



**ST. MARGARET SR. SEC. SCHOOL**  
**Sample Paper 2023-24**  
**SCIENCE (086)**  
**CLASS X**

**Allowed Time: 3Hr**

**Max.Marks: 80**

**IMPORTANT INSTRUCTIONS:**

- i) This question paper consists of 39 questions in 5 sections.
- ii) All questions are compulsory. However, an internal choice is provided in some questions. A student is expected to attempt only one of these questions.
- iii) Section A consists of 20 objective type questions carrying 1 mark each.
- iv) Section B consists of 6 Very Short questions carrying 02 marks each. Answers to these questions should be in the range of 30 to 50 words.
- v) Section C consists of 7 Short Answer type questions carrying 03 marks each. Answers to these questions should be in the range of 50 to 80 words
- vi) Section D consists of 3 Long Answer type questions carrying 05 marks each. Answer to these questions should be in the range of 80 to 120 words
- vii) Section E consists of 3 source-based/case-based units of assessment of 04 marks each with sub-parts.

**Section-A**

**Select and write the most appropriate option out of the four options given for each of the questions 1-20. There is no negative mark for incorrect response.**

- 1**  $2\text{HNO}_3 + \text{Ca}(\text{OH})_2 \rightarrow \text{Ca}(\text{NO}_3)_2 + 2\text{H}_2\text{O}$ ; is an example of 1  
**(i) displacement reaction**  
**(ii) double displacement reaction**  
**(iii) neutralisation reaction**  
**(iv) combination reaction.**  
(a) (i) and (ii) (b) (ii) and (iii)  
(c) (iii) and (iv) (d) (i) and (iv)
- 2** Which of the following is a thermal decomposition reaction ? 1  
(a)  $2\text{H}_2\text{O} \rightarrow 2\text{H}_2 + \text{O}_2$   
(b)  $2\text{AgCl} \rightarrow 2\text{Ag} + \text{Cl}_2$   
(c)  $\text{ZnCO}_3 \rightarrow \text{ZnO} + \text{CO}_2$   
(d)  $\text{H}_2(\text{g}) + \text{Cl}_2(\text{g}) \rightarrow 2\text{HCl}(\text{g})$
- 3** The following reaction is an example of a 1  
 $4\text{NH}_3(\text{g}) + 5\text{O}_2(\text{g}) \rightarrow 4\text{NO}(\text{g}) + 6\text{H}_2\text{O}(\text{g})$   
**(i) displacement reaction**  
**(ii) combination reaction**  
**(iii) redox reaction**  
**(iv) neutralisation reaction**  
(a) (i) and (iv) (b) (ii) and (iii)  
(c) (i) and (iii) (d) (iii) and (iv)
- 4** Which of the following is not a acidic salt? 1  
(a)  $\text{CuSO}_4$  (b)  $\text{NH}_4\text{Cl}$  (c)  $\text{FeCl}_3$  (d)  $\text{CH}_3\text{COONa}$

- 5 Curd cannot be stored in** 1  
**(i) Brass vessel (ii) Copper vessel (iii) Steel (iv) Bronze**  
 (a) (i), (ii), (iii) (b) (ii), (iii), (iv)  
 (c) (i), (ii), (iv) (d) (i), (iii), (iv)
- 6 Which of the statements about the reaction,** 1  
 $\text{ZnO} + \text{CO} \rightarrow \text{Zn} + \text{CO}_2$  is correct ?  
 (a) ZnO is being oxidised  
 (b) CO is being reduced  
 (c)  $\text{CO}_2$  is being oxidised  
 (d) ZnO is being reduced
- 7 Generally, metals are solid in nature. Which one of the following metals** 1  
**is found in liquid state at room temperature?**  
 (a) Na (b) Fe (c) Cr  
 (d) Hg
- 8 The breakdown of pyruvate to give carbon di-oxide, water and energy** 1  
**takes place in**  
 (a) cytoplasm (b) mitochondria (c) chloroplast (d) nucleus
- 9 The movement of food in phloem is called:** 1  
 (a) transpiration (b) translocation (c) respiration (d) evaporation
- 10 Which plant hormone promotes cell division?** 1  
 (a) Auxin (b) Gibberellin (c) Cytokinin (d) Abscisic acid
- 11 The longest fibre on the cell body of a neuron is called** 1  
 (a) sheath (b) cytoplasm (c) axon (d) dendrites
- 12 Which nerves transmit impulses from the central nervous system** 1  
**towards muscle cells?**  
 (a) Sensory nerves (b) Motor nerves (c) Relay nerves (d) Cranial nerves
- 13 No matter how far you stand from a mirror, your image appears erect.** 1  
**The mirror is likely to be**  
 a) only plane b) only concave c) only convex d) either plane or convex
- 14 The crystalline lens of people at old age becomes milky and cloudy. This** 1  
**condition is called**  
 a) Myopia  
 b) Hypermetropia  
 c) Presbyopia  
 d) Cataract
- 15 The color of light which is deviated the most by a prism in the spectrum** 1  
**of white is**  
 a) Red b) Green c) Violet d) Yellow
- 16 You are given water, mustard oil, glycerine and kerosene. In which of** 1  
**these media a ray of light incident obliquely at same angle would bend**  
**the most?**  
 a) Kerosene  
 b) Water  
 c) Mustard oil  
 d) glycerine

**In the following questions, the Assertion and Reason have been put forward. Read the statements carefully and choose the correct alternative from the following:**

(a) Both the Assertion and the Reason are correct and the Reason is the correct explanation of the Assertion.

(b) The Assertion and the Reason are correct but the Reason is not the correct explanation of the Assertion.

(c) Assertion is true but the Reason is false.

(d) The statement of the Assertion is false but the Reason is true.

- 17 **Assertion(A):**  $\text{Al}_2\text{O}_3$  is an amphoteric oxide. 1  
**Reason(R):**  $\text{Al}_2\text{O}_3$  reacts with acid as well as base to form salt and water.
- 18 **Assertion(A):** All proteins in our food are digested in small intestine only 1  
**Reason(R):** The protein digesting enzymes are released into small intestine and stomach.
- 19 **Assertion(A):** When white light passes through a triangular prism, the emergent light consists of light of seven colours. 1  
**Reason(R):** Name of seven colours can be remembered by the acronym VIBGYOR.
- 20 **Assertion (A) :** Plants lack excretory organs. 1  
**Reason (R) :** Plants usually absorb essential nutrients.

### Section-B

#### Question No. 21 to 26 are very short answer questions

- 21 Write the balanced chemical equation for the following reaction: 2  
(i) burning of natural gas.  
(ii) the process of respiration.
- 22 Draw a flow chart showing the three different pathways involved in the breakdown of glucose in different organisms. Name the respiratory pigment present in human beings. State the function of rings of cartilage present in our throat. 2
- 23 "Reflex arcs continue to be more efficient for quick responses". Justify this statement giving reason. 2
- 24 State the meaning of linear magnification. How is it related to object distance and image distance? When is magnification positive and negative? 2
- 25 What are the two necessary conditions for formation of a rainbow? 2
- 26 What are plant hormones? Name the plant hormones responsible for the following 2  
:  
(i) Growth of stem  
(ii) Promotion of cell division  
(iii) Inhibition of growth  
(iv) Elongation of cells

### Section-C

#### Question No. 27 to 33 are short answer questions

- 27 State reason for the following statements: 3  
(a) Tap water conducts electricity whereas distilled water does not.  
(b) Dry hydrogen chloride gas does not turn blue litmus red whereas dilute hydrochloric acid does.  
(c) During summer season, a milk man usually adds a very small amount of baking soda to fresh milk.
- 28 A metal (E) is stored under kerosene. When a small piece of it is left open in the air, it catches fire. When the product formed is dissolved in water, it turns red litmus to blue. 3

- (a) Name the metal (E).  
 (b) Write the chemical equation for the reaction when it is exposed to air and when the product is dissolved in water.
- 29** Define reflex arc. Draw a flow chart showing the sequence of events which occur during sneezing. 3
- 30** (a) Mention any two components of blood. 3  
 (b) Trace the movement of oxygenated blood in the body.  
 (c) Write the function of valves present in between atria and ventricles.
- 31** What is a spectrum? How can we recombine the components of white light after a glass prism has separated them? Illustrate it by drawing a diagram. 3
- 32** A 2 cm high object is placed at a distance of 32 cm from the concave mirror. The image is real, inverted and 3cm in size. Find the focal length of the mirror and the position where the image is formed? 3
- 33** Why is Tyndall effect by colloidal particles? State four instances of observing the Tyndall effect. 3

### Section-D

#### Question No. 34 to 36 are long answer questions.

- 34** How do you prepare the following : 5  
 a) NaOH b) Bleaching powder c) Baking soda d) Washing soda d) Plaster of Paris
- 35** (a) A squirrel is in a scary situation. Its body has to prepare for either fighting or running away. State the immediate changes that take place in its body so that the squirrel is able to either fight or run. 5  
 Why is chemical communication better than electrical impulses as a means of (b) communication between cells in a multicellular organisms?
- 36** A person needs a lens of power -4.5D for correction of his vision. 5  
 (a) What kind of defect in vision is he suffering from? What are causes of this defect?  
 (b) What is the focal length of the corrective lens?  
 (c) What is the nature of the corrective lens?  
 OR  
 Make a diagram to show how hypermetropia is corrected. The near point of a hypermetropia eye is 1m. What is the power of a lens required to correct this defect? Assume that near point of the normal eye is 25cm.

### Section - E

#### Question No. 37 to 39 are case-based/data -based questions with 2 to 3 short sub-parts.

- 37** A metal nitrate 'A' on heating gives yellowish brown coloured metal oxide along with brown gas 'B' and a colourless gas 'C'. Aqueous solution of 'A' on reaction with potassium iodide forms a yellow precipitate of compound 'D'. Identify 'A, B, C, D'. Also identify the types of both the reactions. 4
- 38** Carbon and energy requirements of the autotrophic organism are fulfilled by photosynthesis. It is the process by which autotrophs take in substances from the outside and convert them into stored forms of energy. This material is taken in the form of carbon dioxide and water which is converted into carbohydrates in the presence of sunlight and chlorophyll. Carbohydrates are utilised for providing energy to the plant. 4  
 (i) Write a chemical reaction which occur during photosynthesis?  
 (ii) What is stomata?

(iii) What are the functions of stomata?

39 The eye lens is composed of a fibrous, jelly-like material. Its curvature can be modified to some extent by the ciliary muscles. The change in the curvature of the eye lens can thus change its focal length. When the muscles are relaxed, the lens becomes thin. Thus its focal length increases. This enables us to see distant objects clearly. When you are looking at objects closer to the eye, the ciliary muscles contract. This increases the curvature of the eye lens. 4

(i) Which of the following is responsible for changing the focal length of eye lens as per need? (1)

a) Cornea                      b) Pupil and Iris                      c) Ciliary muscles                      d) Retina

(ii) What happens to the size of pupil of our eye in dim light and bright light? (2)

(iii) What is presbyopia? What is the main cause of this defect? (1)