

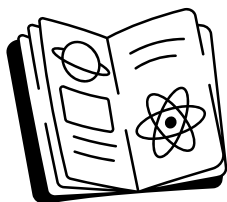
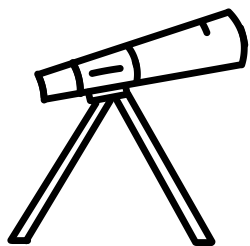
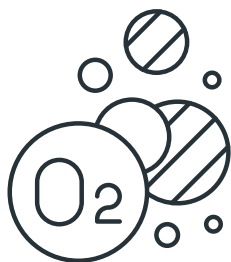
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PAPER SET

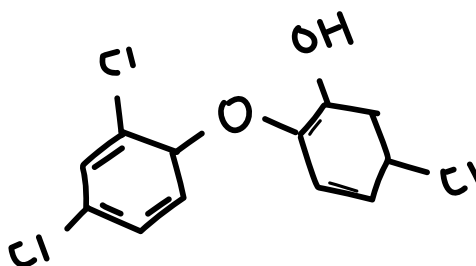
CLASS 10TH SCIENCE GUESS PAPERS

Prepared by:

**Teachers with
Experience of
10+ YEARS**



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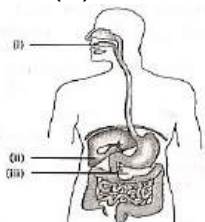
SCIENCE
SAMPLE QUESTION PAPER 1
CLASS – X (2025-26)

Maximum Marks: 80

Time: 3 hours

General Instructions:

- I. This question paper consists of 39 questions in 3 sections.
 - a. Section A is Biology,
 - b. Section B is Chemistry and
 - c. 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		
Q. No	Questions	Marks
1.	The process by which green plants make their food is called: (a) Respiration (b) Transpiration (c) Photosynthesis (d) Digestion	1
2.	In humans, the life process responsible for the breakdown of food into simpler substances is: (a) Circulation (b) Digestion (c) Excretion (d) Reproduction	1
3.	The site of fertilization in humans is: (a) Ovary (b) Uterus (c) Fallopian tube (d) Cervix	1
4.	The theory of evolution by natural selection was proposed by: (a) Gregor Mendel (b) Charles Darwin (c) Louis Pasteur (d) Alexander Fleming	1
5.	Which of the following is a biodegradable waste? (a) Plastic (b) Glass (c) Vegetable peels (d) Metal cans	1
6.	In human alimentary canal, the specific enzyme/ juice secreted in locations (i), (ii) and (iii) are  (a) (i) Amylase (ii) Pepsin (iii) Bile (b) (i) Amylase (ii) Bile (iii) Trypsin (c) (i) Lipase (ii) Amylase (iii) Pepsin	1

	(d) (i) Trypsin (ii) Bile (iii) Amylase	
7.	Which of the following is not produced during anaerobic respiration (a) C_2H_5OH (b) H_2O (c) CO_2 (d) ATP	1
	<u>DIRECTIONS: Following two Question contains</u>, a statement of Assertion (A) is followed by a statement of Reason (R). Choose the correct option: (A) Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A) (B) Both assertion (A) and reason (R) are true and reason (R) is not the explanation of assertion (A) (C) Assertion (A) is true but reason (R) is false. (D) Assertion (A) is false but reason (R) is true.	
8.	ASSERTION(A): Oxygen is essential for all aerobic forms of life. REASON(B): Free oxygen atoms combine with molecular oxygen to form ozone.	1
9.	ASSERTION(A): If the pollen is transferred from one flower to another, it is known as cross pollination REASON(B): This transfer of pollen from one flower to another is achieved by agents like wind water or animals.	1
10.	Differentiate between autotrophic and heterotrophic nutrition. Give one example of each.	2
11. (A)	i. How many chambers are present in the heart of : (i) Fish (ii) amphibians? ii. Why is it necessary to separate oxygenated and deoxygenated blood in mammals and birds?	
(B)	OR i. What is meant by trophic level? ii. On an average, What percentage of energy is transferred to the second trophic level from the first trophic level ? Which categories of consumers do the organisms of the second trophic level belong to ?	
12.	What will happen if: a) Xylem tissue in a plant is removed? b) We are injured and start bleeding?	2
13.	Explain the process of digestion in the human stomach.	3
14.	Describe the structure of a nephron with the help of a labeled diagram. OR What is double circulation? Explain with a diagram.	3
15.	A student observes under a microscope that a Paramecium divides into two identical cells. This asexual reproduction method is binary fission, common in unicellular organisms. It allows rapid multiplication in favorable conditions.	4

	i. What is binary fission? ii. Name two advantages of asexual reproduction. iii. Why is sexual reproduction preferred over asexual in higher organisms? iv. Draw a simple labeled diagram of binary fission in Amoeba.	
16. (A)	Explain the structure of DNA with a labeled diagram. How does it carry genetic information?	5
	OR	
(B)	Describe the mechanism of sex determination in humans.	
Section B		
17.	Which of the following is a displacement reaction? (a) $\text{MgCO}_3 \rightarrow \text{MgO} + \text{CO}_2$ (b) $2\text{NaBr} + \text{Cl}_2 \rightarrow 2\text{NaCl} + \text{Br}_2$ (c) $\text{NaCl} + \text{AgNO}_3 \rightarrow \text{AgCl} + \text{NaNO}_3$ (d) All of the above	1
18.	The pH of a solution is 3. What is the nature of the solution? (a) Acidic (b) Basic (c) Neutral (d) Amphoteric	1
19	Which metal is extracted from its ore by electrolysis? (a) Iron (b) Aluminum (c) Copper (d) Zinc	1
20	The functional group in alcohols is: (a) $-\text{COOH}$ (b) $-\text{OH}$ (c) $-\text{CHO}$ (d) $-\text{NH}_2$	1
21	In the modern periodic table, on moving from left to right, the atomic size: (a) Increases (b) Decreases (c) Remains the same (d) First increases then decreases	1
22	Sodium hydroxide turns phenolphthalein solution (a) Pink (b) yellow (c) orange (d) Colorless	1
23	The number of single and double bonds present in a molecule of benzene(C_6H_6) (a) 6 and 6 (b) 9 and 3 (c) 3 and 9 (d) 3 and 3	1
	<u>DIRECTIONS: Following Question contain</u>, a statement of Assertion (A) is followed by a statement of Reason (R). Choose the correct option: (A) Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A) (B) Both assertion (A) and reason (R) are true and reason (R) is not the explanation of assertion (A) (C) Assertion (A) is true but reason (R) is false. (D) Assertion (A) is false but reason (R) is true.	

24.	ASSERTION(A): Carbonic acid is weak acid. REASON(R): It ionized completely in aqueous solution.	1
25.	What is meant by 'allotropy'? Give two allotropes of carbon.	2
26. (A)	Some metals react with acids to produce salt and hydrogen gas. Illustrate it with an example. How will you test the presence of this gas?	3
(B)	OR Define catenation property of carbon?	
27.	i. Write difference between combination and decomposition reaction? ii. write chemical name and formula of baking soda. iii. Name the product obtained from chlorine and sodium hydroxide.	3
28.	In a chemistry lab, a student observes that when dilute hydrochloric acid is added to zinc granules, hydrogen gas is evolved, which burns with a pop sound. The reaction is represented as $\text{Zn} + 2\text{HCl} \rightarrow \text{ZnCl}_2 + \text{H}_2$. This is an example of a single displacement reaction where zinc displaces hydrogen from the acid. i. Why does hydrogen gas burn with a pop sound? ii. What type of reaction is this? Justify. iii. If magnesium is used instead of zinc, will the reaction be faster or slower? Why? iv. Write the balanced equation for the reaction with magnesium.	4
29.	i. Write the balanced chemical equation for the reaction between sodium carbonate and dilute hydrochloric acid. ii. Explain why the reaction between quicklime and water is exothermic. iii. What is rancidity? How can it be prevented? OR i. Describe the extraction of aluminum from bauxite ore. ii. Why is sodium chloride called table salt?	
Section C		
30.	The focal length of a concave mirror is -20 cm. Its power is: (a) +5 D (b) -5 D (c) +0.05 D (d) -0.05 D	1
31.	The human eye forms the image of an object at its: (a) Cornea (b) Iris (c) Retina (d) Pupil	1
	<u>DIRECTIONS:</u> Following Question contain, a statement of Assertion (A) is followed by a statement of Reason (R) . Choose the correct option: (A) Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A) (B) Both assertion (A) and reason (R) are true and reason (R) is not the explanation of assertion (A) (C) Assertion (A) is true but reason (R) is false.	

	(D) Assertion (A) is false but reason (R) is true.	
32	ASSERTION(A): It is impossible to see a virtual image with our naked eyes. REASON(R): The rays do not actually emanate from a virtual image.	1
33.	A person suffering from presbyopia needs bifocal lens. If he needs two lens of power 4.0 dioptre and +0.2 dioptre, which one of these is for the correction of distant vision and what is its focal length?	2
34.	A Ray of light falls making an angle of incident, θ on the surface of a glass slab draw labelled ray diagram to show its path also mark lateral displacement on it OR i. name two safety measures commonly used in electricity circuits and appliances ii. The power rating of an electric oven is 220V, 2kW, if it is used in a domestic electric circuit of current rating of 5A, what result do you expect? Justify your answer with necessary calculations	2
35.	i. Define principle axis of a lens draw a diagram to show what happens when a Ray of light parallel to the principle axis of the concave lens passes through it. ii. The focal length of a concave lens is 20cm. At what distance from the lens should a 5 cm tall object be placed so that its image is formed at a distance of 15 cm from the lens? Also calculate the size of the image formed.	3
36.	Explain why a magnetic needle gets deflected when brought near a current-carrying wire	3
37.	Absolute refractive index of a diamond and water are 2.42 and 1.33 respectively. find the value of refractive index of water with respect to diamond.	3
38.	Case Based/Source Based Question. In an electric circuit, two resistors of 3Ω and 6Ω are connected in parallel, and the combination is connected in series with a 2Ω resistor. A battery of 12V is connected across the circuit. The current in the circuit is measured using an ammeter. i. Calculate the equivalent resistance of the parallel combination. ii. What is the total equivalent resistance of the circuit? iii. Find the total current drawn from the battery. iv. What is the voltage across the 2Ω resistor?	4
39. (A)	A postage stamp appears raised by 7.0 mm when placed under a rectangular glass block of refractive index 1.5. Find the thickness of the glass block. OR Derive the lens formula for a convex lens.	5
(B)	What is an induced current?	

SCIENCE
SAMPLE QUESTION PAPER 2
CLASS – X (2025-26)

Maximum Marks: 80

Time: 3 hours

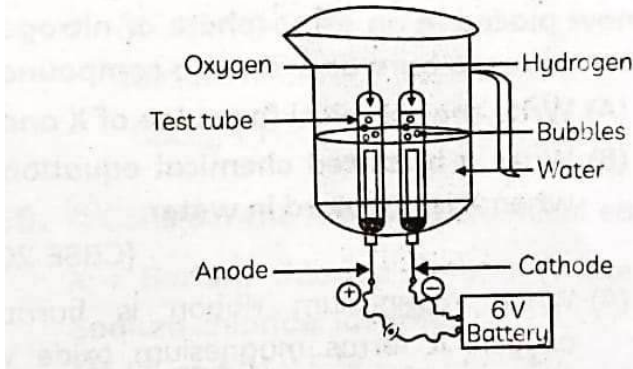
General Instructions:

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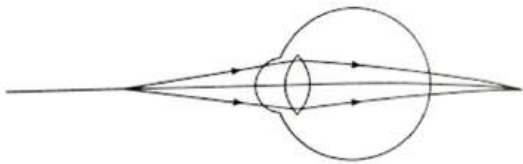
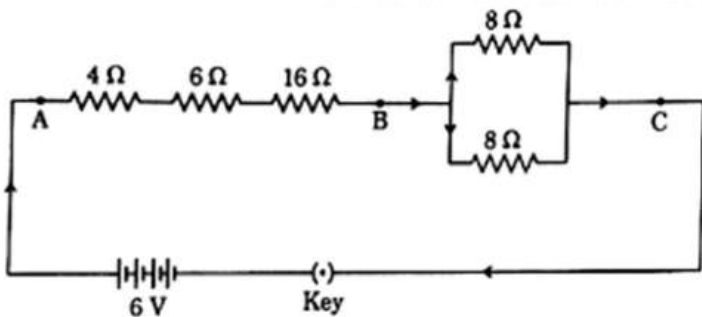
Section – A		
Q. No	Questions	Marks
1.	Accumulation of non biodegradable pesticides in the food chain in increasing amount at each high trophic level is known as: (a) Eutrophication (b) Pollution (c) Bio magnification (d) Accumulation	1
2.	A tall plant (TT) is crossed with a dwarf plant (tt). All F ₁ plants showed tall phenotype. Which of the following correctly defines a test cross? (a) TT × Tt (P) (b) Tt × Tt (P) (c) tt × Tr (P) (d) Tt × tt (P)	1
3.	What is parthenogenesis : (a) Development of fruit without hormones (b) Development of fruit without fertilisation (c) Development of egg without fertilisation (d) Development of embryo without fertilisation	1
4.	Fight and flight hormones is : (a) Adrenaline (b) Thyroxine (c) Oxytocin (d) Insulin	1
5.	Urine produced in kidneys is stored temporarily in (a) Urethra (b) Ureters (c) Nephron (d) Urinary bladder	1
6.	Asexual reproduction takes place by : (a) Budding (b) Spore formation (c) Binary fission (d) All of these	1
7.	Gametes contain: (a) Diploid set of chromosomes (b) Haploid set of chromosomes (c) Sex chromosomes only (d) Autosomes only	1

	<u>DIRECTIONS: Following two Question contains</u>, a statement of Assertion (A) is followed by a statement of Reason (R). Choose the correct option: (A) Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A) (B) Both assertion (A) and reason (R) are true and reason (R) is not the explanation of assertion (A) (C) Assertion (A) is true but reason (R) is false. (D) Assertion (A) is false but reason (R) is true.	
8.	ASSERTION(A): Regeneration is carried out by specialized cells. REASON(R): These cells proliferate and make large numbers of cells from this mass of cells.	1
9.	ASSERTION(A): Decomposers acts as cleaning agents of environment. REASON(R): The decomposers recycle waste material in hydrosphere	1
10.	What is vegetative propagation? List its two advantages.	2
11.	List two distinguish features between sexual reproduction and asexual reproduction? OR I. Name two excretory products other than O₂ and CO₂ in plants. II. Why is urine yellow in color?	
12.	As like animals plants don't excrete excretory products as they do not eat food. Justify statement	2
13.	What is double circulation? Explain with a diagram.	3
14.	How does binary fission occur in Amoeba? Draw a labeled diagram.	3
15.	Pollination is an important process in sexual reproduction of plants. It is an essential process that facilitates fertilization in plants. Pollinating agents can be wind water insect and birds. Several changes take place in the flower after the fertilization has taken place. a) Write the main difference between self pollination and cross pollination. b) Name the part of the flower which attracts insects for pollination. What happens to this part after fertilisation? c) (I) Define fertilisation. What is the date of ovules and the ovary in a flower after fertilisation? OR (II) In a germinating seed, which parts are known as future shoot and future root?	4
16.	a. What is a variation? How is variation created in a population? Why is variation beneficial to the species. b. Explain how, offspring and parents of organisms reproducing sexually have the same number of chromosomes. OR	5

	a. Leaves of chhui-mui plant begin to fold up and droop in response to a stimulus. Name the stimulus and write the cause for such a rapid movement. Is there any growth involves in the movement? b. Define geotropism in plants. What is meant by positive and negative geotropism? Give one example of each type.	
Section B		
17.	$\text{BaCl}_2 + \text{Na}_2\text{SO}_4 \rightarrow \text{BaSO}_4 + 2\text{NaCl}$. It is type of: Which of the following is a displacement reaction? (a) Both precipitation and double displacement (b) Precipitation (c) Displacement reaction (d) Double displacement	1
18.	The pH of a solution is 5. What is the nature of the solution? (a) Acidic (b) Basic (c) Neutral (d) Amphoteric	1
19	Acid present in tomato is. (a) Acetic acid (b) Oxalic acid (c) Lactic acid (d) None	1
20	Which of the following non metal is liquid at room temperature (a) Bromine (b) Phosphorus (c) Carbon (d) Iodine	1
21	In the modern periodic table, on moving from left to right, the atomic size: (a) CaOCl_2 (b) Na_2CO_3 (c) $\text{CaSO}_4 \cdot 1/2\text{H}_2\text{O}$ (d) none of these	1
22	What does the litmus test determine? a) The temperature of a substance b) Whether a substance is acidic or basic c) The pH of a substance d) The solubility of a substance	1
23	In which one of the following situations a chemical reaction does not occur? (a) Milk is left open at room temperature during the summer (b) Grapes get fermented (c) An iron nail is left exposed to humid atmosphere (d) Melting of glaciers	1
	<u>DIRECTIONS:</u> Following Question contain, a statement of Assertion (A) is followed by a statement of Reason (R). Choose the correct option: (A) Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A) (B) Both assertion (A) and reason (R) are true and reason (R) is not the explanation of assertion (A) (C) Assertion (A) is true but reason (R) is false. (D) Assertion (A) is false but reason (R) is true.	

24.	ASSERTION(A): $\text{Mg} + \text{O}_2 \rightarrow \text{MgO}$ is balanced chemical equation REASON(R): The coefficient of Mg, O_2 and MgO are the same, that is 1	1
25.	Write the balanced chemical equation for the reaction between aqueous solutions of sodium sulphate and barium chloride. State two types of reactions in which it is classified.	2
26.	i. Define the term decomposition reaction. Write one chemical equation each for decomposition reaction where energy is supplied in the form of heat, light or electricity. ii. Decomposition of vegetable matter into compost is considered an exothermic reaction. Why? OR What happens when dilute hydrochloric acid is added to iron fillings?	3
27.	Study the fig given below :  a. Name the process depicted in the diagram b. Write the composition of gases collected at cathode and anode c. Write the balanced chemical equation.	3
28.	During the electrolysis of water, an electric current is passed through acidulated water. On electrolysis, hydrogen is produced at the cathode and oxygen is produced at the anode. The hydrogen and oxygen produced are in the ratio 2:1 by volume. The electrolysis of water is an example of decomposition reaction which is carried out with the help of electricity i. During Electrolysis of water containing dilute sulphuric acid, the gas collected at anode is: a) Hydrogen b) sulphur dioxide c) Oxygen. d) Chlorine ii. During electrolysis of water, the ratio of hydrogen and oxygen produced by volume is. a) 2:1. b) 1:2. c) 1:1. d) 2:2 iii. Electrolysis of water is an example of reaction called a) Simple displacement. b) Double displacement c) Combination reaction d) Decomposition reaction iv. Define electrolysis.	4

29.	i. Consider the following metals: K, Ca, Al, Cu, Ag, Fe Select from the above metals, a metal which: (I). Does not react with oxygen even at high temperature (II). Reacts with oxygen at ordinary temperature and form protective oxide layer which prevents the metal from further oxidation (III). Catches fire when kept in the open (IV). Does not burn in oxygen but the hot metal is coated with a black coloured oxide layer ii. Does not burn in oxygen but the hot metal is coated with a black coloured oxide layer iii. What are alkalis? Give one example. OR i. Define the term “homologous series of carbon compounds”. Write a homologous series of compounds having functional group -CHO. ii. Design an experiment to distinguish between an alcohol and a carboxylic acid. Also write chemical equation for that case in which reaction occurs.	
Section C		
30.	A positively - charged particle (alpha - particle) projected towards west is deflected towards north by a magnetic field . The direction of magnetic field is (a) towards south (b) towards east (c) downward (d) upward	1
31.	Three resistors of resistance 1 ohm ,2 ohm and 3 ohm are connected in series combination and draw the current 0.5 A from the power source . The potential difference across the combination is (a) 3 V (b) 12 V (c) 1/12 V (d) 6 V	1
	<u>DIRECTIONS:</u> Following Question contain, a statement of Assertion (A) is followed by a statement of Reason (R). Choose the correct option: (A) Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A) (B) Both assertion (A) and reason (R) are true and reason (R) is not the explanation of assertion (A) (C) Assertion (A) is true but reason (R) is false. (D) Assertion (A) is false but reason (R) is true.	
32	ASSERTION(A): Rainbow is a natural spectrum of sunlight in the sky REASON(R): Rainbow is formed in the sky when the sun is overhead and water droplets are also present in air.	1
33.	Observe the following diagram showing an image formation in an eye.	2

	 a. identify the defect of vision shown in figure b. list its two causes and suggest a suitable corrective lens to overcome this defect	
34.	The focal length of a concave lens is 20 cm . At what distance from the lens should a 5 cm tall object be placed so that its image formed at a distance of 15 cm from the lens ? also calculate the size of the image formed. OR Define power of a lens. What is its unit?	2
35.	A convex lens has a focal length of 20 cm. At what distance from the lens should an object be placed so that it forms a real and inverted image of size 2 times the object? Also, state the nature, position, and size of the image if the object is placed at 15 cm from the lens	3
36.	A light starting from a diamond is entering on the interface separating diamond in water draw label the diagram to show the refraction of light in this case.	3
37.	What are common defects of vision that can be corrected by use of suitable eye lens?	3
38.	Case Based/Source Based Question. Study the following circuit:  On the basis of this circuit ,answer the following questions : a) Find the resistance between the points B and C b) Calculate the current drawn from the battery ,when the key is closed . or In the above circuit ,the 16 ohm resistor or the parallel combination of two resistors of 8 ohm ,which one pf the two will have more potential difference across its two ends ? justify your answer	4

39.	What is a solenoid? when does a solenoid behave as magnet? Draw the pattern of the magnetic field produced inside its showing the direction of the magnetic field lines. OR i. State Three laws of reflection and refraction. ii. State ohm's law iii. Establish the relationship between 1kWh and 1 joule	5
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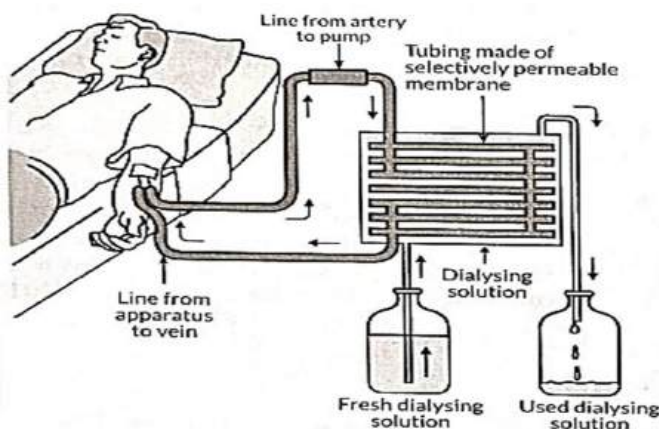
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	<u>DIRECTIONS:</u> Following two Question contains, a statement of Assertion (A) is followed by a statement of Reason (R). Choose the correct option: (A) Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A) (B) Both assertion (A) and reason (R) are true and reason (R) is not the explanation of assertion (A) (C) Assertion (A) is true but reason (R) is false. (D) Assertion (A) is false but reason (R) is true.	
8.	ASSERTION(A): Saprophytes cannot prepare their food REASON(R): Fungi are saprophytes	1
9.	ASSERTION(A): Tropic Movement are directional movements in plants REASON(B): Bending of plant shoot towards light is a tropic movement	1
10.	State two postulates of the theory of natural selection	2
11.	State the main function of arteries. Why do they have thick and elastic walls? OR Plants use a variety of techniques to get rid of waste material." Justify this statement giving any four ways.	
12.	A person, while climbing up a rocky hill, comes into a panic state and fear. His body starts reacting in a "fight-or-flight" condition to adjust to the dangerous and stressful situation. (a) (i) Name the hormone secreted in the blood of the person in this situation.	2
13.	Complete the following flow chart as per the given instructions. Gastric glands present in the wall of stomach. ↓ Secretions ↓ a ↓ Function d ↓ b ↓ Function e ↓ c ↓ Function f	3
14.	Name the type of blood (oxygenated/ deoxygenated) transported by each of the following mentioning the path i.e., from one organ (which place) to another (which place). (A) Vena cava (B) Pulmonary artery	3
15.	Read the following and answer the questions from (i) to (iv).	4

The figure shown below represents a common type of dialysis called as hemodialysis- It removes waste products from the blood, such as excess salts, and urea which are insufficiently removed by the kidney in patients with kidney failure. During the procedure, the patient's blood is cleaned by filtration through a series of semi-permeable membranes before being returned to the blood of the patient.

On the basis of this answer the following questions.

- i. The hemodialyzer has semi-permeable lining c tubes which help
 - (a) To maintain osmotic pressure of blood
 - (b) To filter nitrogenous wastes from the dialysin solution
 - (c) In passing the waste products in the dialysing solution
 - (d) To pump purified blood back into the body of the patient.



- ii. Which one of the following is not a function of artificial kidney?
 - (a) To remove nitrogenous wastes from the blood
 - (b) To remove excess fluids from the blood.
 - (c) To reabsorb essential nutrients from the blood.
 - (d) To filter and purify the blood.
- iii. The 'used dialysing' solution is rich in
 - (a) Urea and excess salts
 - (b) Blood cells
 - (c) Lymph
 - (d) Proteins
- iv. Which part of the nephron in human kidney, serves the function of reabsorption of certain substances
 - (a) Glomerulus
 - (b) Bowman's Capsule
 - (c) Tubules
 - (d) Collecting Duct

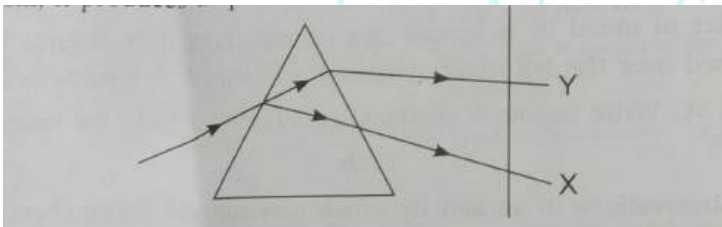
16.	Give reasons: a. Ventricles have thicker muscular walls than atria. b. The transport system in plants is slow. c. Circulation of blood in aquatic vertebrates differs from that in terrestrial vertebrates. d. During the daytime, water and minerals travel faster through the xylem as compared to the night. e. Veins have valves, whereas arteries do not.	5
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Section B

17.	Select from the following a hydrocarbon having one C–C bond and one C ≡ C bond. (a) Benzene (b) Cyclohexane (c) Butyne (d) Propyne	1
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18.	The functional group in alcohols is: (a) –COOH (b) –OH (c) –CHO (d) –NH ₂	1
19	The color of the solution observed after about 1 hour of placing iron nails in copper sulphate solution is: (a) Blue (b) Pale green (c) Yellow (d) Reddish brown	1
20	The correct balanced chemical equation showing exothermic reaction in which natural gas burns in air is: (a) $\text{CH}_4 + \text{O}_2 \rightarrow \text{CO}_2 + 2\text{H}_2\text{O}$ (b) $\text{CH}_4 + 2\text{O}_2 \rightarrow 2\text{CO}_2 + 2\text{H}_2\text{O} + \text{Energy}$ (c) $\text{CH}_4 + 2\text{O}_2 \rightarrow \text{CO}_2 + 2\text{H}_2\text{O}$ (d) $\text{CH}_4 + 2\text{O}_2 \rightarrow \text{CO}_2 + 2\text{H}_2\text{O} + \text{Energy}$	1
21	The warning sign shown in the given figure must invariably be displayed/pasted on the containers which contain hydroxide of:  (a) Aluminium (b) Calcium (c) Sodium (d) Magnesium	1
22	Oxides of aluminum and zinc are: (a) acidic (b) basic (c) amphoteric (d) neutral	1
23	What is the product of the reaction between an acid and a metal? (a) Oxygen and metal oxide (b) Water and carbon dioxide (c) Salt and hydrogen gas (d) Salt and water	1
	<u>DIRECTIONS:</u> Following Question contain, a statement of Assertion (A) is followed by a statement of Reason (R) . Choose the correct option: (A) Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A) (B) Both assertion (A) and reason (R) are true and reason (R) is not the explanation of assertion (A) (C) Assertion (A) is true but reason (R) is false. (D) Assertion (A) is false but reason (R) is true.	
24.	Assertion(A): Silver chloride turns grey in sunlight. Reason(R): Decomposition of silver chloride into silver and chlorine takes place by sunlight.	1
25.	What is meant by 'allotropy'? Give two allotropes of carbon. OR	2

	What is observed when hydrated ferrous sulphate crystals are heated in dry boiling tube. Write the balanced chemical equation	
26.	State Dobereiner's law of triads with an example.	3
27.	i. Name two metals which react violently with cold water. List any three observations which a student notes when these metals are dropped in a beaker containing water. ii. Write a test to identify the gas evolved (if any) during the reaction of these metals with water.	3
28.	The different elements in the periodic table can be classified into Metals, non metals, metalloids and noble gases. Generally the metals form basic oxides, non metals form acidic oxides and metalloids form amphoteric oxides. The oxides such as CO, NO etc. are neutral. Also a more reactive metal can displace a less reactive metal from its salt solution i. Which of the following forms an acidic oxide? a) Calcium b) magnesium c) Sulphur. d) sodium ii. Which of the following forms a basic oxide? a) Nitrogen b) Phosphorus c) Calcium d) Carbon iii. CO is a ____ oxide. a) Basic b) Netural c) Acidic d) Amphoteric iv. Define metal and non metal	4
29.	i. Define water of crystallization. ii. Write the chemical name and formula of a compound having water of crystallization in its molecule and appears blue. iii. Write the chemical formula of bleaching powder. Write a balanced chemical equation of the reaction involved in its preparation. List its three uses. OR An acid X present in tamarind when mixed with Y, produces a mixture Z. Z on addition to a dough when heated Makes cakes soft and spongy. Y is prepared from common salt and helps in faster cooking. i. Write the common names of X, Y and Z, and the chemical formula of Y. ii. How is Y prepared and how does it help in making cakes soft and spongy? Illustrate the reaction with suitable Chemical equation. iii. Write the name and chemical formula of a mild base other than Y used as an antacid.	
Section C		
30.	In a series circuit, if the resistance is doubled, the current: (a) Doubles (b) Halves (c) Remains the same (d) Quadruples	1
31.	The magnetic field inside a long straight solenoid carrying current is: (a) Zero (b) Increasing (c) Uniform (d) Decreasing	1

	DIRECTIONS: Following Question contain, a statement of Assertion (A) is followed by a statement of Reason (R). Choose the correct option: (A) Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A) (B) Both assertion (A) and reason (R) are true and reason (R) is not the explanation of assertion (A) (C) Assertion (A) is true but reason (R) is false. (D) Assertion (A) is false but reason (R) is true.	
32	ASSERTION(A): if an object is placed at the focus of a convex mirror its image is formed at infinity REASON(B): The distance of the image from convex mirror can not be infinity	1
33.	Can a freely suspended current carrying solenoid stay in direction? justify your answer. What will happen when the direction of current in the solenoid is reversed?	2
34.	Explain with the help of the pattern of magnetic field lines the distribution of magnetic field due to a current carrying a circular loop. OR What is electromagnet? list any two uses	2
35. (A) (B)	Draw a labelled diagram to show how an electromagnet is made. State the purpose of soft iron core used in making an electromagnet	3
36.	A narrow beam of light is passed through a glass prism as shown in fig. after passing through the prism, It produces a spectrum XY on a screen.  i. state the colours seen at X and Y respectively. ii. why do different colours of white light bend through different angles?	3
37.	Define the term power of accommodation of human eye. what happens to image distance in the eye when we increase the distance of an object from the eye? name and explain the role of the part of human eye responsible for it in this case.	3
38.	Case Based/Source Based Question. Georg Simon Ohm (1789-1854) was a German mathematician, "The physicist" and a high school teacher. At that time, the resources available to him for his research and experiment were: i. The magnetic field around a wire carrying electric current discovered by Oersted in 1520,	4

	ii. The electrochemical cell, described by Volta in 1800; and iii. The thermoelectric effect, discovered by Seebeck in 1822. OR From these resources and using equipment of his own creation, he was able to define the fundamental relationship among voltage, current, and resistance, which represent the true beginning of electrical circuit analysis. Now, today in any part of world, most of us use electricity every day. That electricity is handled in circuits: a closed loop of conductors travelling from power plants to neighborhoods to households and back again. That closed loop uses the three essential parts of a circuit - power supply (or battery), wires, and resistors form one huge electrical circuit. i. What happens to resistance of a wire if its area of cross-section is decreased? ii. Manganin is used for making standard resistors. Why? iii. For which of the following conductor Ohm's law is accurately applicable: Metallic conductor at low temperature or metallic conductor at high temperature?	
39.	A. Draw a labeled diagram human eye? B. Draw all the images formed by concave and convex lens? C. Explain the dispersion of white light through prism.	5



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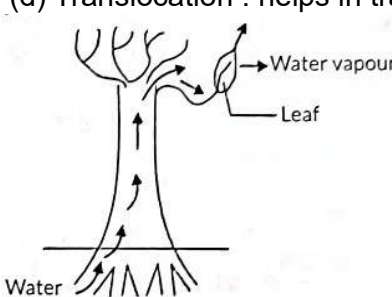
SCIENCE
SAMPLE QUESTION PAPER 4
CLASS – X (2025-26)

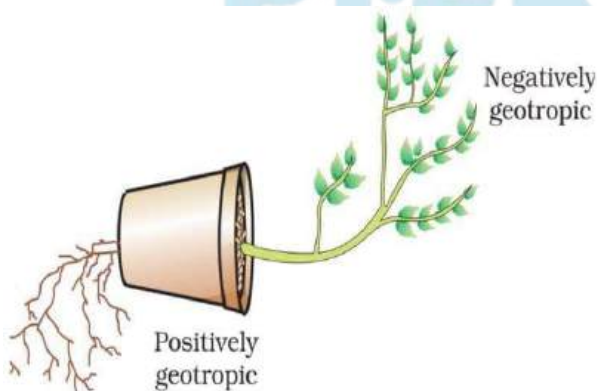
Maximum Marks: 80

Time: 3 hours

General Instructions:

- I. This question paper consists of 39 questions in 3 sections.
 - a. Section A is Biology,
 - b. Section B is Chemistry
 - c. 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		
Q. No	Questions	Marks
1.	The sequence of living organisms in a community in which one is eaten by the next is called: a) Food web b) Food cycle c) Food chain d) Food link	1
2.	The ability of a cell to divide into many cells and form a whole organism is called: a) Differentiation b) Regeneration c) Vegetative propagation d) Budding	1
3.	The gap between two neurons is called: a) Synapse b) Node c) Junction d) Dendrite	1
4.	Iodine is necessary for the synthesis of which hormone? a) Insulin b) Thyroxine c) Adrenaline d) Estrogen	1
5.	Observe the following diagram and identify the process and its significance from the following options (a) Evaporation : maintains water contents in leaf cells. (b) Transpiration : creates a suction force which pulls water inside the plant. (c) Excretion : helps in excreting out waste water from the plant. (d) Translocation : helps in transporting materials from one cell to another. 	1

6.	Bile in human digestive system is secreted by: (a) Liver (b) Pancreas (c) Kidneys (d) Stomach	1
7.	Which one of the following is not an excretory product in plants? (a) CO ₂ (b) Starch (c) Resins and gums (d) Dead cells	1
	<u>DIRECTIONS:</u> Following two Question contains, a statement of Assertion (A) is followed by a statement of Reason (R). Choose the correct option: (A) Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A) (B) Both assertion (A) and reason (R) are true and reason (R) is not the explanation of assertion (A) (C) Assertion (A) is true but reason (R) is false. (D) Assertion (A) is false but reason (R) is true.	
8.	ASSERTION(A): Saprophytes cannot prepare their food REASON(R): Fungi are saprophytes	1
9.	ASSERTION(A): Tropic Movement are directional movements in plants REASON(R): Bending of plant shoot towards light is a tropic movement	1
10.	A doctor finds in one of his patients that he is not maintaining a proper posture and balance of his body. State the region of brain and also the part of brain which is responsible for it.	2
11.	Study the given diagram and write the type of movement exhibited by: (a) Root, and (b) Shoot, mentioning the stimulus in each case. 	
12.	What are genes and where are they located?	2
13.	The food chain Grass → Deer → Lion is operating in a forest. What will happen if all the (a) Lions are removed? (b) Deer are removed?	3
14.	"A trait may be inherited but may not expressed" Justify this statement with suitable example?	3
15.	In life there are certain changes in the environment called 'stimuli' to which we respond appropriately. Touching a flame suddenly is a dangerous situation for us.	4

	One way is to think consciously about the possibility of burning and then moving the hand. But our body has been designed in such a way that we save ourselves from such situations immediately. - Name the action by which we protect ourselves in the situation mentioned above and define it. - Write the role of (a) motor and (b) relay neuron. - What are the two types of nervous system in the human body? Name the components of each of them. OR - Which part of the human brain is responsible for: (a) thinking (b) picking up a pencil (c) controlling blood pressure (d) controlling hunger	
16.	A. Name and explain the two modes of asexual reproduction in hydra. B. What is vegetative propagation? List two advantages of this technique.	5
Section B		
17.	In the modern periodic table, on moving from left to right, the atomic size: (a) Increases (b) Decreases (c) Remains the same (d) First increases then decreases	1
18.	An element X reacts with O₂ to give a compound with a high melting point. This compound is also soluble in water. The element X is likely to be (a) carbon (b) silicon (c) iron (d) Calcium	1
19	The colour of the solution observed after about 1 hour of placing iron nails in copper sulphate solution is: (a) Blue (b) Pale green (c) Yellow (d) Reddish brown	1
20	Which of the following is true about carbon dioxide? (a) It is essential for photosynthesis (b) It supports combustion (c) It is a flammable gas (d) It is a colourless, odourless and highly reactive gas	1
21	What happens when ammonia reacts with HCl? $\text{NH}_3 + \text{HCl} \rightarrow ?$ (a) Both H₂ and NH₄Cl (b) Cl₂ gas is evolved (c) H₂ gas is evolved (d) NH₄Cl is formed	1
22	Which of the following are exothermic processes? (a) melting of ice (b) dilution of an acid (c) evaporation of water (d) sublimation of camphor	1

23.	The metals which are found in both free state as well as combined state (a) gold and platinum (b) platinum and silver (c) copper and silver (d) gold and silver	1
	<u>DIRECTIONS:</u> Following Question contain, a statement of Assertion (A) is followed by a statement of Reason (R). Choose the correct option: (A) Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A) (B) Both assertion (A) and reason (R) are true and reason (R) is not the explanation of assertion (A) (C) Assertion (A) is true but reason (R) is false. (D) Assertion (A) is false but reason (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 reducing agent and reduces the hydrogen produced in the reaction to water.	1
25.	What happens when: a) Lead nitrate is thermally decomposed b) Natural gas burns in air (Write balanced chemical equations) OR The melting and boiling points of carbon compounds are generally low and they are largely non-conductors of electricity. State two conclusions based on these two properties	2
26.	While burning a magnesium ribbon in air, list two safety measures which should be followed. Also state two observations of this activity.	3
27.	Write the balanced equation for the following chemical reactions. (i) Hydrogen + Chlorine → Hydrogen chloride (ii) Barium chloride + Aluminium sulphate → Barium sulphate + Aluminium chloride (iii) Sodium + Water → Sodium hydroxide + Hydrogen	3
28.	Read the following passage and answer the questions that follow: In a chemistry lab, a student observes that when dilute hydrochloric acid is added to zinc granules, hydrogen gas is evolved, which burns with a pop sound. The reaction is represented as $\text{Zn} + 2\text{HCl} \rightarrow \text{ZnCl}_2 + \text{H}_2$. This is an example of a single displacement reaction where zinc displaces hydrogen from the acid. i. Why does hydrogen gas burn with a pop sound? ii. What type of reaction is this? Justify. iii. If magnesium is used instead of zinc, will the reaction be faster or slower? Why? iv. Write the balanced equation for the reaction with magnesium.	4
29.	a) Name two cyclic hydrocarbons and draw the structure of any one. b) Explain the process of micelle formation on adding soap in water OR	

	What is chemical reaction ? describe one activity each to show that a chemical change has occurred in which (a) Colour change (b) Temperature change	
Section – C		
30.	Mirror 'X' is used to concentrate sunlight in a solar furnace, and Mirror 'Y' is fitted on the side of the vehicle to see the traffic behind the driver. Which of the following statements are true for the two mirrors? i. The image formed by mirror 'X' is real, diminished, and at its focus. ii. The image formed by mirror 'Y' is virtual, diminished, and erect. iii. The image formed by mirror 'X' is virtual, diminished, and erect. iv. The image formed by mirror 'Y' is real, diminished, and at its focus. (a) (i) and (ii) (b) (ii) and (iii) (c) (iii) and (iv) (d) (i) and (iv)	1
31.	If the absolute refractive indices of two media X and Y are $\frac{6}{5}$ and $\frac{4}{3}$ respectively, then the refractive index of Y with respect to X will be: (a) $\frac{10}{9}$ (b) $\frac{9}{10}$ (c) $\frac{9}{8}$ (d) $\frac{8}{9}$	1
	<u>DIRECTIONS: Following Question contain</u>, a statement of Assertion (A) is followed by a statement of Reason (R). Choose the correct option: (A) Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A) (B) Both assertion (A) and reason (R) are true and reason (R) is not the explanation of assertion (A) (C) Assertion (A) is true but reason (R) is false. (D) Assertion (A) is false but reason (R) is true.	
32	Assertion (A): Nichrome is an alloy commonly used in electrical heating devices such as electric irons, toasters, etc Reason (R): The resistivity of Nichrome is high, and its resistance decreases with an increase in temperature.	1
33.	Give any two applications of a concave and convex mirror.	2
34.	State the laws of refraction of light. Explain the term 'absolute refractive index of a medium' and write an expression to relate it with the speed of light in vacuum.	2
35. (A) (B)	List the factors on which the resistance of a cylindrical conductor depends and hence write an expression for its resistance. How will the resistivity of a conductor change when its length is tripled by stretching it?	3
36. (A)	Write the function of each of the following parts of the human eye : (i) Cornea (ii) Iris (iii) Crystalline lens (iv) Ciliary muscles.	3

(B)	Why does the sun appear reddish early in the morning? Will this phenomenon be observed by an astronaut on the Moon? Give a reason to justify your answer.	
37. (A)	An electric bulb is rated at 200 V; 100 W. What is its resistance?	3
(B)	Calculate the energy consumed by 3 such bulbs if they glow continuously for 10 hours for complete month of November.	
38.	Case Based/Source Based Question. A highly polished surface such as a mirror reflects most of the light falling on it. In our daily life we use two types of mirrors plane and spherical. The reflecting surface of a spherical mirrors may be curved inwards or outwards. In concave mirrors, reflection takes place from the inner surface, while in convex mirrors reflection takes place from the outer surface a) Define the principal axis of a concave mirror. b) A ray of light is incident on a concave mirror, parallel to its principal axis. If this ray after reflection from the mirror passes through the principal axis from a point at a distance of 10 cm from the pole of the mirror, find the radius of curvature of the mirror. c) An object is placed at a distance of 10 cm from the pole of a convex mirror of focal length 15 cm. Find the position of the image. d) A mirror forms a virtual, erect and diminished image of an object. Identify the type of this mirror. Draw a ray diagram to show the image formation in this case.	4
39.	A student traces the path of a ray of light through a glass prism for different angles of incidence. He analyses each diagram and draws the following conclusion: i On entering prism, the light ray bends towards its base. ii Light ray suffers refraction at the point of incidence and point of emergence while passing through the prism. iii Emergent ray bends at certain angle to the direction of the incident ray. iv While emerging from the prism, the light ray bends towards the vertex of the prism.	5

SCIENCE
SAMPLE QUESTION PAPER 5
CLASS – X (2025-26)

Maximum Marks: 80

Time: 3 hours

General Instructions:

- I. This question paper consists of 39 questions in 3 sections.
 - a. Section A is Biology,
 - b. Section B is Chemistry
 - c. 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.

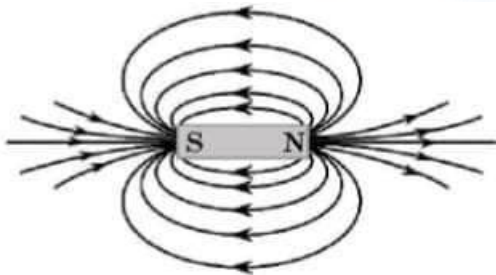
Section – A		
Q. No	Questions	Marks
1.	In humans, most of the digestion of food takes place in the: a) Mouth b) Stomach c) Small intestine d) Large intestine	1
2.	The hormone responsible for regulation of sugar level in blood is: a) Thyroxin b) Insulin c) Adrenaline d) Growth hormone	1
3.	In humans, the chromosome number in a zygote is: a) 23 b) 46 c) 92 d) 12	1
4.	The finger-like projections in the small intestine which help in absorption of food are called: a) Nephrons b) Villi c) Tracheae d) Alveoli	1
5.	Which of the following is an example of acquired trait? a) Eye colour b) Hair colour c) Loss of tail in a rat by cutting d) Shape of seeds	1
6.	The chemicals that do NOT get easily decomposed and are passed along the food chain are called: a) Biodegradable pollutants b) Non-biodegradable pollutants c) Organic pollutants d) Natural pollutants	1
7.	The three R's to save the environment are: a) Reduce, Reuse, Repair b) Reduce, Reuse, Recycle c) Reduce, Replace, Recycle d) Recycle, Reuse, Recover	1

	<u>DIRECTIONS: Following two Question contains</u>, a statement of Assertion (A) is followed by a statement of Reason (R). Choose the correct option: (A) Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A) (B) Both assertion (A) and reason (R) are true and reason (R) is not the explanation of assertion (A) (C) Assertion (A) is true but reason (R) is false. (D) Assertion (A) is false but reason (R) is true.	
8.	ASSERTION(A): Amoeba takes in food using finger like extensions of the cell surface. REASON(B): In all unicellular organisms, the food is taken in by the entire cell surface.	1
9.	ASSERTION(A): The number of chromosomes in a cell and in a germ cell is not the same in any species REASON(R): When 2 germ cells combine they restore the normal number of chromosomes in a species.	1
10.	How is the spinal cord protected in the human body?	2
11.	Besides minimizing the loss of blood, why is it essential to plug any leak in a blood vessel? Name the component of blood which helps in this process and state how this component performs this function. OR I. The transport system in plants is relatively slower than in animals. Give reasons. II. State the role of phloem in the transport of materials in plants. (2 Marks)	
12.	In the following food chain 100J energy is available to the lion. How much energy was available to the producer? Plants → Deer → Lion	2
13.	Based on the characteristics of the processes given in the brackets in each case, differentiate between the following: - Products of breakdown of pyruvate in aerobic and anaerobic respiration in human beings (product(s) of the processes) - Respiration and photosynthesis in plants (gas released) - Respiration in terrestrial animals and fishes (organs involved)	3
14.	Enlist any two nitrogenous waste products removed from the blood of human kidney. - Name the capillary cluster formed by the branch of renal artery in the Bowman's capsule. - Depict in the form of a flow chart the path of the urine formed in each kidney until it is finally passed out through the urethra.	3
15.	The maintenance functions of all living organisms must go on even when they are not doing anything particular. Even when we are just sitting in a class or even asleep, this maintenance job has to go on. These maintenance processes require energy to prevent damage and break-down of cells and tissues, which is obtained	4

	by the individual organism from the food prepared by the autotrophs, called producers. a. Name and define the process by which green plants prepare food. b. Write chemical equation involved in the above process. c. (i) State in proper sequence the events that occur in synthesis of food by desert plants. (ii) Explain giving reasons what happens to the rate at which the green plants will OR (i) during cloudy weather, and (ii) when stomata get blocked due to dust.	
16.	i. "The length of the small intestine in various animals depends on the food they eat." Justify the statement. ii. Discuss the role of the pancreas and bile juice in the digestion of food in human beings. iii. How is the small intestine designed to absorb digested food? (5 Marks) OR i. State the role of rings of cartilage present in the throat. ii. Discuss the role of the ribs and diaphragm when air is taken in during the breathing cycle. iii. Why do we get muscle cramps during heavy exercise? Explain.	5
Section B		
17.	What is common name of sodium hydroxide? (a) Vinegar (b) Ammonia (c) Baking soda (d) caustic soda	1
18.	Which is strong acid? (a) Hydrochloric acid (b) citric acid (c) Acetic acid (d) carbonic acid	1
19	The color of the solution observed after about 1 hour of placing iron nails in copper sulphate solution is: (a) Blue (b) Pale green (c) Yellow (d) Reddish brown	1
20	Which is non metals is used in manufacturing of fertilizer (a) Chlorine (b) Oxygen (c) Nitrogen (d) Sulphur	1
21	What happens when ammonia reacts with HCl? $\text{NH}_3 + \text{HCl} \rightarrow$ a) Both H_2 and NH_4Cl (b) Cl_2 gas is evolved c) H_2 gas is evolved (d) NH_4Cl is formed	1
22	Which of the following are endothermic processes? (a) melting of ice (b) formation of ice	1

	(c) combustion (d) Rusting of iron	
23.	Identify the group of unsaturated hydrocarbon from the following (a) Butyne, Ethene, Propane (b) Butyne, Ethene, Butane (c) Butyne, Ethane, Propane (d) Butyne, Ethene, Propene	1
	DIRECTIONS: Following Question contain, a statement of Assertion (A) is followed by a statement of Reason (R). Choose the correct option: (A) Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A) (B) Both assertion (A) and reason (R) are true and reason (R) is not the explanation of assertion (A) (C) Assertion (A) is true but reason (R) is false. (D) Assertion (A) is false but reason (R) is true.	
24.	Assertion (A) : When HCl is added to zinc granules, a chemical reaction occurs. Reason (R) : Evolution of a gas and change in colour indicate that the chemical reaction is taking place	1
25.	What is observed when carbon dioxide gas is passed through lime water i. for a short duration? ii. for a long duration? Also write the chemical equations for the reactions involved.	2
26.	Write down the formula of compound resulting from the combination of an element X(atomic number 20) with another element Y(atomic number 17) OR A student performs the following experiment in his school laboratory. List two observations to justify that in this experiment a chemical change has taken place.  The diagram shows a conical flask with a stopper. Inside the flask, there is a yellowish liquid labeled 'dilute sulphuric acid' and small grey granules at the bottom labeled 'Zn granules'.	3
27.	"Displacement reactions also play a key role in extracting metals in the middle of the reactivity series." Justify this statement with two examples. Why can metals high up in the reactivity series not be obtained by reduction of their oxides by carbon?	3
28.	Salts of strong acid and base are neutral with pH value 7. On the other hand, salts of strong acid and weak base are acidic with value less than 7 and those of strong base and weak acid are basic in nature, with pH value more than 7. a. Classify strong acid and weak acid HCL, H₂SO₄, CH₃COOH, HNO₃ b. Write reaction of strong acid and weak base. c. What happened when strong acid and strong base combine.	4

29.	a. Write the balanced chemical equation for the reaction between sodium carbonate and dilute hydrochloric acid. b. Explain why the reaction between quicklime and water is exothermic. c. What is rancidity? How can it be prevented? OR a. Describe the extraction of aluminum from bauxite ore. b. Why is sodium chloride called table salt?	
Section C		
30.	A wire of length 'l' is gradually stretched so that its length increases to 3l. If its original resistance is R, then its new resistance will be: (a) 3R (b) 6R (c) 9R (d) 27R	1
31.	An old person is suffering from an eye defect caused by weakening of ciliary muscles and diminishing flexibility of the eye lens. If the defect of vision is 'a' which can be corrected by lens 'b', then 'a' and 'b' respectively are : (a) hypermetropia and convex lens (b) presbyopia and bifocal lens (c) myopia and concave lens (d) myopia and bifocal lens	1
	<u>DIRECTIONS:</u> Following Question contain, a statement of Assertion (A) is followed by a statement of Reason (R). Choose the correct option: (A) Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A) (B) Both assertion (A) and reason (R) are true and reason (R) is not the explanation of assertion (A) (C) Assertion (A) is true but reason (R) is false. (D) Assertion (A) is false but reason (R) is true.	
32	Assertion (A): Myopic eye cannot see distant objects distinctly. Reason (R): For the correction of myopia converging lenses of appropriate power are prescribed by eye-surgeons.	1
33.	A voltage source sends a current of 2 A to a resistor of 40 Ω connected across it for 5 minutes. Calculate the electrical energy supplied by the source.	2
34.	An object is placed at a distance of 30 cm in front of a concave mirror of focal length 20 cm. Use the mirror formula to determine the position of the image formed in this case. OR Name the component of white light that deviates (i) the least and (ii) the most while passing through a glass prism	2
35.	Three resistors of 2 Ω, 3 Ω, and 6 Ω are connected in (i) series, and (ii) parallel. Draw the arrangements of the resistors and find the equivalent resistance of each arrangement. List the factors on which the resistance of a cylindrical conductor depends and hence write an expression for its resistance.	3

	How will the resistivity of a conductor change when its length is tripled by stretching it?	
36.	Explain with the help of a diagram, how we are able to observe the sunrise about two minutes before the sun gets above the horizon. Hence, explain why does apparent duration of a day from sunrise to sunset is 4 minutes more than its actual duration.	3
37.	What is the number of electrons that constitute one coulomb of charge? A steady current of 1A flows through a conductor for 1 second; calculate the number of electrons flowing through any section of the conductor.	3
38.	Case Based/Source Based Question. In order to obtain magnetic field lines around a bar magnet, a student performed an experiment using a magnetic compass and a bar magnet. The magnet was placed on a sheet of white paper fixed on a drawing board. Using a magnetic needle, he obtained on the paper a pattern of magnetic field lines around the bar magnet.  a. By convention, the field lines emerge from the north pole and merge at the south pole. Why? Give reason. b. State the relationship between the strength of the magnetic field and the degree of closeness of the field lines. c. (i) No two field lines can ever intersect each other. Give reason. (ii) The magnetic field in a given region is uniform. Draw a diagram to represent it. OR (c) Draw the pattern of the magnetic field lines through and around a current carrying solenoid. What does the pattern of field lines inside the solenoid represent?	4
39.	Why can't two magnetic field lines cross each other? Draw magnetic field lines showing the direction of the magnetic field due to a current-carrying long straight solenoid. State the conclusion which can be drawn from the pattern of magnetic field lines inside the solenoid. Name any two factors on which the magnitude of the magnetic field due to this solenoid depends.	5

SCIENCE
SAMPLE QUESTION PAPER 6
CLASS – X (2025-26)

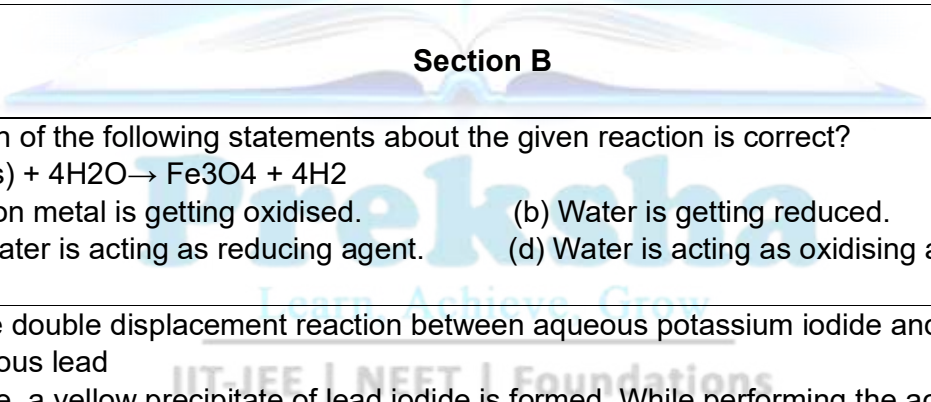
Maximum Marks: 80

Time: 3 hours

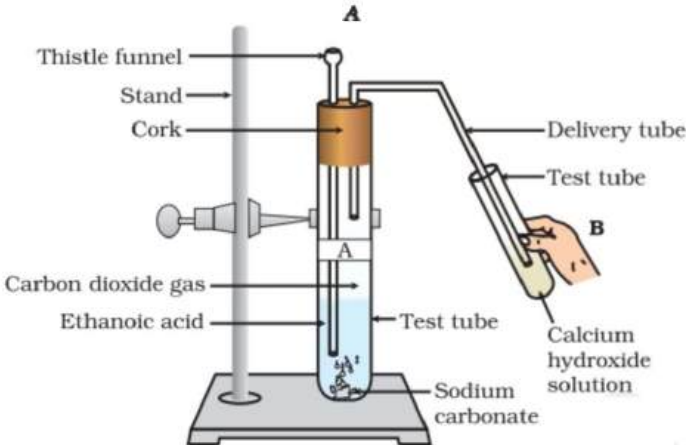
General Instructions:

- I. This question paper consists of 39 questions in 3 sections.
 - a. Section A is Biology,
 - b. Section B is Chemistry
 - c. 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.

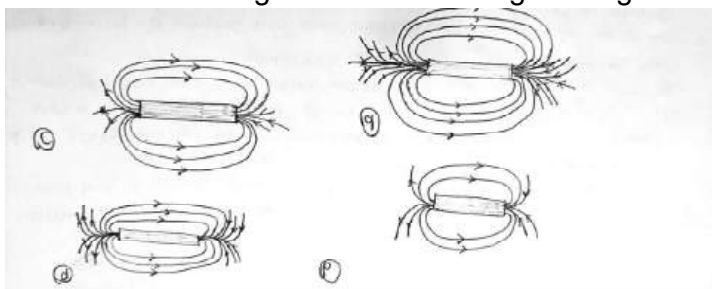
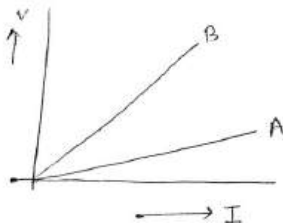
Section – A		
Q. No	Questions	Marks
1.	Select the correct statement: (A) Heterotrophs do not synthesise their own food (B) Heterotrophs utilise solar energy for photosynthesis (C) Heterotrophs synthesise their own food (D) Heterotrophs are capable of converting carbon dioxide and water into carbohydrates	1
2.	Electrical impulse travels in a neuron from (A) Dendrite → axon → axonal end → cell body (B) Cell body → dendrite → axon → axonal end (C) Dendrite → cell body → axon → axonal end (D) Axonal end → axon → cell body → dendrite	1
3.	Characters that are transmitted from parents to offspring during reproduction show (A) Only similarities with parents (B) Only variations with parents (C) Both similarities and variations with parents (D) Neither similarities nor variations	1
4.	If a round, green seeded pea plant (RR yy) is crossed with wrinkled, yellow seeded pea plant, (rr YY) the seeds produced in F ₁ generation are (A) round and yellow (B) round and green (C) wrinkled and green (D) wrinkled and yellow	1
5.	Depletion of ozone is mainly due to (A) Chlorofluorocarbon compounds (B) Carbon monoxide (C) Methane (D) Pesticides	1
6.	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

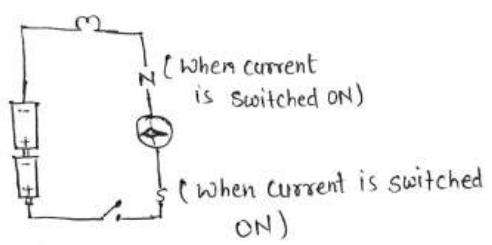
	the determination of the sex of the child and blame here. In fact, the sex of the child is genetically determined. But there are some animals where sex is not genetically determined. a) Define sex chromosomes b) Mention one example of animals sex is not genetically determined. How is sex determined in these animals? Explain. c) (i) Does the genetic combination of the mother play a significant role in determining the sex of new born? Explain. OR (ii) How is equal genetic contribution of male and female parents ensured in progeny?	
16.	(A) (i). In which form is the formation for inheritance of features transmitted from one generation to the next generation ? (ii). differentiate between binary fission in Amoeba and leishmania (iii). fragmentation cannot be a method of reproduction in all multi cellular organisms. Justify this statement OR (B) (i). Define placenta. State the structure and role of placenta in the development of embryo in human beings. (ii). list three categories of contraceptives and give one example of each.	5
 Section B		
17.	Which of the following statements about the given reaction is correct? $3\text{Fe(s)} + 4\text{H}_2\text{O} \rightarrow \text{Fe}_3\text{O}_4 + 4\text{H}_2$ (a) Iron metal is getting oxidised. (b) Water is getting reduced. (c) Water is acting as reducing agent. (d) Water is acting as oxidising agent.	1
18.	In the double displacement reaction between aqueous potassium iodide and aqueous lead nitrate, a yellow precipitate of lead iodide is formed. While performing the activity if lead nitrate is not available, which of the following can be used in place of lead nitrate? (a) Lead sulphate (insoluble) (b) Lead acetate (c) Ammonium nitrate (d) Potassium sulphate	1
19	An aqueous solution turns red litmus solution blue. Excess addition of which of the following solution would reverse the change? (a) Baking Powder (b) Lime water (c) Ammonium hydroxide solution (d) Hydrochloric acid	1
20	The composition of aqua-regia is A. Dil. HCl : Conc. HNO₃ 3 : 1 B. Conc.HCl : Dil. HNO₃ 3 : 1 C. Conc.HCl : Conc.HNO₃ 3 : 1	1

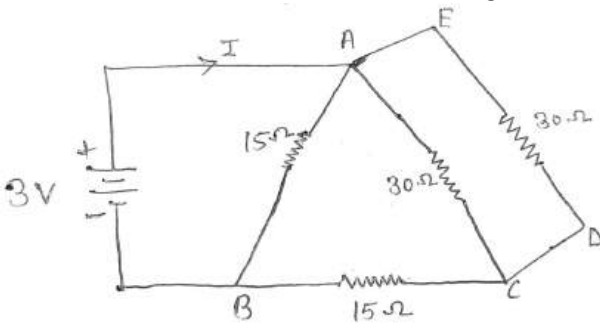
	D. Dil.HCl :Dil.HNO ₃ 3 : 1	
21	Pentane has the molecular formula C ₅ H ₁₂ . It has (a) 5 covalent bonds (b) 12 covalent bonds (c) 16 covalent bonds (c) 17 covalent bonds	1
22	A sample of soil is mixed with water and allowed to settle. The clear supernatant solution turns the pH paper yellowish-orange. Which of the following would change the colour of this pH paper to greenish-blue? (a) Lemon Juice (b) Vinegar (c) Common salt (d) An antacid	1
23	Which one of the following processes involve chemical reactions? (a) Storing of oxygen gas under pressure in a gas cylinder (b) Liquefaction of air (c) Keeping petrol in China dish in the open (d) Heating copper wire in the presence of air at high temperature	1
	<u>DIRECTIONS:</u> Following Question contain, a statement of Assertion (A) is followed by a statement of Reason (R). Choose the correct option: (A) Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A) (B) Both assertion (A) and reason (R) are true and reason (R) is not the explanation of assertion (A) (C) Assertion (A) is true but reason (R) is false. (D) Assertion (A) is false but reason (R) is true.	
24.	Assertion (A): Sodium is a highly reactive metal. Reason (R): It reacts with water to produce sodium hydroxide and hydrogen gas.	1
25.	Iqbal treated a lustrous, divalent element M with sodium hydroxide. He observed the formation of bubbles in reaction mixture. He made the same observations when this element was treated with hydrochloric acid. Suggest how he can identify the produced gas. Write chemical equations for both the reactions.	2
26. (A)	A non-metal A which is the largest constituent of air, when heated with H₂ in 1:3 ratio in the presence of catalyst (Fe) gives a gas B. On heating with O₂ it gives an oxide C. If this oxide is passed into water in the presence of air it gives an acid D which acts as a strong oxidising agent. a) Identify A, B, C and D. b) To which group of periodic table does this non-metal belong? OR For making cake, baking powder is taken. If at your home mother uses baking soda instead of baking powder in cake. (a) How will it affect the taste of the cake and why? (b) How can baking soda be converted into baking powder? (c) What is the role of tartaric acid added to baking soda?	3
(B)		

27.	i. Write chemical equation for the reaction in which change in colour is observed when a metal is kept immersed in a salt solution of another metal ii. When hydrogen gas is passed over heated copper(II) oxide, copper and steam are formed. Write the balanced chemical equation with physical states for this reaction. State what kind of chemical reaction is this.	3
28.	Ethanol (commonly known as alcohol) is an important carbon compound widely used in industries, hospitals, etc. Because it is a very good solvent, it is used in medicines such as cough syrups, tincture iodine and many tonics. As it is a cleaner fuel, ethanol is used as an additive in petrol in most of developed countries of the world. (a). Write the structure of ethanol. (b). Name the products formed when ethanol burns in sufficient air (oxygen). (c) (i). State what happens when 5% solution of alkaline potassium permanganate is added to warm ethanol. Draw the structure of the product formed and state the role of 5% solution of alkaline potassium permanganate in the reaction. OR (ii). State what happens when ethanol is heated with excess conc. H_2SO_4 at 443K. Draw the structure of the product formed and state the role of conc. H_2SO_4 in the reaction.	4
29.	(a) (i). A small amount of copper oxide is taken in a beaker and dilute HCl is added to it slowly. Name the compound formed and state the colour of the solution formed. Write the balanced chemical equation for the reaction that occurs. (ii) A compound 'X' on heating at 373K, loses water molecules and becomes 'Y'. Substance 'Y' is used by doctor for supporting fractured bones in the right position. I. Identify 'X' and 'Y'. II. How can 'X' be obtained from 'Y'? OR (b) Look at figure given below and answer the following questions. (i). What change would you observe in the calcium hydroxide solution taken in tube B? (ii). Write the reaction involved in test tubes A and B respectively. (iii). If ethanol is given instead of ethanoic acid, would you expect the same change? (iv). How can a solution of lime water be prepared in the laboratory 	5

Section C

30.	Which of the following correctly gives the sequence of events that take place when human eye changes its focus from a distant object to an object close to eye? A. Ciliary muscles relax → curvature of eye lens increases → focal length of eye lens increases. B. Ciliary muscles contract → curvature of eye lens decreases → focal length of eye lens increases. C. Ciliary muscles relax → curvature of eye lens decreases → focal length of eye lens decreases. D. Ciliary muscles contract → curvature of eye lens increases → focal length of eye lens decreases.	1
31.	Which of these magnets has the strongest magnetic field? 	1
	<u>DIRECTIONS:</u> Following Question contain, a statement of Assertion (A) is followed by a statement of Reason (R). Choose the correct option: (A) Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A) (B) Both assertion (A) and reason (R) are true and reason (R) is not the explanation of assertion (A) (C) Assertion (A) is true but reason (R) is false. (D) Assertion (A) is false but reason (R) is true.	
32	Assertion (A): The emergent ray is parallel to the direction of the incident ray. Reason (R): The extent of bending of the ray of light at the opposite parallel faces (air-glass interface and glass-air interface) of the rectangular glass slab is equal and opposite.	1
33.	V-I Graph for two conducting wires A and B are as shown. If both wires are the same length and same diameter. Which of the two is made of a material of high Resistivity? Give reason to justify your Answer. 	2

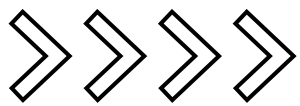
34.	A lens of focal length 5cm is being used by Debashree in the laboratory as a magnifying glass. Her least distance of distinct vision is 25cm. - What is the magnification obtained by using the glass? - She keeps a book at a distance of 1cm from her eyes and tries to read. She is unable to read. What is the reason for this?	2
35.	In 1820, Hans Christian Oersted discovered that a magnetic needle is deflected by a current-carrying wire. For many years, he had expected to find a connection between electricity and magnetism. Before his discovery, Oersted had imagined the magnetic field to be a straight line along the direction of the wire with the north pole at one end and the south pole at the other. This was a major reason why he took so long to discover electromagnetism. The figure below shows how Oersted would have arranged his wire and magnetic needle in his early experiments.  - Draw a diagram to show the observation that Oersted would have expected when switching ON the current, if his hypothesis had been correct. - Based on our current knowledge of the magnetic field around a wire, explain why his experiment failed.	3
36.	A student needs to make a $0.12 \, \Omega$ resistor. She has some copper wire of 0.80 mm diameter. Resistivity of copper is $1.8 \times 10^{-8} \, \Omega$ - Determine the cross-sectional area of the wire. - Calculate the length of wire required for the $0.12 \, \Omega$ resistor.	3
37.	Find the direction of magnetic field due to current carrying circular coil held: - Vertically in North-south plane and an observer looking at it from East sees the current to flow in an anti-clockwise direction. - Vertically in East-west plane and an observer looking at it from South sees the current to flow in an anti-clockwise direction. - Horizontally and an observer looking at it from below sees current to flow in a clockwise direction	3
38. (A)	- Draw a ray diagram to show the refraction of light through a glass slab and mark an angle of refraction and the lateral shift suffered by the ray of light while passing through the slab. - If the refractive index of glass for light going from air to glass is $\frac{3}{2}$, find the refractive index of air for light going from glass to air. OR	4
(B)	A 10 cm long pencil is placed 5 cm in front of a concave mirror having a radius of curvature of 40 cm. Determine the position of image formed by this mirror.	

	ii. What is the size of image? Draw neat and clear diagram.	
39.	i. Find the value of current I in the circuit given as below.  ii. You have four resistors of $8\ \Omega$ each. Show how would you connect these resistors to have an effective resistance of $8\ \Omega$ each ? OR i. A current of 1 A flows in a series circuit having an electric lamp and a conductor of $5\ \Omega$ when connected to a 10 V battery. Calculate the resistance of the electric lamp. ii. Now, if a resistance of $10\ \Omega$ is connected in parallel with this series combination, then what change (if any) in current flowing through $5\ \Omega$ conductor and potential difference across the lamp will take place? Give reason	5

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DIRECTOR'S MESSAGE



Dear Students and Parents,

A Warm Welcome to Preksha Institute!

I am delighted to introduce Preksha Institute, a premier coaching institute in India, dedicated to empowering young minds to achieve their dreams!

As the Managing Director, I assure you that our institution is committed to providing a transformative educational experience that fosters academic excellence, creativity, and character development.

Our vision is to become the most trusted and respected coaching institute in the region, known for producing confident, knowledgeable, and successful individuals.

At Preksha Institute, we offer:

- Expert faculty with proven track records
- Comprehensive study materials and resources
- Personalized attention and guidance
- State-of-the-art infrastructure and facilities

Our programs include:

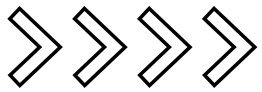
IIT-JEE/NEET/NDA/Olympiads/Boards (CBSE/ICSE/State Boards)

To our students, I pledge that we will provide a supportive and inclusive environment that encourages you to push beyond your limits and achieve your goals.

To our parents, I assure you that we will work in partnership with you to ensure your child receives the best possible education and support. Let's join hands to shape the future of our young generation!

Rajat Saini
Managing Director, Preksha Institute





LEADERSHIP TALKS & STUDENT SEMINARS

At Preksha Institute, learning goes beyond classrooms and textbooks. Our Managing Director regularly conducts motivational and guidance seminars for students and parents, helping them gain clarity, confidence, and direction in their academic journey.

These seminars are designed to inspire students preparing for IIT-JEE, NEET, NDA, Sainik School, JNV, RMS, RIMC, and Olympiads, while also guiding parents on how to support their children effectively during competitive exam preparation.



Seminars led by the Managing Director, Preksha Institute

SCIENCE
SAMPLE QUESTION PAPER 7
CLASS – X (2025-26)

Maximum Marks: 80

Time: 3 hours

General Instructions:

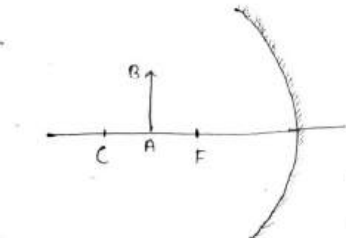
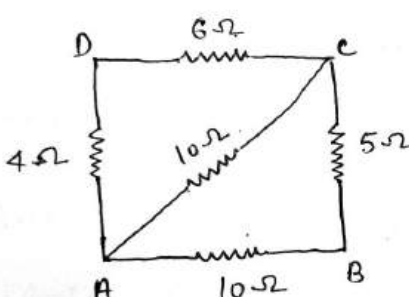
- I. This question paper consists of 39 questions in 3 sections.
 - a. Section A is Biology,
 - b. Section B is Chemistry
 - c. Section C is Physics.
- II. All questions are compulsory. However, an internal choice is provided in some questions. A student is expected to attempt only one of these questions.

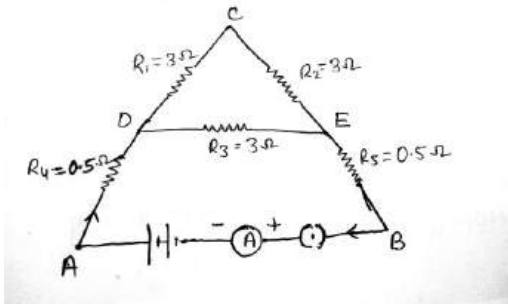
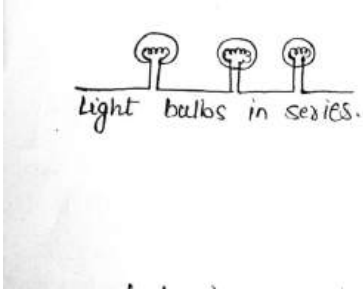
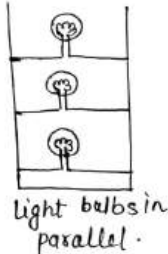
Section – A		
Q. No	Questions	Marks
1.	Which of the following statements about the autotrophs is incorrect? (a) They synthesize carbohydrates from carbon dioxide and water in the presence of sunlight and chlorophyll (b) They store carbohydrates in the form of starch (c) They convert carbon dioxide and water into carbohydrates in the absence of sunlight (d) They constitute the first trophic level in food chains	1
2.	During respiration exchange of gases take place in (a) Trachea and larynx (b) Alveoli of lungs (c) Alveoli and throat (d) Throat and larynx	1
3.	Posture and balance of the body is controlled by _____ (a) Cerebrum (b) Cerebellum (c) Medulla (d) Pons	1
4.	The growth of pollen tubes towards ovules is due to (a) Hydrotropism (b) Chemotropism (c) Geotropism (d) Phototropism	1
5.	In peas, a pure tall plant (TT) is crossed with a short plant (tt). The ratio of pure tall plants to short plants in F ₂ is (a) 1 : 3 (b) 3 : 1 (c) 1 : 1 (d) 2 : 1	1
6.	Flow of energy in an ecosystem is always (a) Unidirectional (b) Bidirectional (c) Multi directional (d) No specific direction	1
7.	Disposable plastic plates should not be used because (a) They are made of materials with light weight (b) They are made of toxic materials (c) They are made of biodegradable materials (d) They are made of non-biodegradable materials	1

	<u>DIRECTIONS:</u> Following two Question contains, a statement of Assertion (A) is followed by a statement of Reason (R). Choose the correct option: (A) Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A) (B) Both assertion (A) and reason (R) are true and reason (R) is not the explanation of assertion (A) (C) Assertion (A) is true but reason (R) is false. (D) Assertion (A) is false but reason (R) is true.	
8.	ASSERTION(A): Mendal selected the pea plant for his experiments. REASON(R): Pea plant is cross-pollinating and has unisexual flowers.	1
9.	ASSERTION(A): All consumers depend directly or indirectly on producer for nutrition. REASON(R): All consumers are heterotrophs	1
10.	What is the role of the acid in digestion ?	2
11.	A. What is the function of receptors in our body? Think of situations where receptors do not work properly. What problems are likely to arise? OR B. What criteria do we use to decide whether something is alive?	
12.	In Human being, the sex of new born child depends on the father and not the mother. "justify this statement with the help of a flow diagram.	2
13.	What is photosynthesis ? Name the Organelle and organs in which photosynthesis take place. Where does the oxygen liberated come from during this process? What happens to the carbohydrates which are not immediately used by the plants ?	3
14.	In a cross between a pure-breeding round-seeded pea plant and a pure-breeding wrinkled-seeded pea plant: (i) What will be the phenotype of the F1 generation? (ii) If the F1 generation is self-pollinated, what will be the genotypic ratio in the F2 generation? (iii) State the Mendelian law that this cross helps to illustrate.	3
15.	A meal is ingested and passes through the alimentary canal. Refer to the diagram of the human digestive system to the questions.	4

	Out of these, the commonly used oxidising agents are: (a) (i) and (ii) only (b) (ii) and (iii) only (c) (i), (ii) and (iii) (d) (i), (ii) and (iv)	
21	Which one of the following properties of carbon is not responsible for its formation of a large number of compounds? (a) Tetravalency (b) Isomerism (c) Allotropy (d) Catenation	1
22	Which one of the following metals is malleable and poor conductor of electricity? (a) Copper (b) Zinc (c) Lead (d) Silver	1
23	The chemical formula of Gypsum is: (a) $\text{CaSO}_4 \cdot \frac{1}{2}\text{H}_2\text{O}$ (b) $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$ (c) $\text{CaSO}_4 \cdot \text{H}_2\text{O}$ (d) $\text{CaSO}_4 \cdot 5\text{H}_2\text{O}$	1
	<u>DIRECTIONS:</u> Following Question contain, a statement of Assertion (A) is followed by a statement of Reason (R) . Choose the correct option: (A) Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A) (B) Both assertion (A) and reason (R) are true and reason (R) is not the explanation of assertion (A) (C) Assertion (A) is true but reason (R) is false. (D) Assertion (A) is false but reason (R) is true.	
24.	Assertion(A): C_3H_8 and C_4H_{10} are the successive members of homologous series of methane. Reason(R): Any two successive members in a homologous series differ in their molecular formula by a $-\text{CH}_2$ unit.	1
25.	A magnesium ribbon burnt in oxygen to give a white compound 'X' accompanied by emission of light. a. Write the chemical formula of 'X'. b. Write a balanced chemical equation, when 'X' is dissolved in water.	2
26.	Attempt either option A or B. a. Roasting and Calcination are two common processes used in metallurgy to convert concentrated ores into metal oxides. (i) What is the main difference between roasting and calcination in terms of the air supply? (ii) Write a balanced chemical equation for the roasting of zinc blende (ZnS). (iii) Write a balanced chemical equation for the calcination of calamine (ZnCO_3). OR b. Explain the following terms related to metals and their properties: (i) Malleability (ii) Ductility (iii) Sonority	3
27.	A student places a clean magnesium ribbon in a test tube containing a blue solution of copper(II) sulphate. (a) Describe two visible changes that would occur in the test tube after a few minutes.	3

	(b) What type of chemical reaction is taking place? (c) Write a balanced chemical equation for the reaction.	
28.	Ethanol is a colourless liquid, soluble in water, and has various industrial and commercial uses. It is often produced by the fermentation of sugars. a. What happens when ethanol is heated with an alkaline solution of potassium permanganate? Name this type of reaction. b. What is observed when a small piece of sodium is dropped into ethanol? Write the corresponding chemical equation. OR The consumption of alcohol can have serious health consequences. List any two harmful effects of drinking alcohol.	4
29. (A)	Attempt either option A or B. Ethane (C_2H_6) and Ethene (C_2H_4) are two simple hydrocarbons with different degrees of saturation. a. To which homologous series does ethane belong? b. Which of the two is unsaturated? Why is it called so? c. Which of these two will undergo an addition reaction? Write the chemical equation for its reaction with chlorine (Cl_2). d. Which of these two will undergo a substitution reaction? Write the chemical equation for its reaction with chlorine (Cl_2) in the presence of sunlight. e. Draw the electron dot structure for the ethane (C_2H_6) molecule. OR	
(B)	What is chemical reaction? describe one activity each to show that a chemical change has occurred in which (c) Colour change (d) Temperature change	
Section C		
30.	Consider these indices of refraction: glass: 1.52; air: 1.0003; water: 1.333. Based on the refractive indexes of three materials, arrange the speed of light through them in decreasing order: a) The speed of light in water > the speed of light in air > the speed of light in glass b) The speed of light in glass > the speed of light in water > the speed of light in air c) The speed of light in air > the speed of light in water > the speed of light in glass d) The speed of light in glass > the speed of light in air > the speed of light in water	1
31.	A person can't see distinctly objects kept beyond 2m. This defect can be corrected using a lens of power: (a) +0.5 D (b) -0.5 D (c) +0.2 D (d) -0.2 D	1
	DIRECTIONS: Following Question contain, a statement of Assertion (A) is followed by a statement of Reason (R) .	

	Choose the correct option: (A) Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A) (B) Both assertion (A) and reason (R) are true and reason (R) is not the explanation of assertion (A) (C) Assertion (A) is true but reason (R) is false. (D) Assertion (A) is false but reason (R) is true.	
32	Assertion (A): Electric current will not flow between two charged bodies when connected if their charges are same. Reason (R): Current is the rate of flow of charge.	1
33.	State Ohm's Law. How is an ammeter connected in an electric circuit?	2
34.	Draw the ray diagram in your answer book and show the formation of image of object AB with suitable rays. Mention the position and nature of image.  OR In the given network of resistors, find the equivalent resistance between the points A and B. 	2
35.	a. Why is alternating current (AC) considered to be advantageous over direct current (DC) for the long-distance transmission of electric power? b. How is the type of current used in household supply different from the one given by a battery of dry cells? c. How does an electric fuse prevent the electric circuit and the appliances from possible damage due to short-circuiting or overloading?	3
36.	Five resistors are connected in a circuit as shown in the figure. Find the ammeter reading when the circuit is closed.	3

		
37.	i. State and define the S.I. unit of power of lens. ii. The image of an object placed at 60 cm in front of a lens is obtained on a screen at a distance of 120 cm from it. Find the focal length of the lens. What would be the height of image, if the object is 5 cm high?	3
38.	Case Based / Source Based Question: Read the following passage and answer the questions on the basis of your understanding: Light bulbs can be connected together in an electric circuit in two different ways. If the light bulbs are connected one after another as shown in figure, they are connected in series. If one of the light bulbs burns out, all the light bulbs in series will go out because the pathway for electricity flow is broken. If the light bulbs are connected on separate branches as shown in figure, they are connected in parallel. If one of the light bulbs burns out, the other light bulbs will continue to work because there is a separate pathway for the electricity to flow around the burned-out light bulb.   a. In which combination of bulbs, current through each bulb is same? b. In which combination of bulb, if one of the light bulb burns out, then bulbs, will continue to work? c. Write any two advantages of series combination of bulbs. d. In which combination of bulbs, brightness is greater, when they are connected with battery of same potential?	4
39.	i. What is an electromagnet? Describe the working of an electromagnet with the help of a labelled diagram. ii. Explain why an electromagnetic is called a temporary magnet? iii. Explain why the core of an electromagnet should be soft iron and not steel? iv. Write some of the important uses of electromagnets. State the factors on which the strength of an electromagnet depends.	5

SCIENCE
SAMPLE QUESTION PAPER 8
CLASS – X (2025-26)

Maximum Marks: 80

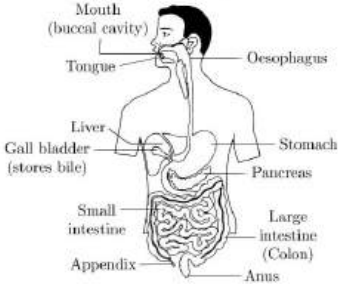
Time: 3 hours

General Instructions:

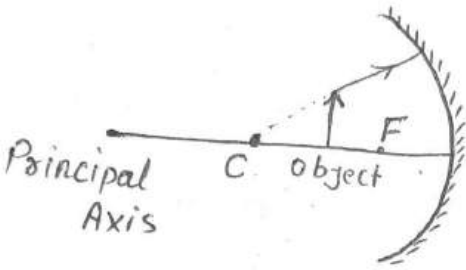
- I. This question paper consists of 39 questions in 3 sections.
 - a. Section A is Biology,
 - b. Section B is Chemistry
 - c. Section C is Physics.
- II. All questions are compulsory. However, an internal choice is provided in some questions. A student is expected to attempt only one of these questions.

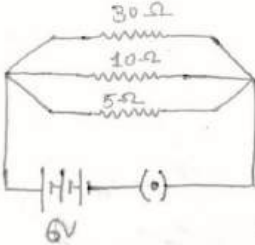
Section – A												
Q. No	Questions	Marks										
1.	he organism in which an outgrowth on the parent body develops into a new individual is: (a) Amoeba (b) Paramecium (c) Rhizopus (d) Yeast	1										
2.	The movement of sunflower is in response to a stimulus such as: (a) Gravity (b) Chemicals (c) Day or night (d) Water	1										
3.	During respiration exchange of gases takes place in (a) Trachea and larynx (b) Alveoli of lungs (c) Alveoli and throat (d) Throat and larynx	1										
4.	Electrical impulse travels in a neuron from (a) Dendrite → axon → axonal end → cell body (b) Cell body → dendrite → axon → axonal end (c) Dendrite → cell body → axon → axonal end (d) Axonal end → axon → cell body → dendrite	1										
5.	Match the genetic cross of the parents on the left with the genotypes of the offsprings most likely to be produced from that cross on the right <table><tr><th>Column I</th><th>Column II</th></tr><tr><td>(A) BB × bb</td><td>(p) 100% Bb</td></tr><tr><td>(B) Bb × Bb</td><td>(q) 25% BB, 50% Bb, 25% bb</td></tr><tr><td>(C) BB × BB</td><td>(r) 100% BB</td></tr><tr><td>(D) bb × bb</td><td>(s) 100% bb</td></tr></table> (a) A-q, B-r, C-p, D-s (b) A-p, B-q, C-r, D-s (c) A-r, B-s, C-p, D-q (d) A-r, B-q, C-s, D-p	Column I	Column II	(A) BB × bb	(p) 100% Bb	(B) Bb × Bb	(q) 25% BB, 50% Bb, 25% bb	(C) BB × BB	(r) 100% BB	(D) bb × bb	(s) 100% bb	1
Column I	Column II											
(A) BB × bb	(p) 100% Bb											
(B) Bb × Bb	(q) 25% BB, 50% Bb, 25% bb											
(C) BB × BB	(r) 100% BB											
(D) bb × bb	(s) 100% bb											
6.	Which one of the following is responsible for the sustenance of underground water?	1										

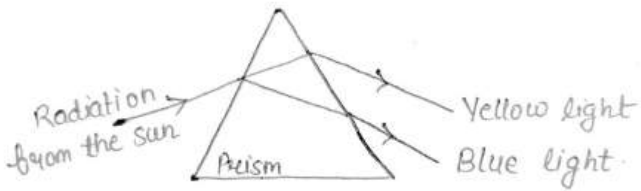
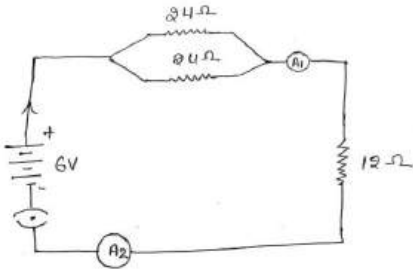
	(a) Loss of vegetation cover (b) Diversion for high water-demanding crops (c) Pollution from urban wastes (d) Afforestation	
7.	Accumulation of non-biodegradable pesticides in the food chain in increasing amount at each higher trophic level is known as: (a) Eutrophication (b) Pollution (c) Biomagnification (d) Accumulation	1
	<u>DIRECTIONS:</u> Following two Question contains, a statement of Assertion (A) is followed by a statement of Reason (R). Choose the correct option: (A) Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A) (B) Both assertion (A) and reason (R) are true and reason (R) is not the explanation of assertion (A) (C) Assertion (A) is true but reason (R) is false. (D) Assertion (A) is false but reason (R) is true.	
8.	Assertion(A): Traits like eye colour or height are inherited traits. Reason(R): Inherited traits are not transferred from parents to young ones.	1
9.	Assertion(A): Biomagnification is caused due to the accumulation of biodegradable toxicants in organisms at each successive trophic level. Reason(R): Biomagnification leads to the maximum accumulation of chemicals in small fishes	1
10.	Unlike animals, plants do not have any excretory products, as they do not eat food. Comment upon the statement with justification.	2
11.	Why do veins have thin walls as compared to arteries? OR Why and how does water enter continuously into the root xylem?	2
12.	Write the percentage of: i. Solar energy captured by the autotrophs ii. Energy transferred from autotrophs to the next level in a food chain.	2
13.	i. Define hormone. Write four characteristics in humans. ii. Name the disorders caused by the following situations: (a) Under secretion of growth hormone (b) Over secretion of growth hormone (c) Under secretion of insulin (d) Deficiency of iodine	3
14.	Distinguish between the acquired traits and the inherited traits in tabular form, giving one example for each.	3

15.	Refer to the diagram of the human alimentary canal to answer the questions.  (Attempt either A or B) A. What is the role of HCl in the part 'N' (stomach)? OR B. Describe the function of bile juice in digestion. Which organ produces it? C. Where does the final absorption of water from undigested food take place?	4
16.	A. How do Mendel's experiments show that: (a) Traits may be dominant or recessive? (b) Inheritance of two traits is independent of each other? OR B. An angiosperm plant having red coloured flowers when crossed with the other having the same colour produced 40 progenies out of which 30 plants were red coloured flowers, 10 plants were with white coloured flowers. Find out: (a) What is the possible genotype of parent plants? (b) Which trait is dominant and recessive? (c) What is this cross called and what is its phenotypic ratio?	5
Section – B		
17.	The reaction $2H_2O(l) \xrightarrow{\text{electrolysis}} 2H_2(g) + O_2(g)$ is an example of a: (a) combination reaction (b) displacement reaction (c) double displacement reaction (d) decomposition reaction	1
18.	Oxides of aluminium and zinc are (a) acidic (b) basic (c) amphoteric (d) neutral	1
19	Which metal forms a thin, tough, non-porous and non-reactive layer of its oxide on its surface, which protects the metal from further corrosion? (a) Iron (b) Aluminium (c) Copper (d) Gold	1
20	Common salt, besides being used in kitchen, can also be used as the raw material for making (i) washing soda (ii) bleaching soda (iii) baking soda (iv) slaked lime (a) (i) and (ii) (b) (i), (ii) & (iv) (c) (i), (iii) & (iii) (d) (i), (ii) & (iv)	1

21	Which of the following gases can be used for storage of a fresh sample of oil for a long time? (a) Carbon dioxide or oxygen (b) Nitrogen or oxygen (c) Carbon dioxide or helium (d) Helium or nitrogen	1
22	Which of the following salts does not contain water of crystallisation? (a) Blue vitriol (b) Baking soda (c) Washing soda (d) Gypsum	1
23	Which of the following are exothermic processes? (i) Reaction of water with quicklime (ii) Dilution of acid (iii) Evaporation of water (iv) Sublimation of camphor (crystals) (a) (i) and (ii) (b) (ii) and (iii) (c) (i) and (iv) (d) (iii) and (iv)	1
	<u>DIRECTIONS:</u> Following Question contain, a statement of Assertion (A) is followed by a statement of Reason (R) . Choose the correct option: (A) Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A) (B) Both assertion (A) and reason (R) are true and reason (R) is not the explanation of assertion (A) (C) Assertion (A) is true but reason (R) is false. (D) Assertion (A) is false but reason (R) is true.	
24.	Assertion (A): Graphite is slippery to touch. Reason (R): The various layers of carbon atoms in graphite are held together by weak van der Waals forces.	1
25.	Give reasons for the following: a. Sodium chloride has a high melting point. b. Non-metals do not displace hydrogen from dilute acids.	2
26. (A)	Attempt either option A or B. i. What type of chemical bond are present in ionic compounds? ii. Explain why ionic compounds are generally hard solids. iii. Why do they conduct electricity only in their aqueous solution or molten state? OR (B) Define the following terms with reference to metallurgy: i. Mineral ii. Ore iii. Gangue	3
27.	A shining metal M, on burning, gives a dazzling white flame and changes to a white powder N. a. Identify M and N. b. the above reaction in the form of a balanced chemical equation. c. Does M undergo oxidation or reduction in this reaction? Justify.	3
28.	A student dropped a few pieces of marble in dilute hydrochloric acid contained in a test tube. The evolved gas was then passed through lime water.	4

	What change would be observed in lime water? What will happen if excess of gas is passed through lime water? Write balanced chemical equations for all the changes observed. OR (A). Sara measured 20 drops of dilute H_2SO_4 in the test tube and added few drops of phenolphthalein solution to it. Then she added NaOH dropwise. Sara observes a change in colour after adding 20 drops of NaOH. What change in colour would she observe and why? (B). Write a balanced chemical equation for the reaction taking place in the above experiment. - Which of the following is true and why? The reaction is a: - Neutralisation and double displacement reaction - Neutralisation and precipitation reaction - Precipitation and double displacement reaction - Neutralisation, double displacement as well as precipitation reaction	
29. (A)	- Define a homologous series of carbon compounds. - Why is the melting and boiling points of C_4H_{10} higher than that of C_3H_8 or C_2H_6? - Why do we not see any gradation in chemical properties of homologous series compounds? - Write the name and structure of - aldehyde - ketone with molecular formula $\text{C}_3\text{H}_6\text{O}$	
(B)	OR - As all ores are minerals but all minerals are not ores. Justify the statement. - What is gangue? - Explain roasting with the help of a reaction. - What do you mean by amalgams?	
Section C		
30.	 While looking at the above diagram, Nandan concluded the following: - The image of the object will be a virtual one. - The reflected ray will travel along the same path as the incident ray but in opposite direction. - The image of the object will be inverted. - This is a concave mirror and hence the focal length will be negative.	1

	Which of the above statements are correct? (a) I and II (b) II and III (c) II, III and IV (d) I, II and IV	
31.	Twinkling of stars is due to: (a) Dispersion of light by water droplets (b) Refraction of light by different layers of varying refractive indices (c) Scattering of light by dust particles (d) Internal reflection of light by clouds	1
	DIRECTIONS: Following Question contain, a statement of Assertion (A) is followed by a statement of Reason (R). Choose the correct option: (A) Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A) (B) Both assertion (A) and reason (R) are true and reason (R) is not the explanation of assertion (A) (C) Assertion (A) is true but reason (R) is false. (D) Assertion (A) is false but reason (R) is true.	
32	Assertion (A): Large concave mirrors are used to concentrate sunlight to produce heat in solar cookers. Reason (R): Concave mirror converges the light rays falling on it to a point.	1
33.	State whether the following statements are true or false: (i) The field of a long circular coil carrying current will be parallel straight lines. (ii) A wire with a green insulation is usually the live wire of an electric supply.	2
34.	Attempt A or B (A) Draw a labelled diagram to show the pattern of magnetic field lines produced due to a current-carrying straight conductor. Mark on it the direction of current in the conductor and the direction of magnetic field lines. OR (B) Name the device used to magnetise a piece of magnetic material. Draw a labelled diagram to show the arrangement used for the magnetisation of a cylinder made of soft iron.	2
35.	Two wires A and B are of equal length and have equal resistance. If the resistivity of A is more than that of B, which wire is thicker and why? For the electric circuit given below, calculate: (i) Current in each resistor (ii) Total current drawn from the battery (iii) Equivalent resistance of the circuit 	3

36.	 State the phenomenon observed in the above diagram. Explain with reference to the diagram which of the lights mentioned above will have the higher wavelength?	3
37.	A compass needle is placed near a current-carrying wire. State your observations for the following cases and give reasons for the same in each case: (i) Magnitude of electric current in wire is increased. (ii) The compass needle is displaced away from the wire.	3
38. (A)	I. How will you inter with the help of an experiment that the same current flows through every part of the circuit containing three resistor R_1, R_2, R_3 in series connected to a battery of V volts? II. Study of the following circuit and find out the (a) current in $12\ \Omega$ resistor. (b) difference in the reading of A_1 and A_2, if any.  OR (B) a. An object 5 cm in length is placed at a distance of 20 cm in front of a convex mirror of radius of curvature 30 cm. Find the position of image, its nature and size. b. A doctor has prescribed corrective lens of power +1.5 D. Find the nature and focal length of the lens. Is the prescribed lens diverging or converging?	4
39.	i. What do you understand by scattering of light? ii. How does the size of particle and wavelength of light affect scattering? iii. Discuss about Tyndall effect and how does it take place? OR I. Give one striking difference between series and parallel combination of resistance. II. Two resistances when connected in parallel give resultant value of $2\ \Omega$. When connected in series the value becomes $9\ \Omega$. Calculate the value of each resistance.	5

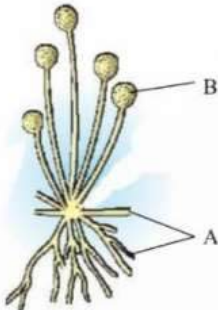
SCIENCE
SAMPLE QUESTION PAPER 9
CLASS – X (2025-26)

Maximum Marks: 80

Time: 3 hours

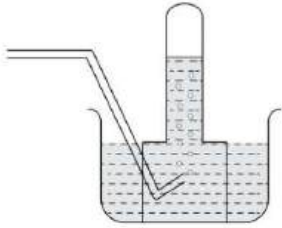
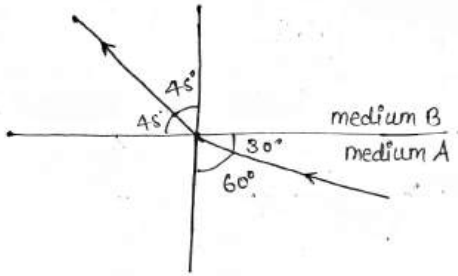
General Instructions:

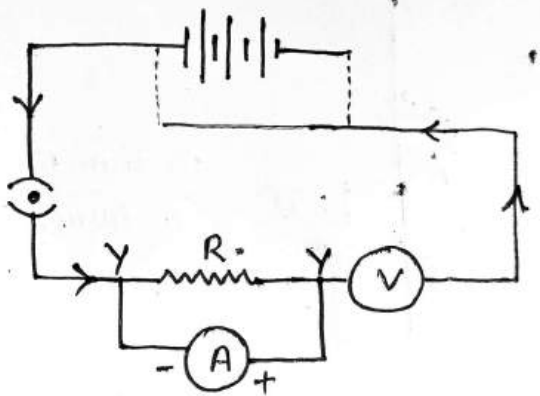
- I. This question paper consists of 39 questions in 3 sections.
 - a. Section A is Biology,
 - b. Section B is Chemistry
 - c. Section C is Physics.
- II. All questions are compulsory. However, an internal choice is provided in some questions. A student is expected to attempt only one of these questions.

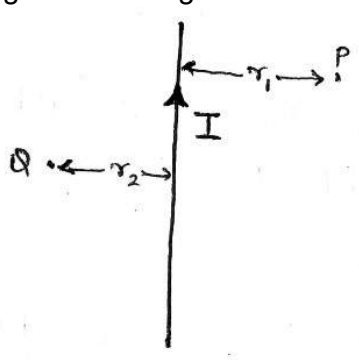
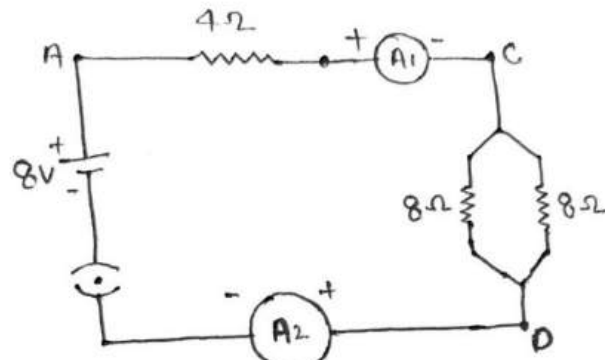
Section – A		
Q. No	Questions	Marks
1.	In which of the following groups of organisms, food material is broken down outside the body and absorbed? (a) Mushroom, green plants, Amoeba (b) Yeast, mushroom, bread mould (c) Paramecium, Amoeba, Cuscuta (d) Cuscuta, lice, tapeworm	1
2.	In bread mould, the structures labelled A and B respectively are :  (a) hyphae and spore (b) root and sporangium (c) hyphae and sporangium (d) root and sporangium	1
3.	Choose the function of the pancreatic juice from the following: (a) Trypsin digests proteins and lipase carbohydrates (b) Trypsin digests emulsified fats and lipase proteins (c) Trypsin and lipase digest fats (d) Trypsin digests proteins and lipase emulsified fats	1
4.	In a synapse chemical signal is transmitted from (a) dendritic end of one neuron to axonal end of another neuron (b) axon to cell body the same neuron. (c) cell body to axonal end of the same neuron. (d) axonal end of one neuron to dendritic end of another neuron.	1

5.	In an experiment with pea plants, a pure tall plant (TT) is crossed with a pure short plant (tt). The ratio of pure tall plant to pure short plants in F ₂ generation will be: (a) 1 : 3 (b) 3 : 1 (c) 1 : 1 (d) 2 : 1	1
6.	The most appropriate definition of a natural resource is that it is a substance/commodity that is: (a) Present only on land (b) A gift of nature which is very useful to mankind (c) A man-made substance placed in nature (d) Available only in the forest	1
7.	In an ecosystem, the 10% of energy available for transfer from one trophic level to the next is in the form of: (a) Heat energy (b) Light energy (c) Chemical energy (d) Mechanical energy	1
	<u>DIRECTIONS:</u> Following two Question contains, a statement of Assertion (A) is followed by a statement of Reason (R). Choose the correct option: (A) Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A) (B) Both assertion (A) and reason (R) are true and reason (R) is not the explanation of assertion (A) (C) Assertion (A) is true but reason (R) is false. (D) Assertion (A) is false but reason (R) is true.	
8.	Assertion (A) : Mendel chose a number of varieties of garden pea as plant material for his experiments. Reason (R) : Garden pea has well defined characters and was bisexual.	1
9.	Assertion (A) : A network of food chains existing together in an ecosystem is known as food web. Reason (R) : An animal like kite cannot be a part of a food web.	1
10.	Why do veins have thin walls as compared to arteries?	2
11.	What are the end products formed during fermentation in yeast? Under what condition a similar process takes place in our body that leads to muscle cramps? OR How do leaves of plants help in excretion?	2
12.	Although coal and petroleum are produced by the degradation of biomass, yet we need to conserve these resources. Why?	2
13.	A motorcycle rider without helmet met with an accident and suffered a spinal cord injury. In this case which signals will get disrupted and why?	3
14.	In pea plant round seed is dominant over wrinkled. If a cross is carried between these two plants, give answers to the following questions: (a) Mention the genes for the traits of parents.	3

	(b) State the trait of F_1 hybrids. (c) Write the ratio of F_2 progeny obtained from this cross. What is the name of the cross?	
15.	A person is advised to drink plenty of water to ensure the proper functioning of their excretory system. The following questions are related to this system: (Attempt either A or B) A. What is the main function of the kidneys? OR B. Describe the three main steps involved in the formation of urine in a nephron. C. What is the role of the urinary bladder and urethra in the excretory system?	4
16.	A. (a) Draw a diagram to show spore formation in <i>Rhizopus</i> . (b) With the help of an example differentiate between the process of budding and fragmentation. (c) Why is vegetative propagation practised for growing some type of plants? OR B. (a) Draw a diagram showing germination of pollen on stigma of a flower and mark on it the following organs/parts: (i) Pollen grain (ii) Pollen tube (iii) Stigma (iv) Female germ cell (b) State the significance of pollen tube. (c) Name the parts of flowers that develop after fertilisation into: (i) Seed (ii) Fruit	5
Section – B		
17.	In the reaction $Zn + FeSO_4 \rightarrow ZnSO_4 + Fe$, which substance is oxidized? (a) Fe (b) Zn (c) $FeSO_4$ (d) $ZnSO_4$	1
18.	Which of the following is acidic in nature? (a) Lime juice (b) Human blood (c) Lime water (d) Antacid	1
19	Metals can be drawn into thin wires. This property is known as: (a) Malleability (b) Sonority (c) Ductility (d) Lustre	1
20	One of the constituents of baking powder is sodium hydrogen carbonate. The other constituent is: (a) Hydrochloric acid (b) Tartaric acid (c) Acetic acid (d) Sulphuric acid	1
21	Which among the following statement(s) is true? Exposure of silver chloride to sunlight for a long duration turns grey due to (i) The formation of silver by decomposition of silver chloride (ii) Sublimation of silver chloride (iii) Decomposition of chlorine gas from silver	1

(B)	b. Name the method of collection of the gas.  c. Is the gas soluble or insoluble in water? d. Is the gas lighter or heavier than air? OR When a green salt is heated strongly, its colour finally changes to brown and odour of burning sulphur is given out. a. Name the iron salt and write its formula. b. Name the brown substance obtained and write its formula. c. Which product gives the odour of burning sulphur? Write the formula. d. Write the chemical equation of the reaction involved.	
29.	i. Write the name and structure of an organic compound 'X' having two carbon atoms in its molecule and its name is suffixed with "-ol". ii. What happens when 'X' is heated with excess concentrated sulphuric acid at 443 K? Write chemical equation for the reaction stating the conditions for the reaction. Also state the role played by concentrated sulphuric acid in the reaction. iii. Name and draw the electron dot structure of hydrocarbon produced in the above reaction. OR A metal M found in nature as sulphide ore (MS) is one good conductor of heat and electricity and used in making electric wires. i. Identify the metal M. ii. Write the balanced chemical equation involved in the process of extraction of the metal. iii. Draw a labelled diagram of electrolytic refining of the metal.	
Section C		
30.	Figure shows a ray of light as it travels from medium A to medium B. Refractive index of the medium B relative to medium A is: 	1

	(a) $\frac{\sqrt{3}}{\sqrt{2}}$ (b) $\frac{\sqrt{2}}{\sqrt{3}}$ (c) $\frac{1}{\sqrt{2}}$ (d) $\sqrt{2}$	
31.	Choose the correct option from the below which explains the reason for us to perceive the day sky as blue. (a) As sunlight passes through the atmosphere, shorter wavelengths such as blue are scattered more than other colours. (b) The sky appears blue because all colours are scattered equally, but blue light is stronger and more visible to the human eye. (c) The blue colour of the sky is due to longer wavelengths, making blue stand out more. (d) The atmosphere contains blue-coloured particles that give the sky its blue appearance.	1
	<u>DIRECTIONS:</u> Following Question contain, a statement of Assertion (A) is followed by a statement of Reason (R). Choose the correct option: (A) Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A) (B) Both assertion (A) and reason (R) are true and reason (R) is not the explanation of assertion (A) (C) Assertion (A) is true but reason (R) is false. (D) Assertion (A) is false but reason (R) is true.	
32	Assertion (A): A point object is placed at a distance of 26 cm from a convex mirror of focal length 26 cm. The image will not form at infinity. Reason (R): For the above-given system the equation $\frac{1}{f} = \frac{1}{v} + \frac{1}{u}$ gives $v = \text{infinity}$	1
33.	A child has drawn the electric circuit to study Ohm's law as shown in fig. His teacher told that the circuit diagram needs correction. Study the circuit diagram and redraw it after making all corrections. 	2

34.	Attempt A or B (A). AB is a current-carrying conductor in the plane of the paper as shown in Fig. What are the directions of magnetic field produced by it at points P and Q? Given $r_1 > r_2$, where will the strength of the magnetic field be larger?  OR (B) Draw a ray diagram showing the dispersion through a prism when a narrow beam of white light is incident on one of its refracting surfaces. Also indicate the order of the colours of spectrum obtained.	2
35.	A. Is the position of a star as seen by us its true position? Justify your answer. B. Why do we see a rainbow in the sky only after rainfall?	3
36.	Draw a ray diagram showing the path of rays of light when it enters with oblique incidence (i) from air into water (ii) from water into air.	3
37.	What is electrical resistivity of a material? What is its unit? Describe an experiment to study the factors on which the resistance of conducting wire depends.	3
38. (A)	Name and state the rule to determine the direction of a: - Magnetic field produced around a current carrying straight conductor. - Force experienced by a current carrying straight conductor placed in a magnetic field which is perpendicular to it.	4
39.	Find out the following in the electric circuit in given figures: 	5

	a. Effective Resistance of two $8\ \Omega$ resistor in the combination. b. Current flowing through $4\ \Omega$ resistance. c. Potential difference across $4\ \Omega$ resistance. d. Power dissipated in $4\ \Omega$ resistor. e. Difference in ammeter reading, if any. OR What is hypermetropia ? state two causes of hypermetropia. Draw a labelled ray diagram to show how this defect may be corrected using spectacles of appropriate focal length.	
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Preksha

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SCIENCE
SAMPLE QUESTION PAPER 10
CLASS – X (2025-26)

Maximum Marks: 80

Time: 3 hours

General Instructions:

- I. This question paper consists of 39 questions in 3 sections.
 - a. Section A is Biology,
 - b. Section B is Chemistry
 - c. 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.

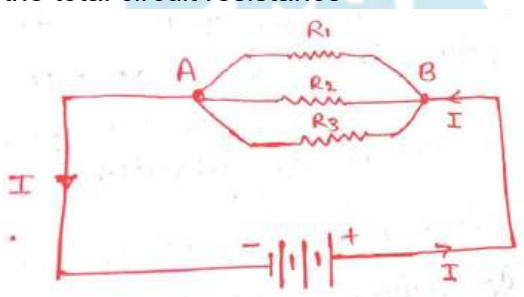
Section – A		
Q. No	Questions	Marks
1.	Lack of oxygen in muscles often leads to cramps among cricketers. This results due to (a) Conversion of pyruvate to ethanol (b) Conversion of pyruvate to glucose (c) Non-conversion of glucose to pyruvate (d) Conversion of pyruvate to lactic acid	1
2.	In plants, waste products like resins and gums are stored in: (a) Leaves that fall off (b) Old xylem (c) Phloem (d) Cellular vacuoles	1
3.	The blood glucose level in a patient was very high. It may be due to inadequate secretion of (a) Growth hormone from pituitary gland (b) Oestrogen from ovary (c) Insulin from pituitary gland (d) Insulin from pancreas	1
4.	Posture and balance of the body is controlled by (a) cerebrum (b) cerebellum (c) medulla (d) pons	1
5.	The number of pairs of sex chromosomes in the zygote of humans is: (a) One (b) Two (c) Three (d) Four	1
6.	Which are the correct statements related to ozone? (i) Ozone layer helps in increasing the UV radiations reaching earth. (ii) Ozone is a deadly poison. (iii) Ozone layer shields the earth from UV radiations. (iv) Ozone layer prevents UV rays which cause skin cancer. (v) Ozone is formed with the help of chlorofluorocarbons. Options: (a) (i), (ii), (iii) (b) (ii), (iii), (iv) (c) (iii), (iv), (v) (d) (i), (iv), (v)	1

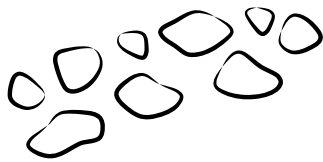
7.	Excessive exposure of humans to UV-rays results in: (i) Damage to immune system (ii) Damage to lungs (iii) Skin cancer (iv) Peptic ulcers Options: (a) (i) and (ii) (b) (ii) and (iv) (c) (i) and (iii) (d) (iii) and (iv)	1
	<u>DIRECTIONS:</u> Following two Question contains, a statement of Assertion (A) is followed by a statement of Reason (R). Choose the correct option: (A) Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A) (B) Both assertion (A) and reason (R) are true and reason (R) is not the explanation of assertion (A) (C) Assertion (A) is true but reason (R) is false. (D) Assertion (A) is false but reason (R) is true.	
8.	Assertion (A): A human males play an important role in determining the sex of the child. Reason (R): Male have two X chromosomes.	1
9.	Assertion (A) : Herbivores are called first order consumers. Reason (R) : Tiger is a top carnivore.	1
10.	Plants have low energy needs as compared to animals. Explain	2
11.	What is translocation? Why is it essential for plants? OR Systemic circulation carries oxygenated blood from the left ventricle, through the arteries, to the capillaries in the tissues of the body. From the tissue capillaries, the deoxygenated blood returns through a _____. What are the functions of food?	2
12.	State two advantages of conserving forests and wildlife.	2
13.	How do carbohydrates, proteins and fats get digested in human beings?	3
14.	With the help of two suitable examples explain why certain experiences and traits earned by people during their lifetime are not passed onto their next generations. When such traits be passed on?	3
15.	A person is having difficulty in breathing. A doctor examines their respiratory system. The following questions: (Attempt either A or B) A. What is the primary function of the alveoli in the lungs? OR B. Explain the mechanism of breathing in humans, detailing the roles of the rib muscles and diaphragm. C. Why does the breathing rate increase during strenuous physical exercise?	4

16.	A. In one of his experiments with pea plants, Mendel observed that when a pure tall pea plant is crossed with a pure dwarf pea plant in the first generation, F_1 only tall plants appear. (a) What happens to the traits of the dwarf plants in this case? (b) When the F_1 generation plants were self-fertilised, he observed that in the plants of second generation, F_2, both tall plants and dwarf plants were present. Why it happened? Explain briefly. OR B. (a) Draw the diagram of female reproduction system and mark the part's (i) Where block is created surgically to prevent fertilization. (ii) Where copper – T is inserted ? (iii) Inside which condom can be placed. (b) why do more and more people prefer to use condoms? What is the principle behind use of condoms ?	5
Section – B		
17.	Which among the following are unsaturated hydrocarbons? (i) $H_3C - CH_2 - CH_2 - CH_3$ (ii) $H_3C - C \equiv C - CH_3$ (iii) $H_3C - \underset{\substack{ \\ CH_3}}{CH} - CH_3$ (iv) $H_3C - \underset{\substack{ \\ CH_3}}{C} = CH_2$ (a) (i) and (iii) (b) (ii) and (iii) (c) (ii) and (iv) (d) (iii) and (iv)	1
18.	Sodium hydrogen carbonate when added to acetic acid evolves a gas. Which of the following statements are true about the gas evolved? (i) It turns lime water milky (ii) It extinguishes a burning splinter (iii) It dissolves in a solution of sodium hydroxide (iv) It has a pungent odour (a) (i) and (ii) (b) (i), (ii) and (iii) (c) (iii) and (iv) (d) (ii) and (iv)	1
19	Which of the following metals is reactive enough to react with cold water to produce hydrogen gas? (a) Iron (b) Magnesium (c) Calcium (d) Zinc	1
20	Calcium phosphate is present in tooth enamel. Its nature is (a) Basic (b) Acidic (c) Neutral (d) Amphoteric	1
21	In the double displacement reaction between aqueous potassium iodide and aqueous lead nitrate, a yellow precipitate of lead iodide is formed.	1

	While performing the activity, if lead nitrate is not available, which of the following can be used in place of lead nitrate? (a) Lead sulphate (b) Lead acetate (c) Ammonium nitrate (d) Potassium sulphate	
22	Which one of the following types of medicines is used for treating indigestion? (a) Antibiotic (b) Analgesic (c) Antacid (d) Antiseptic	1
23	$\text{Fe}_2\text{O}_3 + 2\text{Al} \rightarrow \text{Al}_2\text{O}_3 + 2\text{Fe}$ The above reaction is an example of a: (a) Combination reaction (b) Double displacement reaction (c) Decomposition reaction (d) Displacement reaction	1
	<u>DIRECTIONS:</u> Following Question contain, a statement of Assertion (A) is followed by a statement of Reason (R) . Choose the correct option: (E) Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A) (F) Both assertion (A) and reason (R) are true and reason (R) is not the explanation of assertion (A) (G) Assertion (A) is true but reason (R) is false. (H) Assertion (A) is false but reason (R) is true.	
24.	Assertion (A): When ethanol is heated at 443 K with excess conc. H_2SO_4 , ethene is obtained. Reason (R): Conc. H_2SO_4 acts as a dehydrating agent.	1
25.	Answer the following based on the properties of metals: a. Bells used in temples and schools are always made of metal alloys. Which characteristic property of metals is utilized here? b. Name any two metals that are exceptions to the general property of hardness and can be easily cut with a knife.	2
26. (A)	Moderately reactive metals like zinc are often found as sulphide ores. The extraction involves converting the ore to an oxide and then reducing it. i. What is the chemical formula of zinc blende, the sulphide ore of zinc? ii. Name the process used to convert zinc blende into zinc oxide and write its balanced chemical equation. iii. Name the substance commonly used to reduce zinc oxide to zinc metal. OR	3
(B)	Alloying is a very important process for creating materials with desired properties. i. What is meant by the term "alloying"? ii. Name the main constituents of stainless steel. iii. State one key property of stainless steel that makes it suitable for manufacturing surgical instruments.	
27.	Differentiate between soaps and detergents on the basis of the following: a. Their general chemical composition. b. Their cleaning action in hard water.	3

	c. Their biodegradability.	
28. (A)	Observe the given figure and answer the following questions: i. Write the complete balanced reaction for the above. ii. Type of reaction involved. iii. Is there any precipitate formed? iv. If any precipitate is formed, write the colour of the precipitate. OR What is meant by 'water of crystallisation' of a substance?	4
(B)	Describe an activity to show that blue copper sulphate crystals contain water of crystallisation.	
29.	i. A compound X undergoes addition reaction with H_2 to form a compound Y having molecular mass 30 g/mol. X decolourises bromine water and burns with a sooty flame. Identify X and Y and write chemical equations of the reactions involved. ii. Write the structural formulas of (a) Butanone (b) Pentanoic acid iii. Would you be able to check if water is hard by using a detergent? Give reason to justify your answer. OR Give reasons for the following: i. Ionic compounds in general have high melting and boiling points. ii. Highly reactive metals cannot be obtained from their oxides by heating them with carbon. iii. Copper containers get a green coat when left exposed to air in the rainy season.	
Section C		
30.	In torches, search lights and headlights of vehicles the bulb is placed – (a) between the pole and the focus of the reflector (b) very near to the focus of the reflector (c) between the focus and centre of curvature of reflector (d) at the centre of curvature of reflector	1
31.	An electric kettle consumes 1 kW of electric power when operated at 220 V. A fuse wire of what rating must be used for it? (a) 1A (b) 2A (c) 4A (d) 5A	1
	<u>DIRECTIONS:</u> Following Question contain, a statement of Assertion (A) is followed by a statement of Reason (R) . Choose the correct option: (E) Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A)	

	(F) Both assertion (A) and reason (R) are true and reason (R) is not the explanation of assertion (A) (G) Assertion (A) is true but reason (R) is false. (H) Assertion (A) is false but reason (R) is true.	
32	Assertion(A): Sunlight reaches us without dispersion in the form of white light and not as its components. Reason(R): Dispersion takes place due to variation of refractive index for different wavelength but in vacuum the speed of light is independent of wavelength and hence vacuum is a non-dispersive medium.	1
33.	a. Draw a ray diagram to show the refraction of light through a glass slab and mark angle of refraction and lateral shift suffered by the ray of light passing through the slab. b. If the refractive index of glass for light going from air to glass is $\frac{3}{2}$, find the refractive index of air for light going from glass to air.	2
34.	Attempt A or B (A) What is an electric circuit? Distinguish between open and a closed circuit. OR (B) In the given circuit diagram suppose the resistors R_1, R_2 and R_3 have the value 5Ω, 10Ω, 30Ω respectively, which have been connected to a battery of 12V. Calculate – - the current through each resistor - the total current in the circuit - the total circuit resistance 	2
35.	- Describe the formation of a rainbow in the sky with the help of diagram. - What are the conditions to observe a rainbow?	3
36.	State Joule's law of heating. List two special characteristics of a heating element wire. An electric iron consumes energy at the rate of 880 W when heating is at the maximum rate and 440 W when heating is at the minimum rate. The applied voltage is 220 V. Calculate the current and resistance in each case.	3
37.	Draw a ray diagram to show the refraction of a ray of light through a triangular prism and mark on it: - angle of incidence (i) - angle of emergence (e)	3



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- Total Marks: 240
- Duration: 60 Minutes
- Negative Marking: No Negative Marking
- Mode: Offline



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