

Kendriya Vidyalaya Sangathan, Jaipur Region
First Pre-Board Exam 2023-24

Class: X
Time : 3 hours

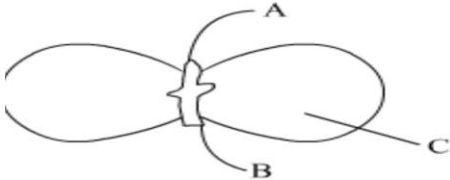
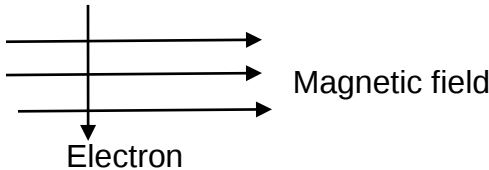
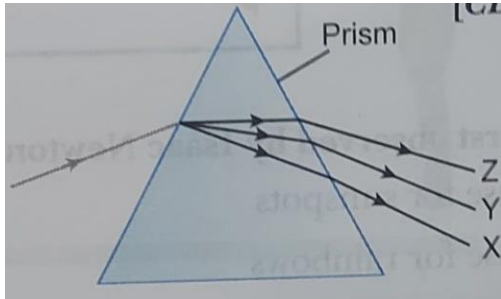
Subject: Science
Max. Marks: 80

General Instructions:

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

	Section A Select and write the most appropriate option of the four options given for each of the questions 1-20. There is no negative mark for incorrect response.	
Q.No.	Questions	Marks
1	In a double displacement reaction such as the reaction between sodium sulphate solution and barium chloride solution: (i) exchange of atoms takes place (ii) exchange of ions takes place (iii) a precipitate is produced (iv) an insoluble salt is produced The correct option is (are): (a) (ii) and (iv) (b) (i) and (iii) (c) only (ii) (d) (ii), (iii) and (iv)	1
2	Calcium oxide reacts vigorously with water to produce slaked lime (calcium hydroxide) releasing a large amount of heat. Such a reaction is an example of: (i) Decomposition reaction (ii) Combination reaction (iii) Endothermic reaction (iv) Exothermic reaction (a) (i) and (ii) (b) (ii) and (iii) (c) (ii) only (d) (ii) and (iv)	1

3	A scientist in a chemistry lab wants to make salt of pH 5.5 using acid and base. The table shows the acid and base present in the lab. <table><tr><td>1</td><td>HCl</td></tr><tr><td>2</td><td>NaOH</td></tr><tr><td>3</td><td>NH₄OH</td></tr><tr><td>4</td><td>H₂CO₃</td></tr><tr><td>5</td><td>CH₃COOH</td></tr></table> Which of the acid and base he should use for the reaction? (a) CH₃COOH and NaOH (b) HCl and NaOH (c) HCl and NH₄OH (d) H₂CO₃ and NaOH	1	HCl	2	NaOH	3	NH ₄ OH	4	H ₂ CO ₃	5	CH ₃ COOH	1
1	HCl											
2	NaOH											
3	NH ₄ OH											
4	H ₂ CO ₃											
5	CH ₃ COOH											
4	What happens when calcium is treated with water? (i) It does not react with water (ii) It reacts violently with water (iii) It reacts less violently with water (iv) Bubble of hydrogen gas formed stick to the surface of calcium. (a) (i) and (iv) (b) (ii) and (iv) (c) (i) and (ii) (d) (iii) and (iv)	1										
5	Which among the following alloys contain mercury as one of its constituents? (a) Iron (b) Alnico (c) Solder (d) Zinc Amalgam	1										
6	What are the molecular formula of the 2nd and the 3rd member of the homologous series whose first member is methane. (a) C₃H₆ and C₄H₈(b) C₂H₆ and C₃H₈ (c) C₂H₄ and C₃H₆ (d) C₄H₈ and C₅H₁₀	1										
7	Oils on treating with hydrogen in the presence of palladium or nickel catalyst form fats. This is an example of (a) Addition reaction (b) Substitution reaction (c) Oxidation reaction (d)Displacement reaction	1										
8	Choose incorrect statement about insulin. (a) It is produced from pancreas (b) It regulates growth and development of the body (c) It regulates blood sugar level (d) Insufficient secretion of insulin will cause diabetes	1										
9	The substance that triggers the fall of mature leaves and fruits from plants is due to (a) auxin (b) gibberellins (c) abscisic acid (d) cytokinin	1										
10	In figure, the parts A, B and C are sequentially	1										

	 (a) cotyledon, plumule and radicle (b) plumule, radicle and cotyledon (c) plumule, cotyledon and radicle (d) radicle, cotyledon and plumule	
11	Near and far points of a young person with normal eye respectively are (a) 0 and infinity (b) 0 and 25 cm (c) 25 cm and infinity (d) 25 cm and 150 cm.	1
12	An electron enters a magnetic field at right at right angles to it, as shown in figure. The direction of force acting on the electron will be  (a) to the right (b) to the left (c) out of the page (d) into the page	1
13	The image shows the dispersion of white light in the prism. What will be the colours of the X, y and Z?  (a) X: green; Y: violet; Z: red (b) X: violet; Y: green; Z: red (c) X: red; Y: green; Z: violet (d) X: red; Y: green; Z: violet	1
14	At the time of short circuit, the electric current in the circuit (a) very continuously (b) does not change (c) reduces substantially (d) increases heavily	1
15	The magnetic field inside a long straight solenoid carrying current (a) Is zero (b) decreases as we move towards its end (c) increases as we move towards its end	1

	(d) is the same at all points	
16	In an electric circuit two resistors 2 ohm and 4 ohm respectively are connected in series to a 6 V battery. The heat dissipated by the 4 ohm resistor in 5 sec. will be- (a) 5 J (b) 10 J (c) 20 J (d) 30 J	1
	Following questions consist of two statements – Assertion (A) and Reason (R). Answer these questions selecting the appropriate option given below: (a) Both A and R are true and R is the correct explanation of A. (b) Both A and R are true but R is not the correct explanation of A. (c) A is true but R is false. (d) A is false but R is true.	
17	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
18	Assertion(A): Baking powder is used in making cake instead of using only baking soda. Reason (R): Baking powder contains tartaric acid which reacts with sodium carbonate and removes bitter taste.	1
19	Assertion(A): A normal human eye can clearly see all objects beyond a certain minimum distance. Reason (R): The human eye has capacity of adjusting the focal length of eye lens	1
20	Assertion(A): Alternating current is used in household supply. Reason (R): AC electric power can be transmitted over long distance without much loss of energy.	1
Section – B Question No. 21 to 26 are very short answer questions		
21	While diluting an acid, why is it recommended that the acid should be added to water and not water to the acid?	2
22	Explain the formation of ionic compound CaO with electron-dot structure. Atomic number of calcium and oxygen are 20 and 8 respectively.	2
23	List the parts of human male reproductive system which contribute fluid to the semen. State two advantages semen offers to the sperms. OR Describe the process that follows after the landing of pollen grains on stigma during fertilization in plants?	2
24	The species reproducing sexually has comparatively better chances of survival than the one reproducing asexually? Justify this statement.	2

25	What are reflex actions? Give an example. OR How do auxins promote the growth of a tendril around a support?	2
26	Why coils of electric toasters and electric irons are made of an alloy rather than a pure metal?	2
	Section- C Question No. 27 to 33 are short answer questions	
27	List the important products of the Chlor-alkali process. Write one important use of each.	3
28	What are amphoteric oxides? Give two examples of amphoteric oxides. OR In the electrolytic refining of a metal M, what would you take as the anode, the cathode and the electrolyte?	3
29	Write one equation each for decomposition reactions where energy is supplied in the form of heat, light or electricity.	3
30	What is meant by functional group in carbon compounds? Write the structural formula and the functional group present in the following compounds: (a) Ethanol (b) Ethanoic acid	3
31	Which part of the brain controls the following- (a)Balance and posture of the body (b)Salivation (c)Thinking	3
32	An electric iron has a rating of 750 W, 220 V. calculate the – (i)Current flowing through it (ii)Its resistance	3
33	(a)Draw the pattern of magnetic field lines due to a magnetic field through and around a current carrying circular loop. (b) Name and state the rule to find out the direction of magnetic field inside and around the loop.	3
	Section – D Question No. 34 to 36 are long answer questions	
34	(a)Draw labelled diagram of human excretory system. (b)Describe the structure and functioning of nephron. OR (a)What advantage over an aquatic organism does a terrestrial organism have with regard to obtaining oxygen for respiration? (b)What are the different ways in which glucose is oxidised to provide energy in various organisms?	5
35	(a)Name the type of mirror used in the following situations.	5

	(i) By Dentist (ii) Shaving mirror (iii) Rear view mirror of a vehicle (iv) Searchlights (b) A convex lens of focal length 20 cm can produce a magnified virtual as well as real image. Is this a correct statement? If yes, where shall the object be placed in each case for obtaining these images? OR (a) Draw a labelled ray diagram to show the path of a ray of light incident obliquely on one face of a glass slab. (b) Calculate the refractive index of the material of a glass slab. Given that the speed of light through the glass slab is 2×10^8 m/s and in air is 3×10^8 m/s.	
36	(i) Create a food chain of the following organisms: Insect, hawk, Grass, Snake, frog (ii) Name the organism at the third trophic level of the created food chain. (iii) Which organism of this food chain will have the highest concentration of non-biodegradable chemicals? (iv) Name the phenomena associated with it. (v) If 10,000 joules of energy is available to frogs, how much energy will be available to snakes in this food chain?	5
	Section –E Question No. 37 to 39 are case-based/data-based questions with 2 to 3 sub-parts. Internal choice is provided in one of these sub-parts	
37	The reproductive parts of angiosperms are located in the flower. You have already studied the different parts of a flower – sepals, petals, stamens and pistils. Stamens and pistil are the reproductive parts of a flower which contain the germ-cells. The flower may be unisexual (papaya, watermelon) when it contains either stamens or pistil or bisexual when it contains both stamens and pistil. (a) What are the male reproductive parts of flower? (b) Name any two bisexual flower plants. (c) What is cross pollination? OR (c) Name the parts of the flower that develop after fertilization into seed and fruit.	4
38	Sahil performed an experiment to study the inheritance pattern of genes. He crossed tall pea plants (TT) with short pea plants (tt) and obtained all tall plants in F₁ generation. (a) What will be set of genes present in the F₁ generation? (b) Give reason why only tall plants are observed in F₁ progeny. (c) When F₁ plants were self-pollinated, a total of 800 plants were produced. How many of these would be tall, medium height or short plants? Give the genotype of F₂ generation. OR (c) When F₁ plants were cross-pollinated with plants having tt genes, a	4

	total of 800 plants were produced. How many of these would be tall, medium height or short plants? Give the genotype of F 2 generation.	
39	A security person at a shopping mall was looking a mirror and saw image of his friend in the mirror which was always erect whatever be the location of his friend. At a particular moment the image was five times lesser in size than the actual size. At the time his friend was 500 cms away from the mirror. (a) What type of mirror has been used in this situation? Justify your answer. (b) What are the uses of the type of mirror used in the mall? (c) What is the focal length of the mirror? OR (c) Would the security guard be able to see similar type of images of his friend if some other type of mirror is used?	4