



B.K. BIRLA CENTRE FOR EDUCATION

SARALA BIRLA GROUP OF SCHOOLS
A CBSE DAY-CUM-BOYS' RESIDENTIAL SCHOOL



TERM-1 EXAMINATION 2026-27

SCIENCE

SET-I

Class: X

Date: 04.09.26

Admission no:

General Instructions:

Time: 3 hours

Max Marks: 80

Roll no:

(i) This question paper consists of 39 questions in 3 sections. Section A is Biology, Section B is Chemistry and Section C is Physics.

(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.

Section-A BIOLOGY		
1	When air is blown from mouth into a test-tube containing lime water, the lime water turned milky due to the presence of (a) oxygen (b) carbon dioxide (c) nitrogen (d) water vapour	1
2	Which of the following statement(s) is (are) true about respiration? (i) During inhalation, ribs move inward and diaphragm is raised (ii) In the alveoli, exchange of gases takes place i.e., oxygen from alveolar air diffuses into blood and carbon dioxide from blood into alveolar air (iii) Haemoglobin has greater affinity for carbon dioxide than oxygen (iv) Alveoli increase surface area for exchange of gases (a) (i) and (iv) (b) (ii) and (iii) (c) (i) and (iii) (d) (ii) and (iv)	1
3	Which statement is not true about thyroxin? (a) Iron is essential for the synthesis of thyroxin (b) It regulates carbohydrates, protein and fat metabolism in the body (c) Thyroid gland requires iodine to synthesise thyroxin (d) Thyroxin is also called thyroid hormone	1
4	A plant bends towards the source of light when exposed to the light on only one side. Which of the following is the best explanation of the phenomenon? (a) It needs light for photosynthesis. (b) The apices of their stems are attracted by light. (c) Some auxin accumulates on the shaded side to induce greater cell elongation on that side. (d) Light stimulates the cells on the illuminated side to increase in length.	1

	a) Distinguish between self-pollination and cross-pollination. b) What happens to the ovule and the ovary after fertilization takes place in a flower? c) If pollination occurs successfully in a plant but no fruit is formed, what could be the missing biological step? Or d) Differentiate between unisexual and bisexual flowers with the help of an example.	
16	A.i) What are the different ways in which glucose is oxidised to provide energy in various organisms? b) In each of the following situations, what happens to the rate of photosynthesis? i) Cloudy days ii) No rainfall in the air iii) Good manuring in the area iv) Stomata get blocked due to dust. OR B. Explain the process of nutrition in Amoeba with the help of diagram.	5
Section-B Chemistry		
17	What is formed when zinc reacts with sodium hydroxide? (a) Zinc hydroxide and sodium (b) Sodium zincate and hydrogen gas (c) Sodium zinc-oxide and hydrogen gas (d) Sodium zincate and water	1
18	$\text{Na}_2\text{CO}_3 \cdot 10\text{H}_2\text{O}$ is; (a) washing soda (b) baking soda (c) bleaching powder (d) tartaric acid	1
19	At what temperature is gypsum heated to form Plaster of Paris? (a) 90°C (b) 100°C (c) 110°C (d) 120°C	1
20	How many water molecules does hydrated copper sulphate contain? (a) 5 (b) 10 (c) 7 (d) 2	1
21	Give the ratio in which hydrogen and oxygen are present in water by volume. (a) 1:2 (b) 1:1 (c) 2:1 (d) 1:8	1
22	$\text{MnO}_2 + 4\text{HCl} \rightarrow \text{MnCl}_2 + 2\text{H}_2\text{O} + \text{Cl}_2$ Identify the substance oxidized in the above equation. (a) MnCl_2 (b) HCl (c) H_2O (d) MnO_2	1

23	What type of chemical reactions take place when electricity is passed through water? (a) Displacement (b) Combination (c) Decomposition (d) Double displacement	1
The following question consists of two statements – Assertion (A) and Reason (R) . Answer these questions by selecting the appropriate option given below: A. Both A and R are true, and R is the correct explanation of A. B. Both A and R are true, and R is not the correct explanation of A. C. A is true but R is false. D. A is false but R is true.		
24	Assertion (A): Hydrogen gas is not evolved when a metal reacts with nitric acid. Reason (R): Nitric acid is a strong oxidising agent.	1
25	What are the products formed when an acid reacts with a base? Give one example.	2
26	Attempt either option A or B. Explain formation of NaCl by electron transfer method. OR Explain why ionic compounds have high melting points and why they do not conduct electricity in solid state but do conduct in molten state.	3
27	What are amphoteric oxides? Give two examples. Write balanced equations to show they act as both acids and bases.	3
28	A chemical reaction is a representation of chemical change in terms of symbols and formulae of reactants and products. There are various types of chemical reactions like combination, decomposition, displacement, double displacement, oxidation and reduction reactions. Reactions in which heat is released along with the formation of products are called exothermic chemical reactions. All combustion reactions are exothermic reactions. (a) What is Decomposition Reaction? Give an Example. 2 (b) Define Redox Reaction. Give an example. 2 OR (b) Explain double displacement reaction with an example	4
29	<i>Attempt either option A or B.</i> A (a) Three acidic solutions A, B and C have pH = 0, 3 and 5 respectively. (i) Which solution has highest concentration of H ⁺ ions? (ii) Which solution has the lowest concentration of H ⁺ ions? (b) Explain chlor-alkali process. Name the product formed at cathode and anode.	5

	OR B (a) (i) Why does tooth decay start when the pH of mouth is lower than 5.5? (ii) Arrange the following in the increasing order of acidic strength. Acetic acid, water and hydrochloric acid. (b) How would you prepare baking soda in lab? Write chemical equation of the reaction involved.	
Section-C Physics		
30	The human eye focuses objects situated at different distances from it by adjusting the focal length of its eye lens. This ability of the eye is called: (a) Presbyopia (b) Accommodation (c) Persistence of vision (d) Power of the eye	1
31	On increasing the temperature of a metallic conductor, its resistance: (a) Increases (b) Remains the same (c) Decreases (d) Becomes zero	1
The following question consists of two statements – Assertion (A) and Reason (R). Answer these questions by selecting the appropriate option given below: A. Both A and R are true, and R is the correct explanation of A. B. Both A and R are true, and R is not the correct explanation of A. C. A is true but R is false. D. A is false but R is true.		
32	Assertion (A): A convex mirror is preferred as a rear-view mirror in vehicles. Reason (R): A convex mirror always forms a virtual, erect and diminished image of an object, and gives a wider field of view than a plane mirror of the same size.	1
33	A concave mirror forms a real, inverted image which is three times the size of an object placed 10 cm in front of it. Find the position of the image. OR Define the power of a lens and state its SI unit. A convex lens has a power of +2.5 D. Calculate its focal length.	2
34	Define the resistivity of a material. Name two factors on which the resistivity of a conductor depends.	2
35	A concave lens has a focal length of 15 cm. At what distance from the lens should a 3 cm tall object be placed so that it forms an image at 10 cm from the lens? Also find the size of the image formed.	3
36	What is meant by the 'power of accommodation' of the eye? Name two common defects of vision and state one cause of each.	3
37	State Ohm's law and write the mathematical relation for it. A wire of length 2 m and area of cross section $1.55 \times 10^{-6} \text{ m}^2$ has a resistance of 5Ω . Calculate the resistivity of the material of the wire.	3
38	Read the following passage and answer the questions that follow: When a narrow beam of white light passes through a glass prism, it splits into a band of seven colours — violet, indigo, blue, green, yellow, orange and red (VIBGYOR). This splitting of white light into its component colours is called dispersion of light, and the band of colours obtained is called the spectrum of white light. This happens because light of different colours bends through different angles with respect to the incident ray, as they travel with different speeds inside the glass. A similar phenomenon occurring in the atmosphere, due to tiny water droplets, produces a rainbow after rainfall. (i) What is meant by dispersion of light?	4

[1]

	(ii) Which colour of light bends the most and which bends the least on passing through a prism? [1] (iii) Explain briefly how a rainbow is formed in the sky. [2] OR (iii) Why does the clear sky appear blue in colour? Explain on the basis of scattering of light. [2]	
39	(a) Define the principal focus of a concave mirror. (b) A 4 cm tall object is placed at a distance of 25 cm in front of a concave mirror of focal length 20 cm. Find the position, size and nature of the image formed. Draw a ray diagram to justify your answer. OR (a) State the laws of refraction of light. (b) An object 2 cm high is placed at a distance of 20 cm from a convex lens of focal length 10 cm. Find the position, nature and size of the image formed. Draw a ray diagram to justify your answer.	5

*****ALL THE BEST*****