



B.K. BIRLA CENTRE FOR EDUCATION

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



TERM-1 EXAM 2026-27

SCIENCE

SET-II

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	The mode of nutrition in which an organism derives its nutrition from other living organisms without killing it. (a) Saprophytic nutrition (b) Parasitic nutrition (c) Autotrophic nutrition (d) Holozoic nutrition	1
2	The type of reproduction in malarial parasite is a) Fragmentation b) Binary fission c) Multiple fission d) Budding	1
3	The process of release of eggs from the ovary is called: (a) Menstruation (b) Reproduction (c) Insemination (d) Ovulation	1
4	When a pure tall pea plant is crossed with a pure dwarf pea plant, the percentage of tall pea plant in F1 and F2 generation pea plants respectively will be: (a) 100%; 25% (b) 100%; 50% (c) 100%; 75% (d) 100%; 100%	1
5	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
6	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)	1

	(c) (i) and (iii) (d) (ii) and (iv)	
7	Which of the following is the correct sequence regarding sexual reproduction in a flowering plant? (a) Pollination, fertilisation, seedling, embryo (b) Seedling, embryo, fertilisation, pollination (c) Pollination, fertilisation, embryo, seedling (d) Embryo, seedling, pollination, fertilisation	1
The following two questions consist 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.		
8	Assertion (A): When a bacterium divides into two, and the resultant two bacteria divide again, the four bacteria produced would be almost similar. Reason (R): DNA copying involves small inaccuracies in the reproduction process.	1
9	Assertion (A): Activities like walking in a straight line, riding a bicycle, picking up a pencil are controlled by cerebellum. Reason (R): It is responsible for precision of voluntary actions and maintaining the posture and balance.	1
10	Explain the following methods of contraception giving one example of each. a) Barrier method b) Surgical method	2
11	Why did Mendel choose garden pea for his experiments? Write two reasons.	2
12	a) Why is small intestine in herbivores longer than in carnivores? b) What will happen if mucus is not secreted by the gastric glands?	2
13	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	3
14	With the help of a flow chart explain sex determination in humans.	3
15	Attempt either subpart B or C. a) What is placenta? Explain its function in humans b) What happens to the lining of uterus: (i) before release of a fertilised egg? (ii) if no fertilisation occurs? OR c) Unsafe sexual act can lead to various infections. Name two bacterial and two viral infec	4

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	At what temperature is gypsum heated to form Plaster of Paris? (a) 90°C (b) 100°C (c) 110°C (d) 120°C	1
18	How many water molecules does hydrated copper sulphate contain? (a) 5 (b) 10 (c) 7 (d) 2	1
19	What type of chemical reactions take place when electricity is passed through water? (a) Displacement (b) Combination (c) Decomposition (d) Double displacement	1
20	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
21	$\text{Na}_2\text{CO}_3 \cdot 10\text{H}_2\text{O}$ is; (a) washing soda (b) baking soda (c) bleaching powder (d) tartaric acid	1
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	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
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 metal carbonate? Give one example.	2
26	<i>Attempt either option A or B.</i> Explain formation of MgCl_2 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 Displacement Reaction? Give an Example. 2 (b) Define double displacement Reaction. Give an example. 2 OR (b) Explain exothermic reaction with an example	4
29	<i>Attempt either option A or B.</i> A (a) Three acidic solutions A, B and C have $\text{pH} = 4, 5$ and 8 respectively. (i) Which solution has the 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. OR B (a) (i) Why does tooth decay start when the pH of the 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 bleaching powder in the lab? Write chemical equation of the reaction involved.	5
Section-C Physics		
30	The least distance of distinct vision (near point) for a normal human eye is about: (a) 25 cm (b) 2.5 m (c) infinity (d) 1 m	1

31	The SI unit of electrical resistivity of a material is: (a) ohm (b) ohm-metre (c) ohm per metre (d) siemens	1
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32	Assertion (A): When an object is placed between the focus and the centre of curvature of a concave mirror, the image formed is real, inverted and magnified. Reason (R): For this position of the object, the image is formed beyond the centre of curvature of the mirror.	1
33	An object is placed 30 cm in front of a concave mirror and a real image is formed at a distance of 60 cm from the mirror. Calculate the focal length of the mirror and the magnification of the image produced. OR Define the power of a lens and state its SI unit. A concave lens has a power of -4 D. Calculate its focal length.	2
34	What is meant by the resistivity of a material? Two wires A and B are made of the same material and have the same length, but the radius of wire A is twice the radius of wire B. Compare the resistance of A with that of B.	2
35	A converging (convex) lens of focal length 20 cm is used to obtain an image of an object placed 30 cm from the lens. Find the position of the image and its magnification. State the nature of the image formed.	3
36	A person is unable to see distant objects clearly but can see nearby objects without difficulty. Name this defect of vision. State one possible cause of this defect and name the type of lens used to correct it. Also define the near point of the eye.	3
37	A wire of resistance $10\ \Omega$ is stretched uniformly until its length becomes double its original length. Using the relation $R = \rho L/A$, find its new resistance, assuming the volume of the wire remains constant.	3
38	Read the following passage and answer the questions that follow: The refractive index of the Earth's atmosphere increases gradually as we move from outer space towards the surface, because the density of air increases towards the surface. Due to this varying refractive index, light coming from a star undergoes continuous refraction before it reaches our eyes, and the path of light bends slightly at every layer of the atmosphere. This atmospheric refraction is also responsible for the Sun becoming visible about 2 minutes before it actually rises above the horizon, and remaining visible for about 2 minutes after it has actually set. (i) What is meant by atmospheric refraction? [1] (ii) Why do stars twinkle at night while planets do not show this effect? [1] (iii) Explain briefly why the Sun is visible a little before the actual sunrise. [2] OR (iii) Explain briefly why the Sun appears flattened (oval-shaped) when it is near the horizon at sunrise or sunset. [2]	4

39	(a) Define the centre of curvature of a spherical lens/mirror system – state what is meant by the centre of curvature of a spherical mirror. (b) An object 5 cm tall is placed at a distance of 30 cm from a convex lens of focal length 15 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 reflection of light. (b) An object 3 cm high is placed at a distance of 15 cm in front of a concave mirror of focal length 10 cm. Find the position, nature and size of the image formed. Draw a ray diagram to justify your answer.	5
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*****ALL THE BEST*****