

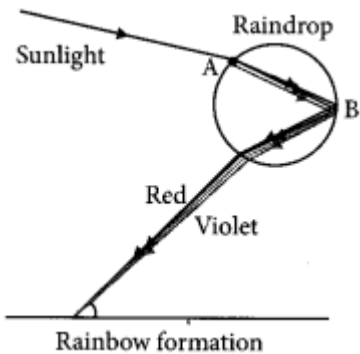
SET	A
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INDIAN SCHOOL MUSCAT
FIRST PRE BOARD EXAMINATION 2023
Science (086)

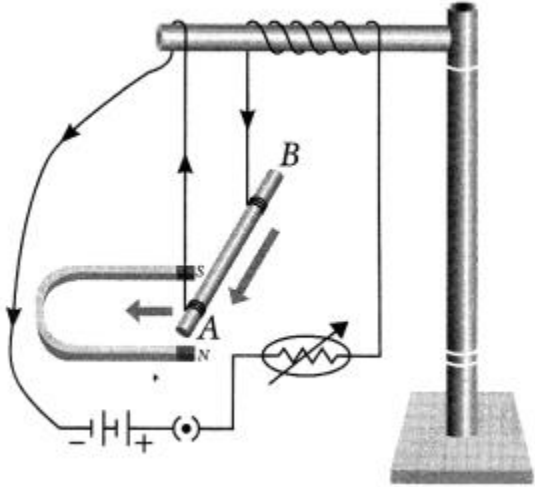
CLASS:X

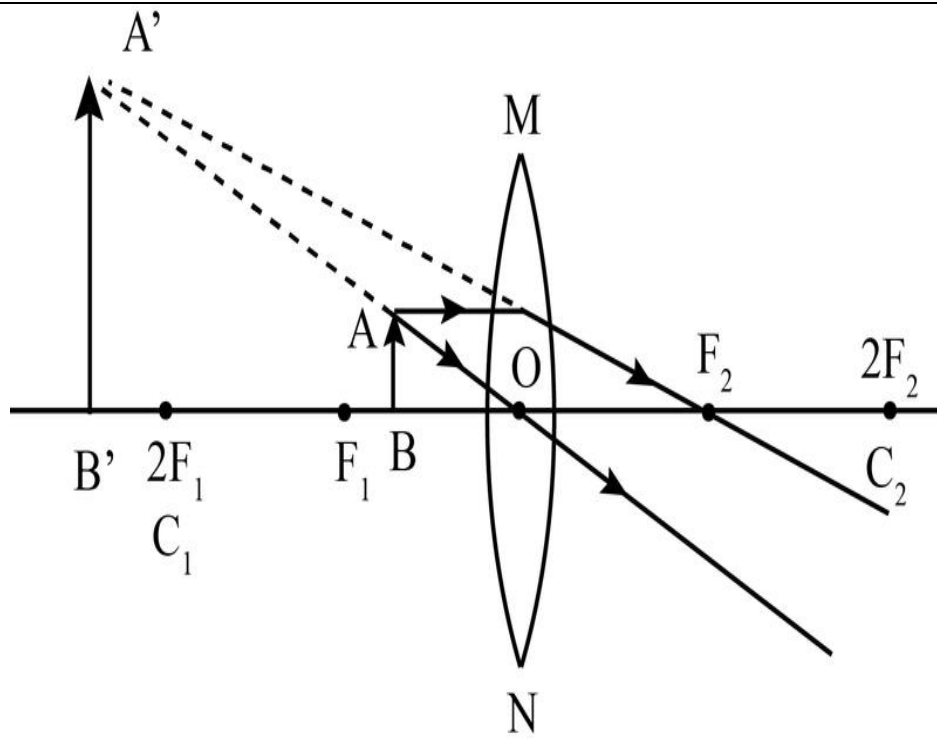
Max.Marks: 80

MARKING SCHEME			
SET	QN.NO	VALUE POINTS	MARKS SPLIT UP
	1.	d.(ii &iv)	1
	2.	c.3:1 by volume	1
	3.	a.NH ₄ OH &HCl	1
	4.	d. 4	1
	5.	b. Cu	1
	6.	a. Oxidation	1
	7.	c. Potassium iodide	1
	8.	(c) Insulin	1
	9.	(a) Pollen grain, stigma, pollen tube, female germ cell	1
	10.	(a) baby boy	1
	11.	(a) Dihybrid cross	1
	12.	(c) both maternal and paternal DNA	1
	13.	c	1
	14.	a	1
	15.	d	1
	16.	c	1
	17.	c	1

	18.	d	1
	19.	a	1
	20.	a	1
	21.	Bases. (1) Alkalie (1)	2
	22.	a. Pancreas b. adrenal glands	2
	23.	Carbon dioxide is more soluble in water than oxygen. (1mark) Haemoglobin (the red pigment in RBC) has a very high affinity for oxygen(1 mark) OR This happened due to lack of oxygen (1) and formation of lactic acid in muscle cells during anaerobic respiration.(1)	2
	24.	Plastic bag- Non- biodegradable, chokes the aquatic organisms, pollution- Carrying cloth-bags/jute-bags/paper-bags instead of plastic bags to put purchases in while shopping.	2
	25.	<p>i. Due to the excessive curvature of eye lens the focal length of the lens decreases and hence the image, of objects far from the eye, forms in front of retina rather than on the retina, so the defect is called near sightedness or Myopia because the person can only see nearby objects distinctly. 1</p> <p>ii. ii. The power of accommodation of eye decreases with time or ageing due to the weakness of ciliary muscles and due to their weakness the focal length of the eye lens cannot be changed properly, hence the defect is called Presbyopia. 1</p> <p>OR</p>  <p>1</p> <p>Point A denotes dispersion and point B denotes internal</p>	2

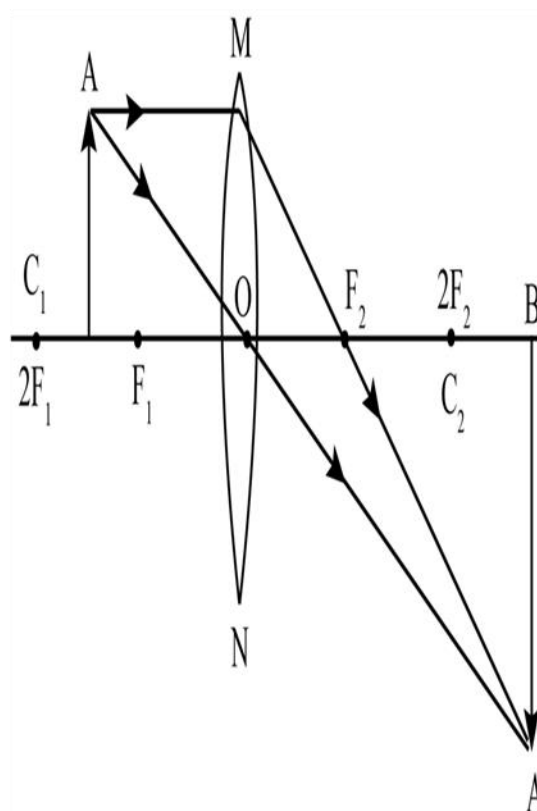
		reflection.	1	
	26.	<p>Site of synthesis: Liver Site of storage: Gall bladder.</p> <p>The bile salts emulsify fat. The food entering the small intestine is acidic. It is made alkaline by the action of bile juice so as to facilitate the action of pancreatic enzymes.</p>	2	
	27.	<p>a. Combination / Oxidation (0.5 +0.5)</p> $2\text{Mg} + \text{O}_2 \rightarrow 2\text{MgO}$ <p>b. Electrolytic decomposition (0.5+ 0.5)</p> $2\text{H}_2\text{O} \rightarrow 2\text{H}_2 + \text{O}_2$ <p>c. Combination (0.5+0.5)</p> $\text{NH}_3 + \text{HCl} \rightarrow \text{NH}_4\text{Cl}$	3	
	28.	<p>Diagram (1)</p> <p>Ionic Bond (1)</p> <p>Any 2 properties (1)</p> <p>OR</p> <p>Definition (1)</p> <p>Any 2 differences (2)</p>	3	
	29.	<p>a. 1J energy will be available to the snake</p> <p>b. The snake will be the most affected.</p> <p>c. Biomagnification (Accumulation of non-biodegradable pesticides in the food chain in increasing amounts at each higher trophic level is known as biomagnification).</p> <p>a. A- trachea , C- alveoli , D- diaphragm</p> <p>b. It prevents the air passage from collapsing</p> <p>c. Exchange of gases</p>		
	30.	a. A- Oesophagus , B-stomach, D- large intestine		

		<p>b. It secretes- (HCl), Protein digesting enzyme pepsin, Mucus/ HCl makes medium acidic for the activation of an enzyme pepsin. Pepsin acts in acidic medium which breaks down proteins Mucus protects the inner lining of stomach from corroding action of HCl.</p>	
	<p>31.</p>	<p>A small aluminium rod suspended horizontally from a stand using two connecting wires. Place a strong horseshoe magnet in such a way that the rod lies between the two poles with the magnetic field directed upwards. For this, put the north pole of the magnet vertically below and south pole</p>  <p style="text-align: right;">1 +1</p> <p>Connect the aluminium rod in series with a battery, a key and a rheostat. Pass a current through the aluminium rod from one end to other (B to A). The rod is displaced towards left. When the direction of current flowing through the rod is reversed, the displacement of rod will be towards right. Direction of force on a current carrying conductor is determined by Fleming's left hand rule.</p> <p style="text-align: right;">1</p>	
	<p>32.</p>	<p>a) Object is between optical center and focus of the lens</p>	

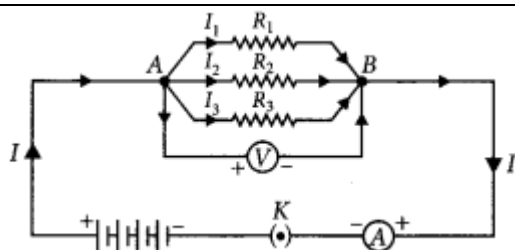


1.5

(b) Object is between focus and twice the focal length of the lens



		<p>d. Each piece grows into a complete organism.</p> <p>e. Buds may fall on the soil and develop into new plants</p>		
	36.	<p>(a) The work done by a source of electricity to maintain current in a circuit is known as electrical energy (or) We can define electrical energy as the energy generated by the movement of electrons from one point to another. Its S.I. unit is joule.</p> <p>(b) (i) Electricity consumed by refrigerator in one day</p> <p>= power time</p> <p>= 400 W 10 h</p> <p>= 4000 Wh = 4 kwh</p> <p>(ii) Electricity consumed by 2 electric fans in 1 day</p> <p>= power Time</p> <p>= 2 80 W 12 h</p> <p>= 1920 Wh = 1.92 kwh</p> <p>(iii) Electricity consumed by 6 electric tubes in 1 day</p> <p>= 618 W 6 h</p> <p>= 648 wh = 0.648 kwh</p> <p>Total energy consumed in one day</p> <p>= 4 + 1.92 + 0.648 = 6.548 kwh</p> <p>Total energy consumed in one month</p> <p>= 6.56830 = 197.04 kwh</p> <p>Cost of 1 unit (kwh) = Rs 3.00</p> <p>Cost of 197.04 kwh = 197.043</p> <p>Electricity bill = Rs 591.12</p> <p>OR</p> <p>a)</p>	<p>1/2, 1/2</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p>	5



It is observed that the total current I , is equal to the sum of the separate currents through each branch of the combination.

$$I = I_1 + I_2 + I_3$$

Let R_p be the equivalent resistance of the parallel combination of

resistors. By applying Ohm's law to the parallel combination of resistors,

we have

$$I = V/R_p$$

$$V/R_p = V/R_1 + V/R_2 + V/R_3$$

or

$$1/R_p = 1/R_1 + 1/R_2 + 1/R_3$$

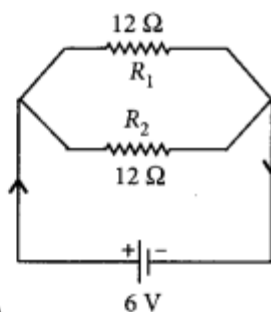
Thus, we may conclude that the reciprocal of the equivalent resistance of a group of resistances joined in parallel is equal to the sum of the reciprocals of the individual resistances.

$$(b) \quad \frac{1}{R} = \frac{1}{R_1} + \frac{1}{R_2}$$

$$\frac{1}{R} = \frac{1}{12} + \frac{1}{12} = \frac{2}{12}$$

$$\Rightarrow R = 6 \Omega$$

$$\therefore \text{Current, } I = \frac{V}{R} = \frac{6}{6} = 1 \text{ A}$$



37.

a) CuSO_4 soln (1)

Anode mud (1)

b) Cu undergoes oxidation and loses electron and becomes Cu^{2+} ions and

SET	B
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CLASS:X

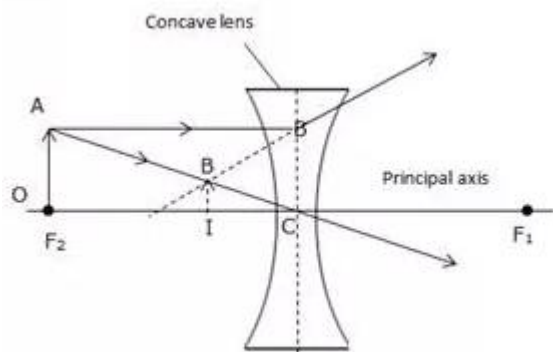
Max.Marks: 80

MARKING SCHEME			
SET	QN.NO	VALUE POINTS	MARKS SPLIT UP
	40.	a.The surface of Zn becomes black and dull.	1
	41.	d. green	1
	42.	d.ethanal	1
	43.	a.Cu & Zn	1
	44.	a. Barium Chloride	1
	45.	d. Both a& b	1
	46.	c. 3/2	1
	47.	(c) Oxidation of carbon to carbon dioxide	1
	48.	(b) stem	1
	49.	(a) Pollen grain, stigma, pollen tube, female germ cell	1
	50.	(c) both maternal and paternal DNA	1
	51.	(a) Dihybrid cross	1
	52.	c	1
	53.	a	1
	54.	d	1
	55.	(a) Baby girl	1

	56.	c	1
	57.	d	1
	58.	a.	1
	59.	a	1
	60.	X- Al (0.5) $2\text{Fe}_2\text{O}_3 + 4\text{Al} \rightarrow 2\text{Al}_2\text{O}_3 + 4\text{Fe}$ (1) Amphoteric (0.5)	2
	61.	Site of synthesis: Liver Site of storage: Gall bladder. The bile salts emulsify fat. The food entering the small intestine is acidic. It is made alkaline by the action of bile juice so as to facilitate the action of pancreatic enzymes.	$\frac{1}{2} + \frac{1}{2} + 1$
	62.	Carbon dioxide is more soluble in water than oxygen. Haemoglobin (the red pigment in RBC) has a very high affinity for oxygen(1 mark) OR This happened due to lack of oxygen (1) and formation of lactic acid in muscle cells during anaerobic respiration.(1)	(1+1)
	63.	a. Gas A is Ozone (O_3). <u>Formation of ozone</u> The high-energy UV radiations break down the O_2 molecules into free oxygen (O) atoms. $\text{O}_2 \xrightarrow{\text{UV}} \text{O} + \text{O}$ These oxygen atoms then combine with oxygen (O_2) molecules to form the ozone molecule b. Ozone is beneficial as it shields the surface of the earth from UV radiations of the Sun. Ozone is damaging as it is a deadly poison.	(1+1)
	64.	iii. Due to the excessive curvature of eye lens the focal length of the lens decreases and hence the image, of objects far from the eye, forms in front of retina rather than on the retina, so the defect is	2

		<p>called near sightedness or Myopia because the person can only see nearby objects distinctly. 1</p> <p>iv. ii. The power of accommodation of eye decreases with time or ageing due to the weakness of ciliary muscles and due to their weakness the focal length of the eye lens cannot be changed properly, hence the defect is called Presbyopia. 1</p> <div data-bbox="591 464 948 816" data-label="Image"> </div> <p>Point A denotes dispersion and point B denotes internal reflection 1</p>	
	65.	a. Pancreas b. adrenal glands	2
	66.	One eg..(1) mark each—(3)	
	67.	<p>Sodium (1)</p> <p>$4\text{Na} + \text{O}_2 \rightarrow 2\text{Na}_2\text{O}$ (1)</p> <p>Electrolytic reduction (1)</p> <p>OR</p> <p>Diagram (1)</p> <p>Explanation (1)</p> <p>Due to strong electrostatic force of attraction, ions cant flow.(1)</p>	
	68.	<p>d. 1J energy will be available to the snake</p> <p>e. The snake will be the most affected.</p> <p>f. Biomagnification (Accumulation of non-biodegradable pesticides in the food chain in increasing amounts at each higher trophic level is known as biomagnification).</p>	3

	69.	<p>a. 1. Kidney, 2. ureter, 3. Urinary bladder, to store urine</p> <p>b. Nephron, c. to filter out harmful metabolic waste from blood.</p>	$(\frac{1}{2} + \frac{1}{2} + \frac{1}{2} + \frac{1}{2} + \frac{1}{2} + \frac{1}{2})$
	70.	<div data-bbox="396 268 649 504" data-label="Image"> </div> <p>(1.5)</p> <p>(b) Name of rule- Right hand thumb rule. (0.5)</p> <p>When a current carrying straight conductor is held in the right hand in such a way that the thumb points towards the direction of the current, then the fingers will wrap around the conductor in the direction of the field lines of the magnetic field (1)</p>	3
	71.	<p>(i)</p> <div data-bbox="308 1018 824 1417" data-label="Image"> </div> <p>(1.5)</p> <p>(ii)</p>	3



(1.5)

72.

Given:

Magnification produced by mirror, $(m)A = +3$

Object Distance = $u = -10\text{cm}$ (sign conventions)

($\frac{1}{2}$)

Distance of the image $(v) = ?$

Formula to be used: $m = -V/u$

$$-v = m \times u$$

($\frac{1}{2}$)

$$-v = 3 \times -10$$

$$v = 30\text{ cm}$$

Now to find focal length, we use mirror formula:

$$\frac{1}{f} = \frac{1}{v} + \frac{1}{u}$$

($\frac{1}{2}$)

$$\frac{1}{f} = \frac{1}{30} + \frac{1}{(-10)}$$

$$\frac{1}{f} = \frac{(1-3)}{30}$$

$$\frac{1}{f} = -\frac{2}{30}$$

$$\frac{1}{f} = -\frac{1}{15}$$

$$f = -15\text{cm.}$$

(1/2)

Since object is placed at 10cm which is less than focal length.

So we can say, the object is placed between Pole and Focus. So, we get virtual, enlarged and erect image.

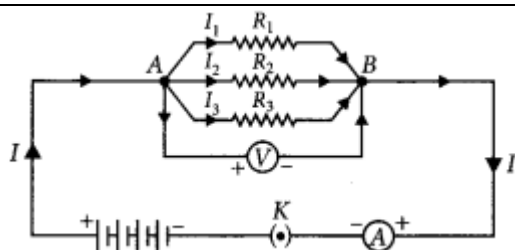
$$\text{Radius of curvature (R)} = 2f$$

(1/2)

$$R = 2 \times -15$$

		R=-30cm. (1/2)	
	73.	<p>Ethanoic acid (1)</p> <p>Eqn(1)</p> <p>Ester reacts with dil acid-(0.5)</p> <p>Ester hydrolysis (1)</p> <p>CO₂ (0.5)</p> <p>Eqn (1)</p> <p>OR</p> <p>Any one reason—Catenation (1)</p> <p>Definition (1)</p> <p>Ketone (0.5) Carboxylic acid (0.5)</p> <p>Definition with eg each..(1+1)</p>	5
	74.	<p>A – Hydra</p> <p>B – Rhizopus</p> <p>C – Bryophyllum</p> <p>D – Planaria.</p> <p>b. Asexual mode of reproduction.</p> <p>c. <u>Advantages of the asexual mode of reproduction.</u> (any two)</p> <ul style="list-style-type: none"> • Only one individual is required. • Progeny is identical to parents. • Produced in large numbers. <p>OR</p> <p>a. Formation of sperms, change in appearance, Thick hair growth on the face and the voice begins to crack.</p> <p>b. A tube grows out of the pollen grain and travels through the style to reach the ovary.(pollen tube germination)</p>	<p>($\frac{1}{2} + \frac{1}{2} + \frac{1}{2} + \frac{1}{2} + 1 + 2 = 5$)</p> <p>OR</p> <p>(1x5=5)</p>

		<p>c. Zygote is formed (fertilization).</p> <p>d. Each piece grows into a complete organism.</p> <p>e. Buds may fall on the soil and develop into new plants.</p>	
	75.	<p>(a) The work done by a source of electricity to maintain current in a circuit is known as electrical energy (or) We can define electrical energy as the energy generated by the movement of electrons from one point to another. Its S.I. unit is joule.</p> <p>(b) (i) Electricity consumed by refrigerator in one day</p> <p>= power time</p> <p>= 400 W 10 h</p> <p>= 4000 Wh = 4 kwh</p> <p>(ii) Electricity consumed by 2 electric fans in 1 day</p> <p>= power Time</p> <p>= 2 80 W 12 h</p> <p>= 1920 Wh = 1.92 kwh</p> <p>(iii) Electricity consumed by 6 electric tubes in 1 day</p> <p>= 618 W 6 h</p> <p>= 648 wh = 0.648 kwh</p> <p>Total energy consumed in one day</p> <p>= 4 + 1.92 + 0.648 = 6.548 kwh</p> <p>Total energy consumed in one month</p> <p>= 6.56830 = 197.04 kwh</p> <p>Cost of 1 unit (kwh) = Rs 3.00</p> <p>Cost of 197.04 kwh = 197.043</p> <p>Electricity bill = Rs 591.12</p> <p>OR</p> <p>a)</p>	5



It is observed that the total current I , is equal to the sum of the separate currents through each branch of the combination.

$$I = I_1 + I_2 + I_3$$

Let R_p be the equivalent resistance of the parallel combination of

resistors. By applying Ohm's law to the parallel combination of resistors,

we have

$$I = V/R_p$$

$$V/R_p = V/R_1 + V/R_2 + V/R_3$$

or

$$1/R_p = 1/R_1 + 1/R_2 + 1/R_3$$

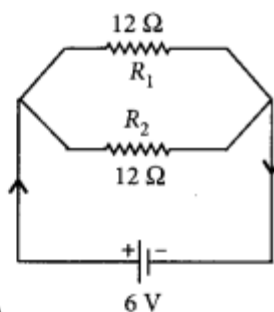
Thus, we may conclude that the reciprocal of the equivalent resistance of a group of resistances joined in parallel is equal to the sum of the reciprocals of the individual resistances.

$$(b) \quad \frac{1}{R} = \frac{1}{R_1} + \frac{1}{R_2}$$

$$\frac{1}{R} = \frac{1}{12} + \frac{1}{12} = \frac{2}{12}$$

$$\Rightarrow R = 6 \Omega$$

$$\therefore \text{Current, } I = \frac{V}{R} = \frac{6}{6} = 1 \text{ A}$$



76.

a) 1. Cathode-Copper (1)

4

		<p>Anode- Nil (1)</p> <p>2. Anode Mud (1)</p> <p>b) They undergo reduction and becomes neutral Cu atom (1)</p> <p>OR</p> <p>Any one ore (1)</p>	
	77.	<p>(c) Monohybrid Cross</p> <p>(d) F1 generation all plants will be tall ,Dominant trait expresses itself.</p> <p>OR</p> <p>Phenotypic ratio 3:1 , 3-tall plants and 1-short plant</p> <p>Genotypic ratio 1:2:1</p>	(2+2)
	78.	<p>(i) A (1)</p> <p>(ii) C (1)</p> <p>(iii) If the refractive index of glass with respect to air is $\frac{3}{2}$,the refractive index of air with respect to glass will be $\frac{2}{3}$ (1)</p> <p>$n_{21} = 1/ n_{12}$ (1)</p> <p>OR</p> <p>Refractive index= speed of light in vacuum/ speed of light in water (1)</p> <p>$= \frac{3 \times 10^8}{2.25 \times 10^8}$</p> <p>$= 1.33$ (1)</p>	4

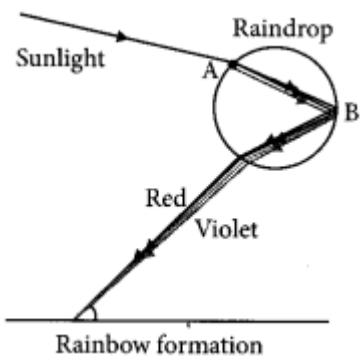
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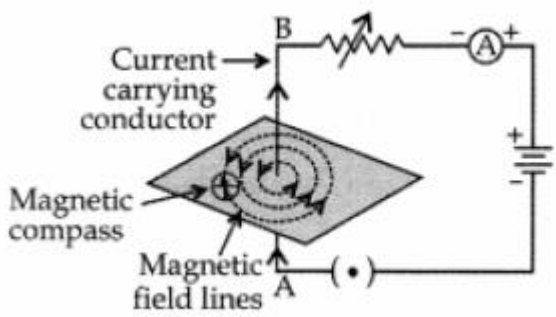
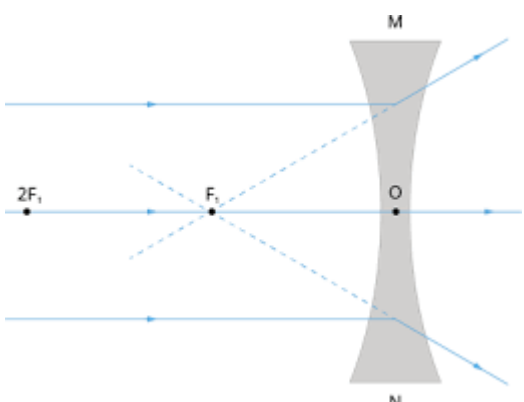
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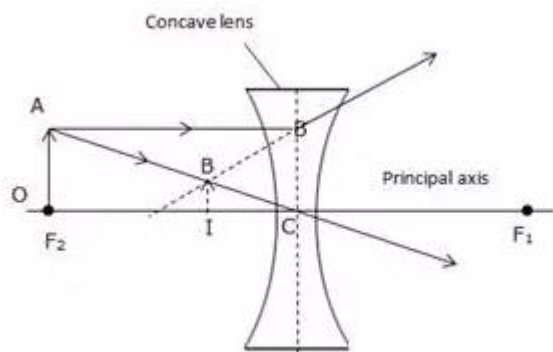
Max.Marks: 80

				SET	C
MARKING SCHEME					
SET	QN.NO	VALUE POINTS			MARKS SPLIT UP
	79.	d.4			1
	80.	d.Copper & tin			1
	81.	a.NH ₄ OH & HCl			1
	82.	a.Oxidation			1
	83.	a.Barium chloride			1
	84.	a.The surface of Zn becomes black and dull.			1
	85.	d.(ii) & (iv)			1
	86.	(a) Phototropism			1
	87.	(a) Dihybrid cross			1
	88.	(b) Baby boy			1
	89.	(a) Pollen grain, stigma, pollen tube, female germ cell			1
	90.	(c) both maternal and paternal DNA			1
	91.	d			1
	92.	a			1
	93.	d			1

	94.	(c) Oxidation of carbon to carbon dioxide	1
	95.	d	1
	96.	d	1
	97.	a	1
	98.	a	1
	99.	X- Al (0.5) $2\text{Fe}_2\text{O}_3 + 4\text{Al} \rightarrow 2\text{Al}_2\text{O}_3 + 4\text{Fe}$ (1) Amphoteric (0.5)	2
	100.	Help in decomposing dead bodies of plants and animals , help in putting back the elements into the soil and makes the soil fertile/ break-down the complex organic substances into simple inorganic substances that go into the soil and are used up once more by the plants.	2
	101.	Carbon dioxide is more soluble in water than oxygen. (1mark) Haemoglobin (the red pigment in RBC) has a very high affinity for oxygen(1 mark) OR This happened due to lack of oxygen (1) and formation of lactic acid in muscle cells during anaerobic respiration.(1)	2
	102.	Site of synthesis: Liver(1/2) Site of storage: Gall bladder. (1/2) The bile salts emulsify fat. The food entering the small intestine is acidic. It is made alkaline by the action of bile juice so as to facilitate the action of pancreatic enzymes.(1)	2
	103.	v. Due to the excessive curvature of eye lens the focal length of the lens decreases and hence the image, of objects far from the eye, forms in front of retina rather than on the retina, so the defect is called near sightedness or Myopia because the person can only see nearby objects distinctly. 1 vi. ii. The power of accommodation of eye decreases with time or ageing due to the weakness of ciliary muscles and due to their weakness the focal length of the eye lens cannot be changed	2

		<p>properly, hence the defect is called Presbyopia. 1</p> <p>OR</p>  <p>Point A denotes dispersion and point B denotes internal reflection. 1</p>	
	104.	Pancreas b. adrenal glands	2
	105.	<p>a. Combination / Oxidation</p> $2\text{Mg} + \text{O}_2 \rightarrow 2\text{MgO}$ <p>b. Electrolytic decomposition</p> $2\text{H}_2\text{O} \rightarrow 2\text{H}_2 + \text{O}_2$ <p>c. Combination</p> $\text{NH}_3 + \text{HCl} \rightarrow \text{NH}_4\text{Cl}$	3
	106.	<p>Definition (1)</p> <p>Any two differences (2)</p> <p>OR</p> <p>Sodium (1)</p> $4\text{Na} + \text{O}_2 \rightarrow 2\text{Na}_2\text{O} \quad (1)$ <p>Electrolytic reduction (1)</p>	3
	107.	<p>d. A- trachea , C- alveoli , D- diaphragm</p> <p>e. It prevents the air passage from collapsing</p>	$(\frac{1}{2} + \frac{1}{2} + \frac{1}{2} + \frac{1}{2} + 1)$

		f. Exchange of gases	
	108.	g. 1J energy will be available to the snake h. The snake will be the most affected. i. Biomagnification	
	109.	<p>(a)</p>  <p>(1)</p> <p>(b)</p> <p>(i) Strength of the magnetic field produced by a straight current carrying wire at a point is inversely proportional to the distance of that point from the wire. (1)</p> <p>(ii) Strength of the magnetic field is directly proportional to the current passing in the wire. (1)</p>	
	110.	<p>(i)</p>  <p>(ii)</p>	



111. Given:

Magnification produced by mirror, $(m)A = +3$

Object Distance = $u = -10\text{cm}$ (sign conventions)

Distance of the image $(v) = ?$

Formula to be used: $m = -V/u$

$$-v = m \times u$$

$$-v = 3 \times -10$$

$$v = 30\text{ cm}$$

Now to find focal length, we use mirror formula:

$$1/f = 1/v + 1/u$$

$$1/f = 1/30 + 1/(-10)$$

$$1/f = (1-3)/30$$

$$1/f = -2/30$$

$$1/f = -1/15$$

$$f = -15\text{cm.}$$

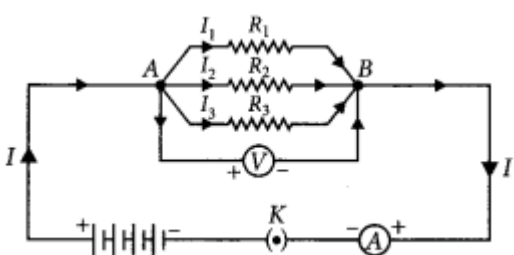
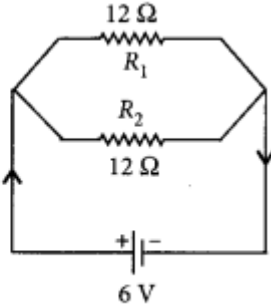
Since object is placed at 10cm which is less than focal length.

So we can say, the object is placed between Pole and Focus. So, we get virtual, enlarged and erect image.

Radius of curvature $(R) = 2f$

		<p>R= 2x-15</p> <p>R=-30cm.</p>	
	112.	<p>a.structure-(1)</p> <p>Any 2 (2)</p> <p>Diagram of micelle— (1)</p> <p>Explanation-(1)</p> <p>OR</p> <p>Ethanoic acid (1)</p> <p>Eqn(1)</p> <p>Ester reacts with dil acid-(0.5)</p> <p>Ester hydrolysis (1)</p> <p>CO₂ (0.5)</p> <p>Eqn (1)</p>	
	113.	<p>a.</p> <p>A – Hydra</p> <p>B – Rhizopus</p> <p>C – Bryophyllum</p> <p>D – Planaria.</p> <p>b. Asexual mode of reproduction.</p> <p>c. <u>Advantages of the asexual mode of reproduction.</u> (any two)</p> <ul style="list-style-type: none"> • Only one individual is required. • Progeny is identical to parents. • Produced in large numbers. <p>OR</p> <p>a.</p> <ul style="list-style-type: none"> • Formation of sperms, change in appearance. • Thick hair growth on the face and the voice begins to crack. <p>b. A tube grows out of the pollen grain and travels through the style to reach</p>	

	<p>the ovary.(pollen tube germination)</p> <p>c. Zygote is formed (fertilization).</p> <p>d. Each piece grows into a complete organism.</p> <p>e. Buds may fall on the soil and develop into new plants</p>	
114.	<p>(a) The work done by a source of electricity to maintain current in a circuit is known as electrical energy (or) We can define electrical energy as the energy generated by the movement of electrons from one point to another. Its S.I. unit is joule.</p> <p>(b) (i) Electricity consumed by refrigerator in one day</p> <p>= power time</p> <p>=400 W 10 h</p> <p>= 4000 Wh=4 kwh</p> <p>(ii) Electricity consumed by 2 electric fans in 1 day</p> <p>= power Time</p> <p>= 2 80 W 12 h</p> <p>= 1920 Wh = 1.92 kwh</p> <p>(iii) Electricity consumed by 6 electric tubes in 1 day</p> <p>= 618 W 6 h</p> <p>= 648 wh = 0.648 kwh</p> <p>Total energy consumed in one day</p> <p>=4+1.92+0.648=6.548kwh</p> <p>Total energy consumed in one month</p> <p>=6.56830 = 197.04 kwh</p> <p>Cost of 1 unit (kwh) = Rs 3.00</p> <p>Cost of 197.04 kwh = 197.043</p> <p>Electricity bill =Rs 591.12</p> <p>OR</p>	<p>½,1/2 5</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p>

	<p>a)</p>  <p>It is observed that the total current I, is equal to the sum of the separate currents through each branch of the combination.</p> $I = I_1 + I_2 + I_3$ <p>Let R_p be the equivalent resistance of the parallel combination of</p> <p>resistors. By applying Ohm's law to the parallel combination of resistors,</p> <p>we have</p> $I = V/R_p$ $V/R_p = V/R_1 + V/R_2 + V/R_3$ <p>or</p> $1/R_p = 1/R_1 + 1/R_2 + 1/R_3$ <p>Thus, we may conclude that the reciprocal of the equivalent resistance of a group of resistances joined in parallel is equal to the sum of the reciprocals of the individual resistances.</p> <p>(b) $\frac{1}{R} = \frac{1}{R_1} + \frac{1}{R_2}$</p> $\frac{1}{R} = \frac{1}{12} + \frac{1}{12} = \frac{2}{12}$ $\Rightarrow R = 6 \Omega$ <p>\therefore Current, $I = \frac{V}{R} = \frac{6}{6} = 1 \text{ A}$</p> 	<p>1</p> <p>1/2</p> <p>1/2</p> <p>1</p> <p>1</p> <p>1/2</p> <p>1/2</p>
115.	a) Anode mud (1)	4

		<p>CuSO₄ solution (1)</p> <p>b) It undergoes oxidation –lose electron and become Cu²⁺ ions –move to cathode and become neutral atom. OR</p> <p>Anode- Impure Anode</p> <p>Cathode-Pure Cathode</p>	
	116.	<p>(e) Cross (2 marks)</p> <p>(f) F₁ generation all plants will be tall (1) Dominant trait expresses itself.(1)</p> <p>OR</p> <p>Phenotypic ratio 3:1 , 3-tall plants and 1-short plant (1) Genotypic ratio 1:2:1 (1)</p>	4
	117.	<p>(iv) D</p> <p>(v) D</p> <p>(vi)</p> $m = \frac{1}{3}, f = 15 \text{ cm}$ $m = -\frac{v}{u} = \frac{1}{3} \Rightarrow v = \frac{u}{3}$ <p>For mirror, $\frac{1}{v} + \frac{1}{u} = \frac{1}{f} \Rightarrow \frac{-3}{u} + \frac{1}{u} = \frac{1}{f} \Rightarrow \frac{-2}{u} + \frac{1}{f}$</p> $u = -2f = -2 \times 15 = -30 \text{ cm}$ <p>OR</p> $M = -v/u$ $-3 = -v/-10$ $30 = -v$ $V = -30 \text{ cm}$	<p>4</p> <p>1</p> <p>1</p> <p>1</p> <p>1/2</p> <p>1/2</p> <p>or</p> <p>1/2</p> <p>1/2</p> <p>1</p>