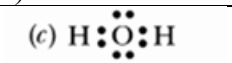
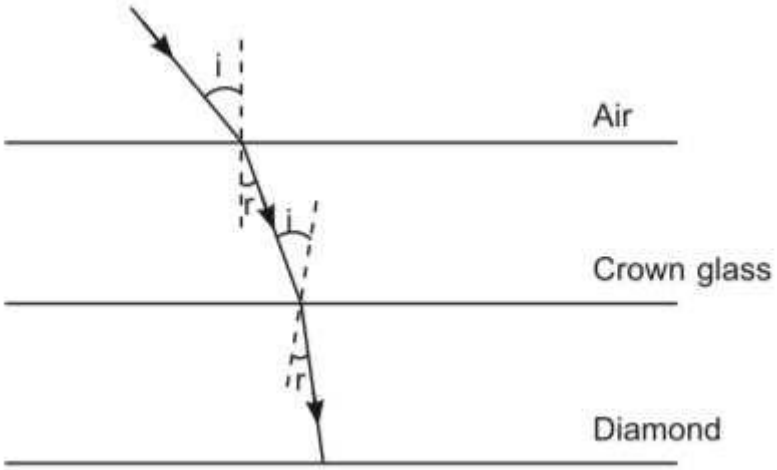
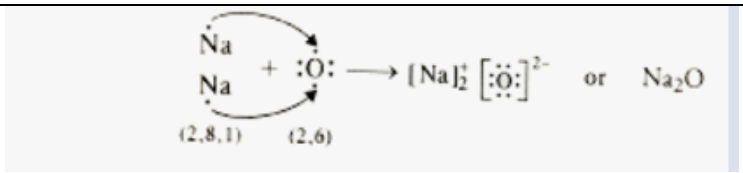
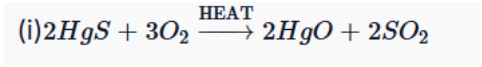
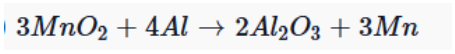
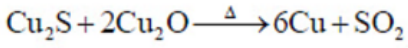
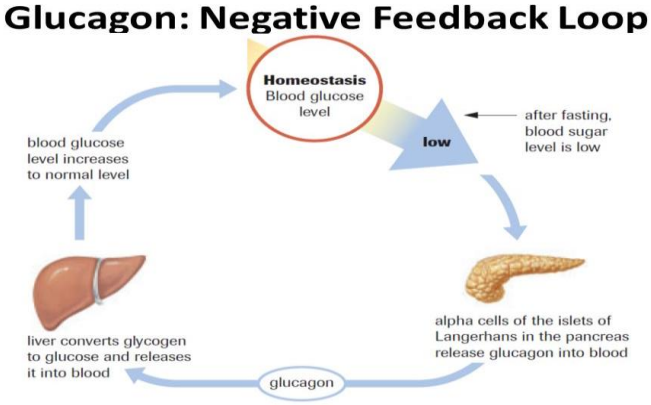
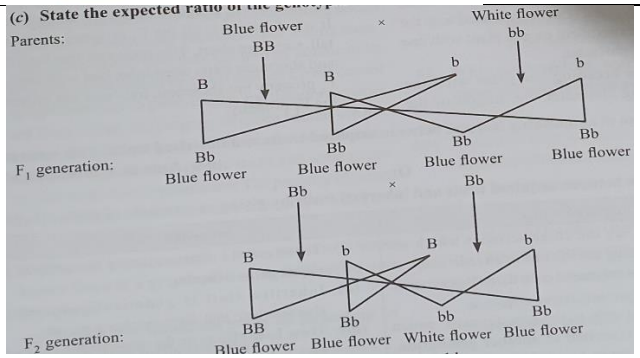
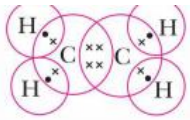
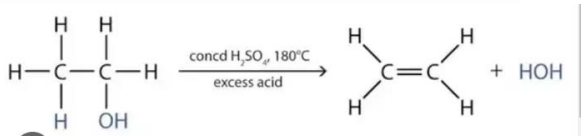
BANGALORE SAHODAYA SCHOOLS COMPLEX ASSOCIATION
PRE-BOARD EXAMINATION 1 (2024-2025)
Grade X
MARKING SCHEME

Time:3hrs **SUBJECT: SCIENCE (086) SET 2** Marks: - 80

1	(a)Storing of oxygen gas under pressure in a gas cylinder	**1**
2	(b) Dissolves in polar solvent like H_2O	**1**
3	(b) Redox reaction	**1**
4	(c) 	**1**
5	(d) Corrosion can take place in vacuum.	**1**
6	(a) Addition reaction	**1**
7	(d)Al is more reactive than Zn, Cu and Fe	**1**
8	(d) (ii) and (iv)	**1**
9	(d) his sugar level in blood was high	**1**
10	(b)(ii), (iii) and (iv)	**1**
11	(d)	**1**
12	a) test tube A as the air blown into it contains CO_2	**1**
13	(c) A and C	
14	(c) 3.3 Ω and 13.13 Ω	
15	(b) materials cycle between the organisms labelled A and organisms labelled B	**1**
16	a) heat energy	**1**
17	**(**b) Both A and R are true and R is not the correct explanation of A.	**1**
18	(A) Both A and R are true and R is the correct explanation of A.	**1**
19	(c) A is false but R is true	
20	(A) Both A and R are true and R is the correct explanation of A.	**1**
	SECTION -B	
21	**(a)Metal M**: Silver (Ag), **Gas X2**: Chlorine gas (Cl2) ½ + ½ 2 AgCl (s) → 2 Ag (s) + Cl2 (g)	1 1
22	(a) bile helps in emulsification of fat (breaking down large fat particles into smaller globules) (b)Lipase in pancreatic juice converts small fat particles to fatty acid and glycerol OR Renal Artery-carries blood toward Kidney Renal veins – carry blood away from kidney Renal Artery carries blood with nitrogenous waste Renal vein carries blood without nitrogenous waste	**1** **1** **1**

		1
23	**(**a) vagina, uterus , fallopian tube or a labelled figure of female reproductive system indicating the passage of sperms **(**b)Zygote has two sets of chromosomes or 2n chromosomes	**1** **1**
24	a. **1**  b. absolute refractive index of diamond = speed of light in air/speed of light in diamond 1	**2**
25	A 1/v -1/u = 1/f (½) 1/12 -1/10 = 1/u u = -60 cm (½) m = v/u (½) m = 12/-60 or m = -1/5 (½) OR B. 1/v +1/u = 1/f (½) 1/v = 75/2 cm (½) h'/h = - v/u (½) h'/4 = -75/2x25 = -6 cm (½)	**2**
26	(a) cereal plant ⟶ plants (b)pesticides enter cereal plants from which they enter the food chain getting concentrated with rise in trophic levels	**1** **1**
	SECTION -C	
27	a. evolution of gas/ exothermic / change in temperature b. change in colour c. formation of precipitate d. change in temperature e. change in physical state f. formation of precipitate	6 X ½ = 3
28		1 ½

		½ 1
A	Ions present in them are Na+ and O2- It requires large amount of energy to break the strong electrostatic force of attraction present between the ions.	**1** **1**
	OR	
B (i)		**1**
(ii)		
(iii)		
29		**1** **½ x4=2**
30	 **(**a) colour of flowers in F1 generation -blue (b) percentage of white flowers in F1 -25% (c)Ratio BB : Bb ---- 1:2	**1.5** **1.5**
31	a. Myopia 0.5 b. Short eyeball ; excessive curvature of lens 1+1 c. Concave lens 0.5	**3**
32	R = 2 Ω ; A = 25 cm^2 = 25/10000 m^2 ; l = 15 cm = 15/100 m 0.5 Rho = RA/l 0.5 = 2x1/400x20/3 = 0.333 Ωm 1 1 Ωm is defined as the resistivity of a material that has a resistance of 1 Ω , area of cross section 1 m^2 and length of 1 m. 1	**3**

33	a. Out of the page/upwards 1 b. Fleming's Left Hand Rule 1 c. The direction will remain the same as original (upwards) 1	**3**
	SECTION -D	
34	**(A)** C is ethanoic acid, R is sodium acetate and hydrogen gas , A is methanol and S is methyl acetate (i) $2CH_3COOH + 2Na \longrightarrow 2CH_3COONa + H_2$ (C) (R) (ii) $CH_3COOH + CH_3OH \xrightarrow{conc.\ H_2SO_4} CH_3COOCH_3 + H_2O$ (C) (A) (S) (iii) $CH_3COOH + NaOH \xrightarrow{conc.\ H_2SO_4} CH_3COONa + H_2O$ (C) (R) (iv) $CH_3COOCH_3 + NaOH \longrightarrow CH_3COONa + CH_3OH$ (S) (R) (A)	4 X ¼ = 1 1 1 1 1
	(B) (i)It is a series of compounds having same general formula and each successive member will differ by -CH2 group or 14 u. (ii)Molecular formula : C2H4 Electronic formula:  Structural formula: H—C=C—H (H H) (iii)  (iv)Soaps are sodium or potassium salts of higher fatty acids. Ex.- Sodium stearate (v)Soap scum forms when soap is used with hard water	1 1 1 1 ½ + ½
35	(a) A-seminal vescicle, B- ureter , C-urethra , D- Vas deferens (b) Hormone by Testis – Testosterone Functions – (i) regulates formation of sperms (ii)development and maintenance of male secondary sex characters and sex organs (c) function of A- provide nutrition and help in transportation of sperms C- common passage of sperms and urine OR	**½ x4=2** **1** **1** **1**
	(a)(i) coming together of chromosomes (ii) reshuffling and crossing over (b) (i) pollen grain (ii) pollen grains are carried by pollinating agents as wind, waterand insects (iii) pollen tube formed on germination of pollen grain, carries male gametes to the female gamete (iv) egg is converted to zygote ,synergids degenerate	**1** **1** **1** **1** **1**

36

A.

(*a*) For minimum current in the circuit, maximum circuit resistance is required. This is possible only when the variable resistor is at its maximum value.

Equivalent resistance of the series circuit is

$$R_s = R_1 + R_2 + R_3$$
$$= 400 + 200 + 200 = 800\ \Omega$$

So, minimum current,

$$I = \frac{V}{R_s} = \frac{12}{800} = 0.015\ \text{A}$$

Or

(*b*) (*i*) The smallest reading of voltmeter is only when the circuit has minimum value of current.

So, $V_{min} = I_{min}R = 0.015 \times 200 = 3\ \text{V}$

(*ii*) When the current in the circuit has a maximum value, the reading of the voltmeter across 200 Ω will be maximum.

$\therefore V_{max} = I_{max}R = 0.03 \times 200 = 6\ \text{V}$

(c) the use of the variable resistance in the circuit is to adjust the magnitude of current and resistance in the circuit 2+2+1

OR

B.

a. P = VI or I = P/V = 1000/250 = 4A

b. P = VI or I = P/V = 2000/250 = 8A 1

total current = 12 A so a 13 A fuse can be used. 1

Appliances connected in parallel (i) can have individual lswitches

(ii) have maximum voltage across each device 2

AC can be transmitted over long distances without loss of energy. 1

SECTION -E

37

(a) 1

$2NaCl(aq) + 2H_2O(l) \longrightarrow 2NaOH(aq) + Cl_2(g) + H_2(g)$

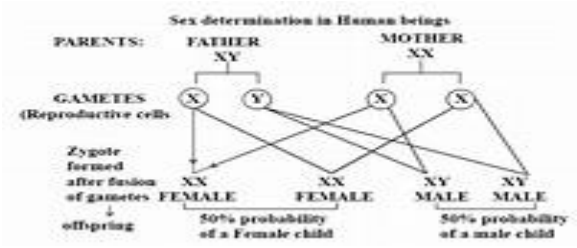
(b)Anode : Cl2 gas, Cathode : H2 gas ½ + ½

©H2 gas is used as a fuel, Cl2 is used as a disinfectant ½ + ½

(d) The eqn is 1

$NaCl + NH_3 + H_2O + CO_2 \longrightarrow \underset{\text{Baking soda}}{NaHCO_3} + NH_4Cl$

(or)

	(e) Equation is $Ca(OH)_2 + Cl_2 \longrightarrow CaOCl_2 + H_2O$ Slaked lime — Bleaching powder	1
38	(i) A -Male – 23rd chromosome is a mismatched pair B-Female-23rd chromosome is a perfect pair (ii)  (iii) temperature dependant sex change is seen, females hatch out of eggs that are incubated at a warmer temperature. however in some species females hatch out of cooler eggs males from a middle range temperature. OR (iii)probability of children with A blood group is 50% Father I^AI^A x Mother I^OI^O Gametes I^A, I^A x I^O, I^O Children I^AI^O or I^BI^O (or any other suitable explanation)	**1** **2** 1
39.	a. The field lines can be drawn in complete loops with the north pole on the left and south pole on the right. 2 b. increasing the strength of current or the number turns of the coil 1 c. false 1 OR d. false	**4**