also show the direction of current in the circuit. 3

Ravi was using calculator to do some calculations. While doing so his calculator stopped working. He kept the calculator near the window for some time, exposed to sunlight. After some time he could use the calculator again. His friend Mohit who was using a battery operated calculator, watched him and told him that his calculator was better in the sense that he could immediately recharge the calculator by charging battery but Ravi was not convinced. He explained to Mohit the advantages of solar calculator and convinced him to adopt it.

- (a) State the values exhibited by Ravi.  
(b) List the advantages of using a calculator driven by solar energy which convinced Mohit to adopt it.

18 Explain how hydroelectricity is produced. 3

19 (a) Name an ore of mercury and write its chemical formula. Write two steps along with the equations of reactions for obtaining metal from this ore.  $HgS$   
 $HgS + SO_2 \rightarrow HgO + SO_2$  5

(b) How carbon or coke acts as reducing agent to obtain metal from an oxide? Give a suitable chemical equation of this reaction to illustrate it.  $ZnO + C \rightarrow Zn + CO_2$

20 Write the electronic configuration of magnesium (atomic no. 12) and oxygen (atomic no. 8) and explain the formation of magnesium oxide by electrons transfer of State the type of bond formed. Explain with reason two physical properties of compounds formed by this bonding. 5

21 (a) Name the hormone which is secreted by the adrenal gland. Explain the function of this hormone when we have to deal with scary situations.  $HBSF$  5

(b) What is reflex action?

22 (a) Will current flow more easily through a thin wire or a thick wire of the same material. When connected to the same source. Why? 5

(b) Some electric lamps connected to a 220 volts electric supply lines are rated 20 W. How many lamps can be connected in parallel with each other across the two wires of 220 volts lines, if the maximum allowable current is 5A?

23 (a) When the north pole of a magnet is moved towards a coil connected with a galvanometer, its pointer gets deflected to one side. Explain this observation with reason. Name the phenomenon. 5

(b) What will happen to the deflection in galvanometer when the magnet is taken away from the coil?

(c) If the experiment is repeated with the magnet being moved towards the coil with great speed, state the change that you would notice in the deflection in the galvanometer? Name and state the rule which helps in predicting the direction of deflection in each case.

24 Establish a relationship to determine the equivalent resistance R of a combination of three resistors having resistances  $R_1$ ,  $R_2$  and  $R_3$  connected in series. 5

Calculate the equivalent resistance of the combination of three resistors of 2  $\Omega$ , 3  $\Omega$  and 6  $\Omega$  joined in parallel.

## SECTION - B

25 Which method will you adopt to find the pH of a solution correctly? 1

- (a) Converting the solution into vapour form and then expose pH paper to the vapours
- (b) Pouring few drops of solution on pH paper.
- (c) By dropping pH paper in solution.
- (d)  By putting a drop of solution on the pH paper using a dropper.

26 Four students A, B, C and D determine the pH of water, lemon juice and dil sodium bicarbonate solution. They recorded their observations and arranged them in descending order of pH values as follows: 1

Student	Solutions
(A)	water, lemon juice, sodium bicarbonate solution
(B)	water, sodium bicarbonate solution, lemon juice
(C)	lemon juice, water, sodium bicarbonate solution
(D)	sodium bicarbonate solution, water, lemon juice

The correct sequence is of the student :

- (a) (A)    (b) (B)     (c) (C)     (d) (D)

27 Certain properties of a substance are given below : 1

- (i) It turns red litmus blue
- (ii) It turns blue litmus red
- (iii) It reacts with zinc and a gas evolved
- (iv) It reacts with sodium carbonate to give brisk effervescence  $\text{Na}_2\text{CO}_3 + \text{HCl} \rightarrow \text{NaCl} + \text{CO}_2 + \text{H}_2\text{O}$

Which out of above properties are shown by dil HCl :

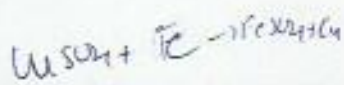
- (a) (i) and (ii) only                      (b) (i) and (iii) only  
 (c) (i), (iii) and (iv) only                 (d) (ii), (iii) and (iv) only

28 Shashank was asked to carry out a displacement reaction which would show the following: 1

- (i) Formation of colourless solution
- (ii) Black deposits

The reactants he should use are :

- (a) Fe(s) and  $\text{Al}_2(\text{SO}_4)_3$  (aq)            (b) Al(s) and FeSO<sub>4</sub> (aq)  
 (c) Zn(s) and CuSO<sub>4</sub> (aq)                (d) Fe(s) and ZnSO<sub>4</sub> (aq)



ANSWERS

29 Rohit observed the formation of a coating when he added the solution of copper sulphate to the iron nails. This deposition is of : 1

- (a) Iron
- (c) Iron sulphide
- (b) Copper
- (d) Sulphur

30 Total voltage across the series combination of resistors is : 1

- (a) Same in every part of the circuit
- (b) Sum of the voltage drop across each resistor
- (c) Inversely proportional to the resistance
- (d) None of these

31 Two unequal resistances are connected in parallel by a student. Which of the following is true ? 1

- (a) Current is same in both
- (b) Current is larger in higher resistance
- (c) Voltage-drop is same across both
- (d) Voltage drop is lower in lower resistance.

32 The best results for the experiment 'that light is necessary for photosynthesis', would be yielded by using leaves from plant kept for over twenty four hours : 1

- (a) In a pitch darkroom
- (b) In a darkroom with the table lamp switched on
- (c) Outside in the garden
- (d) None of the above

33 In the experiment to show that 'CO<sub>2</sub> is released during respiration,' the KOH is taken in a small test tube because it : 1

- (a) absorbs O<sub>2</sub>
- (b) absorbs moisture
- (c) absorbs CO<sub>2</sub>
- (d) None of the above

34 Match the chemical reactions given in column A with column B.

A	B
(a) ferrous sulphate crystal + Heat.	(I) Combination reaction
(b) Quick lime + water.	(II) Decomposition reaction
(c) Copper sulphate solution + Iron nail	(III) Double displacement reaction
(d) Sodium sulphate solution + Barium chloride solution	(IV) Displacement reaction.

*Handwritten notes:*  
 Above (a):  $FeSO_4 \cdot 7H_2O \xrightarrow{heat} FeSO_4 + 7H_2O$   
 Below (d):  $Na_2SO_4 + BaCl_2$

35 Calculate the least count of an ammeter, which has 20 divisions between mark 0 (zero) and 2 (two) on its end scale.  $\frac{2}{20} = 0.1$

36 Mahima followed the following procedure for staining the temporary mount of leaf peel on the slide.

- To put a single drop of stain on leaf peel and wash it with water. ①
- Cover the leaf peel with cover slip. ③
- To put a single drop of glycerine on leaf peel. ②
- observe the slide under microscope. ④

But the steps are not in order. What should be the correct sequence?