SCIENCE – Code no. 037
SAMPLE QUESTION PAPER
CLASS – X (2026–27)

MARKING SCHEME

S.N	Chapter	Value point	Marks
Section A			
1.	Ch 4	C. X is a saturated hydrocarbon, and Y is an unsaturated hydrocarbon.	1
2.	Ch 3	C. II and III only	1
3.	Ch 1	A. Na	1
4	Ch 2	B. Red	1
5	Ch-3	B. Roasting	1
6	Ch-2	B. decrease, making the milk more acidic.	1
7	Ch-1	B. An endothermic reaction, absorbing heat from the surroundings.	1
8	Ch-5	C. The extensive folding of its inner lining into villi.	1
9.	Ch-6	D. Auxin	1
10.	Ch-5	B. Aerobic respiration produces a significantly larger amount of energy (ATP) compared to anaerobic respiration.	1
11.	Ch-7	C. Pollination is specifically the transfer of pollen grains before fertilisation.	1

12	Ch-8	B. It hides the appearance of another characteristic.	1
13.	Ch-12	C. The magnetic field lines are straight, parallel, and equally spaced.	1
14.	Ch-11	D. 2.0 A	1
15.	Ch-11	B. 2R.	1
16.	Ch-10	A. i, ii, and iii	1
17.	Ch-12	B. Both A and R are true, but R is NOT the correct explanation of A	1
18.	Ch-8	C. A is true but R is false	1
19.	Ch-10	C. A is true but R is false	1
20	Ch-3	D. A is false, but R is true	1
Section B			
21	Ch-1	● In a double displacement reaction when one of the newly formed products is an insoluble ionic compound. ● This insoluble product separates out as a solid from the solution. **Equation: AgNO(aq) + NaCl(aq) → AgCl(s)↓ +** $NaNO_3$(aq)	0.5 0.5 1
22	Ch-6	A. . ● Receptor: Pain/touch receptors (receptors in the skin of the foot). ● Effector: Muscles of the foot. B. Processing Organ: The spinal cord	 0.5 x2 1
23	Ch-8	A. Because the black trait completely masks the	

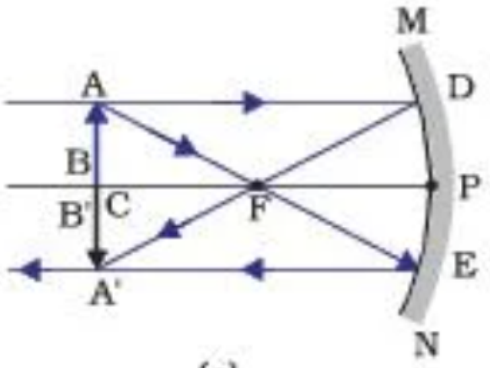
	R	white trait in the F_1 generation, all offspring display the black fur even though they carry the genes for white fur. B. The parents must have both the dominant genes.	1 1
24.	Ch-10	a. Without an atmosphere, there are no air molecules or gas particles to scatter sunlight. b. light travels in an uninterrupted path from the Sun to our eyes. No light is deflected across space, making the surrounding sky appear completely black. **Or** B. a. The student is likely suffering from myopia (or nearsightedness). b. In myopia, the eyeball is typically too long (from front to back), or the eye's lens/cornea has excessive converging power. This causes light rays from distant objects to converge and form the image *in front* of the retina, resulting in a blurry image on the retina itself.	1 1 0.5 0.5 1
25	Ch-11	A. Expected Observation : The wire would heat up significantly and might glow (without melting). B. Confirmed Property: This confirms nichrome's high resistance and its ability to generate heat.	1 1
26	Ch-13	Point 1**:** At each successive trophic level, only about 10% of the energy from the lower level is transferred to the next. The remaining 90% is lost as heat or used in metabolic processes by the organisms. Point 2 **:** This significant energy loss means that progressively less energy is available to sustain organisms at higher trophic levels. **Or**	1 1 1

		● No, it is not always environmentally safe to simply pile up all biodegradable waste in one large open area. ● Large piles of decomposing organic waste can attract pests (like rats and insects), produce strong foul odours and generate liquid that drains from the waste which contaminates soil and groundwater.	1
Section C			
27	Ch-6	A. These chemical substances are called Hormones. B. Two ways ● l secreted directly into the bloodstream by endocrine glands. ● transported by the blood to parts of the body, where they show reactions on the target cells or organs, C. Precise regulation of hormone levels is crucial because both over-secretion (excess) and under-secretion (deficiency) of hormones can lead to severe physiological imbalances or disorders (e.g., metabolic issues, growth abnormalities, and mood disturbances)	1 0.5 0.5 1
28	Ch-7	● Spirogyra': Fragmentation. ● Hydra's Method : Budding ● The offspring of both *Spirogyra* and *Hydra* are genetically identical to their parent organisms. ● This is a key feature of asexual reproduction because it involves only a single parent and does not include the fusion of gametes	0.5 0.5 1 1
29	Ch-1	A. Displacement Reaction. B. Metal P is likely Iron (Fe) or Zinc (Zn) (or any metal more reactive than copper). C. The reaction occurs because metal P is more reactive than copper (Cu) and thus displaces	1 0.5

		copper from its salt solution. The fading blue colour indicates the consumption of copper ions, and the reddish-brown deposit is the displaced copper metal. D. (c) Balanced Chemical Equation: $Fe(s) + CuSO(aq) \rightarrow FeSO(aq) + Cu(s)$ Or $Zn(s)+CuSO_4(aq) \rightarrow ZnSO_4(aq)+Cu(s)$. **Or** **(a)** Forms of Energy and Examples: ● Heat Energy (Thermal Decomposition): Example: $CaCO_3(s) + \text{heat} \rightarrow CaO(s) + CO_2(g)$ ● Light Energy (Photolytic Decomposition): Example: $2AgCl(s) + \text{sunlight} \rightarrow 2Ag(s) + Cl_2(g)$ ● (Alternative: Electrical Energy (Electrolytic Decomposition): Example: $2H_2O(l) + \text{electricity} \rightarrow 2H_2(g) + O_2(g)$)	0.5 1 1 1 1
30	Ch-3	A. Malleability and Ductility B. Metals are excellent thermal conductors (allowing heat to transfer quickly and evenly to food) and electrical conductors (allowing electricity to flow with minimal resistance). C. Materials like wood, plastic, and rubber are poor conductors of heat and electricity (insulators). This prevents heat from reaching the hand (for utensils) and prevents electric shock (for wires), ensuring safety.	0.5 + 0.5 1 1
31	Ch-9	● The focal length (f) of a spherical mirror is always half of its radius of curvature (R), i.e., f = R/2.	1 0.5

		● Since both mirrors AB and CD are part of the same spherical surface, they share the same radius of curvature. ● Because they have the same radius of curvature, and focal length is directly proportional to radius of curvature, they will also have the same focal length. ● : Mirror AB is a convex mirror (diverging mirror). Convex mirrors always produce virtual, upright, and diminished images, regardless of the object's position.	0.5 1
32	Ch-12	A. Properties of Magnetic Field Lines: 1. Form Closed Loops: Magnetic field lines are continuous curves that form closed loops. 2. Direction: The direction of the magnetic field at any point is given by the tangent to the magnetic field line at that point. B. if they were to intersect at a point, it would imply that at that specific point, the magnetic field has two different directions simultaneously.	 1 1 1
33	Ch-13	A. Two Abiotic Changes ● Increase in nutrient levels ● Decrease in dissolved oxygen levels (as decomposers multiply and consume oxygen to break down the organic waste) B. ● A food chain. ● A food web is more complex because it shows multiple interconnected feeding relationships, illustrating that an organism (like the bear) can have several different food sources and that energy flows through various branching pathways.	 0.5 0.5 1 1
Section D			

34	Ch-9	A. Neat, labelled diagram B. (Labels: Air, Water, Incident Ray, Refracted Ray, Normal. C. The light ray bends towards the normal. D. The bending of light (refraction) occurs because ● light travels at different speeds in different optical media. e.g. ● Air – optically rarer medium – light travels faster in air. ● Water- optically denser medium,-- light travels slower in water. E. When a light ray enters from rarer to denser medium obliquely, its speed decreases. This change in speed causes the ray to bend towards the normal. If it were perpendicular, no bending would occur, only a change in speed. Or ● The numerical value '1' signifies that the size of the image is exactly equal to the size of the object. ● The positive sign '+' signifies that the image formed is virtual and erect (upright with respect to the object). ● The image is formed behind the mirror at the same perpendicular distance as the object is in front of it. ● The image is laterally inverted (the left side of the object appears as the right side in the image and vice versa). B. An object placed in front of a spherical mirror producing a magnification (m) of -1 implies two key characteristics of the image: 1. **Negative sign (-):** The image is **real** and **inverted**. 2. **Magnitude of 1:** The image is the **same size** as the object. Based on these characteristics:	1 0.5x 4 0.5 0.5 1 0.5 0.5 0.5 0.5 0.5 0.5

		● The specific type of spherical mirror that can produce such an image is a **concave mirror**. ● The exact position where the object must be placed to achieve this magnification is at the **centre of curvature (C)** of the concave mirror.  	0.5 0.5 1
35	Ch-4	A. ● Saturated hydrocarbons (e.g., alkanes) typically burn with a **clean, blue, non-sooty flame**. ● Unsaturated hydrocarbons (e.g., alkenes, alkynes) typically burn with a **yellow, sooty flame**. ● The difference in flame appearance is primarily due to the **carbon-to-hydrogen ratio** and the complete combustion. ● Saturated hydrocarbons, with a lower carbon percentage, undergo more complete combustion, producing less or no soot. B. ● Saturated hydrocarbons (alkanes) contain only strong carbon-carbon and carbon-hydrogen single bonds. All valence electrons are already involved in forming these stable bonds. Therefore, to react, one atom or group must typically be **substituted** (replaced) by another atom or group. $R\text{-}H + X_2 \text{ ------> } R\text{-}X + HX$ (where R is an alkyl group and X is a halogen)	0.5 0.5 0.5 0.5 1 0.5

		• Unsaturated hydrocarbons (alkenes and alkynes) possess carbon-carbon double or triple bonds. These multiple bonds contain weaker bonds that can be easily broken. This allows additional atoms or groups to directly **add across** the multiple bond, converting the unsaturated compound into a saturated one, without the removal of any atoms. (1.5 Marks) • R-CH=CH-R'+X2→R-CHX-CHX-R' (where X is a halogen) Or A. A covalent bond is a chemical bond formed by the mutual sharing of one or more pairs of electrons between two atoms. B. It typically forms between two non-metal atoms that need to achieve a stable electron configuration (like a noble gas) by sharing electrons, rather than transferring them. This sharing allows both atoms to effectively complete their outermost electron shells. Example of H_2 or Cl_2. C. covalent compounds are neutral molecules. The electrons involved in covalent bonds are held tightly between specific atoms and there are **no free ions** available to carry an electric current. (1 mark) D. Benzene is unsaturated cyclic hydrocarbon having both single and double bonds, while cyclohexane is a saturated cyclic hydrocarbon having only single bonds. E. Ethanal and Propanol	1 0.5 1 1 1 1 0.5 X 2
36	Ch-5	A. Double circulation is a type of circulatory system where blood passes through the heart twice during one complete cycle of its journey around the body. B. a. The first pathway carries deoxygenated blood from the right side of the heart to the lungs for	1 1

		oxygenation, and then returns oxygenated blood back to the left side of the heart. b. The second pathway carries oxygenated blood from the left side of the heart to all parts of the body (except the lungs) and then returns deoxygenated blood from the body back to the right side of the heart.	1
		C. a. Double circulation ensures that oxygenated blood and deoxygenated blood are kept completely separate within the heart and circulatory pathways b.Double circulation allows the heart (left ventricle) to re-pump the oxygenated blood to the rest of the body, which provides oxygen and nutrients to all cells, supporting the high metabolic rates of warm-blooded animals.	1 1
		Or	
		A. Any three of the following: nostrils/nasal passage, pharynx, larynx, trachea, bronchi, and bronchioles. B. Alveoli (or air sacs). C. Millions of alveoli provide a large surface area for rapid and efficient gas diffusion. The walls of the alveoli are thin (single-celled epithelial layer), and are richly supplied with a thin-walled blood capillaries,	0.5 x3 0.5 1 1
		D. Inhalation: The diaphragm contracts and flattens (moves downwards), and the rib cage moves upwards and outwards This increases the volume of the chest cavity, decreasing internal air pressure, drawing air into the lungs. or Exhalation: The diaphragm relaxes and moves upwards, and the rib cage moves downwards and inwards. This decreases the volume of the chest	1

		cavity, increasing internal air pressure, forcing air out of the lungs.	
Section E			
37.	Ch-11	A. In series. B. The total voltage (220V) is divided among all the bulbs, or each individual bulb receives only a fraction of the total voltage. C. In a series circuit, components are connected one after another, forming a single continuous path for current. When one bulb fails (its filament breaks), it creates a break/opens the circuit, stopping the flow of current to all other bulbs in the entire string. Or C. In a domestic circuit appliances are connected in parallel, and each appliance is connected in its own separate branch. If one appliance (like the refrigerator) develops a fault or its circuit breaks, the current can still flow through the other appliances to power the remaining appliances.	1 1 1 1 1 1
38	Ch-2	A. Dip blue litmus paper into each solution. The solution that turns blue litmus red is dilute sulphuric acid. The solution that keeps blue litmus blue is dilute potassium hydroxide. B. ● When sulphuric acid reacts with potassium hydroxide, potassium sulphate (K_2SO_4) salt would be formed. C. This is a neutralisation reaction where the positive ions (K^+ from base and H^+ from acid exchange with the negative ions (OH^- from base and SO_4 from acid). The products formed are potassium sulphate (a	0.5 X 2 1 1

		soluble salt) and water. Since both products are soluble, no solid precipitate is formed Or Sodium Carbonate –Na_2CO_3 Washing Soda Sodium hydrogencarbonate – $NaHCO_3$ Baking soda Uses: Washing Soda -used in removing hardness of water, used for manufacturing Borax etc. Baking soda is used in making cakes or fermenting dough for Dosa.	1 0.5X2 0.5 X2
39.	Ch-7	A. Budding B. Spores C. Moulds, grown on moist slice of bread , ● reproduce asexually by spore formation. ● These spores are tiny and lightweight and can be dispersed by air to new surfaces (like the bread), where they germinate and grow rapidly into new mould colonies under favourable conditions. Or ● Both methods allow for the quick production of a large number of new individuals in a short period. ● Only one parent organism is needed; a single organism can produce many organisms.	1 1 1 1 1 1