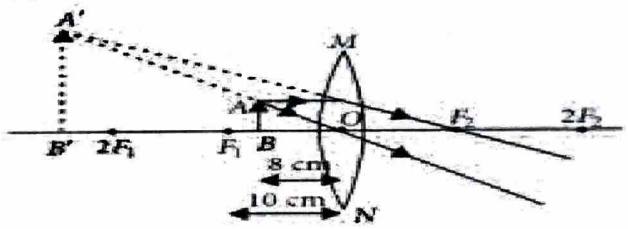
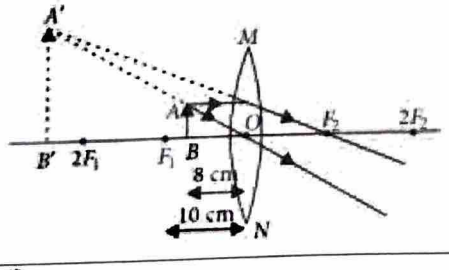
SET	A/B/C

INDIAN SCHOOL MUSCAT
HALF YEARLY EXAMINATION 2023 PHYSICS
Science (086)

CLASS:X **Physics** Max.Marks: 80

MARKING SCHEME			
SET	QN.NO	VALUE POINTS	MARKS SPLIT UP
	13	a	1
	14	a	1
	17	c	1
	24	Absolute Refractive Index: The refractive index is known as the absolute refractive index when light travels from a vacuum to another medium. Relative Refractive Index: The refractive index is known as the relative refractive index when light travels from one medium to another.	1 1
	25	A student has difficulty in reading the blackboard while sitting in the last row. It shows that he is unable to see distant objects clearly. He is suffering from **myopia.** This defect can be corrected by using a **concave lens.** OR Planets do not twinkle because they appear larger in size than the stars as they are relatively closer to earth. **Planets can be considered as a collection of a large number of point-size sources of light.** The different parts of these planets produce either brighter or dimmer effect in such a way that **the average of brighter and dimmer effect is zero**. Hence, the twinkling effects of the planets are nullified and they do not twinkle	1+1 1+1
	31	Ray Diagram for convex lens (i) beyond centre of curvature (ii) between focus and centre of curvature (If direction of ray is not marked deduct ½ marks)	 1½ 1½
	32	(a) The splitting up of white light into its constituent colours in the form of VIBGYOR is called dispersion. (b) Dispersion takes place because the speed of light of different colours through a glass **or** in terms of RI of material of prism (c) Ray diagram to show the dispersion of white light through prism (If extreme are not mentioned deduct ½ mark)	1 1 1

	33	(a)Function of ciliary muscles It helps the eye lens to focus the image of the object on the retina by increasing or decreasing the curvature of eye lens and holds the lens in position (b) Defect of vision: Presbyopia (c) Correction: By using bifocal lenses	1 1 1
	36	(i) The lens used by the palmist is a **convex lens** to get magnified image. (ii)The palmist should hold the lens at focus, or between the focus and the center of curvature of the lens so as to get the real and magnified image. (iii) 1/f= 1/v-1/u V= -10m, m = v/u =-10/-5= 2 OR (i) Reciprocal of focal length, Definition of 1 diopter (ii) Power of lens A = 100/f A (in cm) = 100/10 = +10 D convex lens Power of lens B = 100/f (in cm) = 100/−10 = -10 D (iii) Convex lens  	1+1 1 ½ 1 ½ ½ ½ ½ ½ ½ ½ 1 1
	39	(i) cornea (ii) kidney, lungs (iii) retina	1 2 1
		SET-B	
	13	a	
	14	a	
	17	c	
	24	(i) convex (ii) concave (iii) concave (iv) convex	4 x½
	25	A student has difficulty in reading the blackboard while sitting in the last row. It shows that he is unable to see distant objects clearly. He is suffering from **myopia.** This defect can be corrected by using a **concave lens.** OR Planets do not twinkle because they appear larger in size than the stars as they are relatively closer to earth. **Planets can be considered as a collection of a large number of point-size sources of light.** The different parts of these planets produce either brighter or dimmer effect in such a way that **the average of brighter and dimmer effect is zero**. Hence, the twinkling effects of the planets are nullified and they do not twinkle	1+1 1+1

	31	(i) below 20 cm of between focus and pole (ii) Bigger (iii) Ray Diagram (If direction of ray is not marked deduct ½ marks)	½ ½ 2
	32	(a) The splitting up of white light into its constituent colours in the form of VIBGYOR is called dispersion. (b) Dispersion takes place because the speed of light of different colours through a glass **or** in terms of RI of material of prism (c) Ray diagram to show the dispersion of white light through prism (If extreme are not mentioned deduct ½ mark)	1 1 1
	33	(a) Function of ciliary muscles It helps the eye lens to focus the image of the object on the retina by increasing or decreasing the curvature of eye lens and holds the lens in position (b) Defect of vision: Presbyopia (c) Correction: By using bifocal lenses	1 1 1
	36	(i) The lens used by the palmist is a **convex lens** so as to form a magnified image of an object. (ii)The palmist should hold the lens at focus, or between the focus and the center of curvature of the lens so as to get the real and magnified image. (iii) 1/f= 1/v-1/u V= -10m, m = v/u =-10/-5= 2 OR (i) Reciprocal of focal length, Definition of 1 diopter (ii) Power of lens A = 100/f A (in cm) = 100/10 = +10 D convex lens Power of lens B = 100/f (in cm) = 100/−10 = -10 D (iii) Convex lens  	1+1 1 ½ 1 ½ ½ ½ ½ 1/2 ½ ½ 1 1
	39	(i) cornea (ii) kidney, lungs (iii) retina	1 2 2
		SET-C	
	13	a	1
	14	a	1
	17	b	1

	24	(i) convex (ii) concave (iii) concave (iv) convex	4x½
	25	Two causes Myopia OR Blue colour has shorter wavelength so according to law scattered most due to which colour of sky is blue	1+1 2
	31	Ray Diagram for convex lens (i) beyond centre of curvature (ii) between focus and centre of curvature (If direction of ray is not marked deduct ½ marks)	 1½ 1½
	32	(a) The splitting up of white light into its constituent colours in the form of VIBGYOR is called dispersion. (b) Dispersion takes place because the speed of light of different colours through a glass **or** in terms of RI of material of prism (c) Ray diagram to show the dispersion of white light through prism (If extreme are not mentioned deduct ½ mark)	1 1 1
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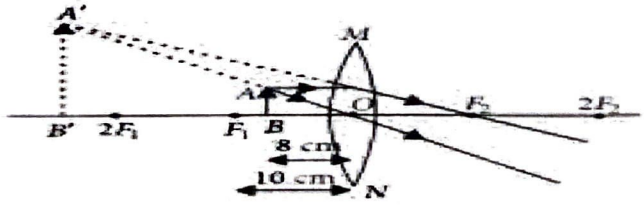
	36	(i) The lens used by the palmist is a **convex lens** so as to form a magnified image of an object. (ii)The palmist should hold the lens at focus, or between the focus and the center of curvature of the lens so as to get the real and magnified image. (iii) 1/f= 1/v-1/u V= -10m, m = v/u =-10/-5= 2 OR (i) Reciprocal of focal length, Definition of 1 diopter (ii) Power of lens A = 100/f A (in cm) = 100/10 = +10 D convex lens Power of lens B = 100/f (in cm) = 100/−10 = -10 D (iii) Convex lens  	1+1 1 ½ 1 ½ ½ ½ ½ ½ ½ ½ 1 1
	39	(i) cornea (ii) kidney, lungs (iii) retina	1 2 1

SET	A

INDIAN SCHOOL MUSCAT
HALF YEARLY EXAMINATION 2023
Science (086)

CHEMISTRY

CLASS:X

Max.Marks: 80

MARKING SCHEME			
SET	QN.NO	VALUE POINTS	MARKS SPLIT UP
	1.	(b) Reducing	1
	2.	(b) 1a, c.	1
	3.	(c)	1
	4.	(d)	1
	5.	(b)	1
	6.	(b)	1
	7.	(b)	1
	8.	Biology	
	9.	Biology	
	10.	Biology	
	11.	Biology	
	12.	Biology	
	13.	physics	
	14.	physics	
	15.	(d) Neutralization	1
	16.	Biology	
	17.	Physics	
	18.	(d)	1

19. (a)

	19.	(a)	1
	20.	Biology	
	21.	OA→CuO(Copper Oxide) (1) RA→H_2(Hydrogen Gas)(1)	2
	22.	Biology	
	23.	Biology or biology	
	24.	Physics	
	25.	Physics or physics	
	26.	Two products are obtained Calcium Sulphate hemihydrate→$CaSO_4.½\ H_2O$ (1) Water-1 ½ molecule (1)	2
	27.	**(i)Oxidation:** Addition of Oxygen or Removal of Hydrogen or Loss of electron (1/2) **Reduction:** Addition of Hydrogen or Removal of Oxygen or gain of electron (1/2) (ii)In combination two or more reactants combines to give one product, whereas in decomposition a single reactants split up to give two or more products. Therefore, combination reactions are always opposite to decomposition reaction. (1) Any one example for combination and decomposition reaction. (1/2 +1/2)	3
	28.	(i) Any one observation-(½) $Fe(s) + CuSO_4(aq) \rightarrow FeSO_4(aq) + Cu(s)$-(½) (ii)(a)X→Sodium Sulphate (Na_2SO_4) Y→Barium Sulphate ($BaSO_4$)(½ +½) (b)Double displacement (1) (or) (i) When sour things, such as curd, are stored in brass or copper vessels, the lactic acid in the curd reacts with the metals, causing corrosion and the creation of toxic salts that cannot be digested. (1) (ii) When electricity is passed through the aqueous solution of sodium chloride (also called as brine), it decomposes to sodium hydroxide this is chlor alkali process. the products are sodium hydroxide, chlorine and hydrogen. (1) Electrolysis $2NaCl+2H_2O \rightarrow 2NaOH+Cl_2+H_2$ (1)	3
	29.	Biology	
	30.	Biology	
	31.	Physics	
	32.	Physics	
	33.	Physics	
	34.	a. $2NaOH(aq) + Zn \rightarrow Na_2ZnO_2(aq) + H_2(g)$ b.CO_2 (aq)+ $Ca(OH)_2(aq) + H_2O(l) \rightarrow Ca(HCO_3)_2(S)$	5

		c. $H_2SO_4(aq) + K_2CO_3(aq) \rightarrow K_2SO_4(aq) + H_2O(l) + CO_2(g)$ d. $CaCO_3(s) + H_2SO_4(aq) \rightarrow CaSO_4(S) + H_2O(l) + CO_2(g)$ e. $CuO + 2HCl(aq) \rightarrow CuCl_2(aq) + H_2O(l)$ Each one carries one mark (Or) (i)Tap water consists of ions of dissolved salts and minerals, so, when electricity passes through the tap water it conducts, whereas distilled water does not contain ions or any other dissolved salts. (ii) An aqueous solution of HCl acid produce H^+ ions in solution which turns blue litmus into red color, since dry HCl does not produce H^+ in the absence of water, it will not change the color of blue litmus paper. (iii) Fresh milk gets soured in summer forming lactic acid. Baking soda being basic in nature neutralizes lactic acid and prevents souring of milk. (iv) While diluting an acid, it is preferred that the acid is added to water rather than the water being added to the acid. Adding water to a concentrated acid releases a large amount of heat, which can cause an explosion and acid burns on the skin, clothing, and other body parts. (v) NaCl (Sodium chloride) is a salt that is produced by the neutralization reaction of a strong acid(HCl) and a strong base(NaOH) whose pH value is 7. Therefore, it doesn't show acidic or basic nature. Each one carries one mark	
	35.	Biology or biology	
	36.	Physics or Physics	
	37.	a) When pH of rain water is less than 5.6, it is called acid rain. (1) Yes. Plants and animals are known to show growth sensitive to pH. When acid rain flows into the rivers, it lowers the pH of the river water. The survival of aquatic life in such rivers becomes difficult. (1) b) Any two examples. (1) Antacids are basic compounds which neutralize hydrochloric acid in the gastric secretions and get relief from acidity (1) OR Formic acid (methanoic acid) is the acid present in the stinging hair of nettle leafs. (1) Use of a mild base like baking soda on the stung area gives relief.(1)	4
	38.	Biology a) b) OR	
	39.	Physics a) b) OR	

SET	B

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CLASS:X

Max.Marks: 80

MARKING SCHEME			
SET	QN.NO	VALUE POINTS	MARKS SPLIT UP
	1.	(b)	1
	2.	(c)	1
	3.	(b)	1
	4.	(c)	1
	5.	(a)	1
	6.	(a)	1
	7.	(d)	1
	8.	Biology	
	9.	Biology	
	10.	Biology	
	11.	Biology	
	12.	Biology	
	13.	physics	
	14.	physics	
	15.	(a)	1
	16.	Biology	
	17.	Physics	
	18.	(d)	1

	19.	(a)	1
	20.	Biology	
	21.	(i)$Pb(NO_3)_2(aq) + 2KI(aq) \rightarrow PbI_{2(S)} + 2KNO_3(aq)$ (1) (ii)$CH_{4(g)} + O_{2(g)} \rightarrow CO_{2(g)} + H_2O_{(g)}$ (1)	2
	22.	Biology	
	23.	Biology or biology	
	24.	Physics	
	25.	Physics or physics	
	26.	Acidic Oxide:SO_2, CO_2 (½ + ½) Basic Oxide:Na_2O,MgO (½ + ½)	2
	27.	(i)Rust is the hydrated form of Iron(III) Oxide (or) $Fe_2O_3.nH_2O$ (1) (ii)Most reactive: K, Least reactive: Au (½ + ½) (iii)(b)$2K + Cl_2 \rightarrow 2KCl$ (1)	3
	28.	Any three points (1+1+1) or (i)Any two products (1) (ii)$CaSO_4.\ ½H_2O + 1\ ½\ H_2O \rightarrow CaSO_4.2H_2O$ (1) (iii)Tartaric Acid + Sodium Hydrogen carbonate (½ + ½)	3
	29.	Biology	
	30.	Biology	
	31.	Physics	
	32.	Physics	
	33.	Physics	
	34.	1.$2C_7H_6O_2 + 15O_2 \rightarrow 14CO_2 + 6H_2O$ (1) 2.$Fe_2(SO_4)_3 + 6KOH \rightarrow 3K_2SO_4 + 2Fe(OH)_3$ (1) 3.$2Ca_3(PO_4)_2 + 6SiO_2 \rightarrow P_4O_{10} + 6CaSiO_3$ (1) 4.$4KClO_3 \rightarrow 3KClO_4 + KCl$ (1) 5.$Al_2(SO_4)_3 + 3Ca(OH)_2 \rightarrow 2Al(OH)_3 + 3CaSO_4$ (1) (Or) (i) Distilled water is pure form of water which do not contain any solute in it. Therefore, it cannot it conduct electricity because it does not contain ions while rain water contains dissolved salts and acids which dissociates in ions and conducts electricity. (ii)When we overeat excess acid is produced in the stomach which causes the burning sensation. (iii)Lemon is a citric acid which removes the basic layer of copper oxide which is greenish in color formed on the copper metal by dissolving this copper oxide tarnish and washed away. (iv) Sodium carbonate, also known as washing soda, is a white crystalline solid whose common form is decahydrate. When exposed to air, its crystals lose water, turn into a monohydrate form and appear as a white opaque	5

		powder. (v) Aqueous solution of NaCl contains equal number of H^+ and OH^- ions, hence it is neutral in nature. On other hand, sodium carbonate is a salt of weak acid H_2CO_3 and strong base NaOH. Thus salt solution contains OH^- ions. Hence aqueous solution of sodium carbonate is basic in nature. Each one carries one mark.	
	35.	Biology or biology	
	36.	Physics or Physics	
	37.	a) (i)a. Exothermic reaction (1) (ii)c. Burning of LPG (1) b)(i) a.$Al(OH)_3$ (1) (ii)a.Copper (1) OR In a displacement reaction the highly reactive metal (reducing agent) or will reduce the less reactive metal (Oxidizing agent) from its salt solution or its molten state. (1/2) Since oxidation and reduction occur simultaneously it is also coming under REDOX reaction. (1/2) Any one Example (1)	4
	38.	Biology a) b) OR	
	39.	Physics a) b) OR	

SET	C

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CLASS:X

Max.Marks: 80

MARKING SCHEME			
SET	QN.NO	VALUE POINTS	MARKS SPLIT UP
	1.	(b)	1
	2.	(c)	1
	3.	(c)	1
	4.	(c)	1
	5.	(b)	1
	6.	(a)	1
	7.	(b)	1
	8.	Biology	
	9.	Biology	
	10.	Biology	
	11.	Biology	
	12.	Biology	
	13.	physics	
	14.	physics	
	15.	(a)	1
	16.	Biology	
	17.	Physics	
	18.	(d)	1

	19.	(a)	1
	20.	Biology	
	21.	OA → CuO (Copper oxide) (1) RA →H_2(Hydrogen gas)(1)	2
	22.	Biology	
	23.	Biology or biology	
	24.	Physics	
	25.	Physics or physics	
	26.	Acidic Oxides:SO_2, CO_2 (½ + ½) Basic Oxides:Na_2O,MgO (½ + ½)	2
	27.	**(i)Oxidation:** Addition of Oxygen or Removal of Hydrogen or Loss of electron (1/2) **Reduction:** Addition of Hydrogen or Removal of Oxygen or gain of electron (1/2) (ii)In combination two or more reactants combines to give one product, whereas in decomposition a single reactants split up to give two or more products. Therefore, combination reactions are always opposite to decomposition reaction. (1) Any one example for combination and decomposition reaction. (1/2 +1/2)	3
	28.	Any three points (1+1+1) or (i)Any two products (1) (ii)$CaSO_4$. ½H_2O +1 ½ H_2O → $CaSO_4.2H_2O$ (1) (iii)Tartaric Acid + Sodium Hydrogen carbonate (½ + ½)	3
	29.	Biology	
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	32.	Physics	
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	34.	a. $2NaOH(aq) + Zn \rightarrow Na_2ZnO_2(aq) + H_2(g)$ b.CO_2 (aq)+ $Ca(OH)_2(aq) + H_2O(l) \rightarrow Ca(HCO_3)_2(S)$ c.$H_2SO_4(aq) + K_2CO_3(aq) \rightarrow K_2SO_4(aq) + H_2O(l) + CO_2(g)$ d.$CaCO_3(s) + H_2SO_4(aq) \rightarrow CaSO_4(S) + H_2O(l) + CO_{2(g)}$ e.$CuO + 2HCl(aq) \rightarrow CuCl_2(aq) + H_2O(l)$ Each one carries one mark (Or) (i)Tap water consists of ions of dissolved salts and minerals, so, when electricity passes through the tap water it conducts, whereas distilled water does not contain ions or any other dissolved salts. (ii) An aqueous solution of HCl acid produce H^+ ions in solution which	5

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38.	Biology a) b) OR	
39.	Physics a) b) OR	