

DAV PUBLIC SCHOOLS, ODISHA

PERIODIC ASSESSMENT-II (2023-24)CLASS: X SUBJECT: SCIENCE

BLUE PRINT OF QUESTION PAPER (SET -2)

SL NO.	CHAPTERS / UNITS	MARKS ALLOTTED IN SYLLABUS	1 MARK (MCQ/A&R)	2 MARKS (SA-I)	3 MARKS (SA-II)	5 MARKS (LA)	4 MARK(CBQ)	TOTAL MARKS	TOTAL NO. OF QUESTIONS
1	Ch-1: Chemical Reactions& Equations	7	1(2)	2(1)	3(1)	--	--	7	4
2	Ch-2: Acids, Bases & Salts	12	1(3)	--	--	5(1)	4(1)	12	5
3	Ch-3: Metals &Non metals (Up to Page no. 49 excluding occurrence of metals)	6	1(3)	--	3(1)	--	--	6	4
4	Ch-5: Life Processes	18	1(4)	2(1)	3(1)	5(1)	4(1)	18	8
5	Ch-6: Control & Coordination	12	1(5)	2(2)	3(1)	--	--	12	8
6	Ch-9: Light-Reflection & Refraction	5	--	2(1)	3(1)	--	--	5	2
7	Ch-10: The Human Eye & the Colourful World	8	1(1)	--	3(1)	--	4(1)	8	3
8	Ch-11: Electricity	12	1(2)	2(1)	3(1)	5(1)	--	12	5
TOTAL		80	20	12	21	15	12	80	39

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QUESTIONWISE ANALYSIS (SET -2)

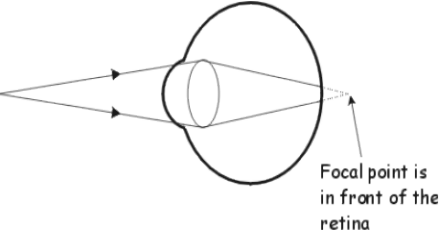
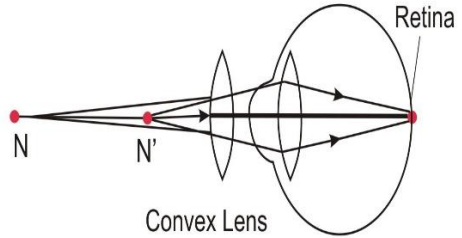
Q.No.	Chapters / Units	Forms of Question (MCQ, AR, SA-I, SA-II, LA, CBQ)	Marks Allotted	Typology of Questions (Knowledge (K), Understanding (U), Applications (A), Hots(H)&Skills(S)etc.)
1	Ch-6: Control & Coordination	MCQ	1	U
2	Ch-2: Acids, Bases and Salts	MCQ	1	A
3	Ch-5: Life Processes	MCQ	1	K
4	Ch-6: Control & Coordination	MCQ	1	U
5	Ch-2: Acids, Bases and Salts	MCQ	1	S
6	Ch-3: Metals & Non-metals (Up to Page no. 49 excluding occurrence of metals)	MCQ	1	K
7	Ch-1: Chemical Reaction & Equation	MCQ	1	K
8	Ch-3: Metals & Non-metals (Up to Page no. 49 excluding occurrence of metals)	MCQ	1	A
9	Ch-2: Acids, Bases and Salts	MCQ	1	K
10	Ch-1: Chemical Reaction & Equation	MCQ	1	K
11	Ch-5: Life Processes	MCQ	1	S
12	Ch-6: Control & Coordination	MCQ	1	U
13	Ch-10: The Human Eye & the Colourful World	MCQ	1	K
14	Ch-6: Control & Coordination	MCQ	1	U
15	Ch-11: Electricity	MCQ	1	A
16	Ch-5: Life Processes	MCQ	1	A
17	Ch-11: Electricity	AR	1	U
18	Ch-6: Control & Coordination	AR	1	U
19	Ch-3: Metals & Non-metals (Up to Page no. 49 excluding occurrence of metals)	AR	1	U
20	Ch-5: Life Processes	AR	1	U
21	Ch-9: Light-Reflection & Refraction	SA-I	2	A
22	Ch-6: Control & Coordination	SA-I	2	U
23	Ch-6: Control & Coordination	SA-I	2	K
24	Ch-11: Electricity	SA-I	2	A
25	Ch-1: Chemical Reaction & Equation	SA-I	2	K
26	Ch-5: Life processes	SA-I	2	U
27	Ch-6: Control & Coordination	SA-II	3	U
28	Ch-10: The Human Eye & the Colourful World	SA-II	3	S
29	Ch-5: Life processes	SA-II	3	H
30	Ch-9: Light-Reflection & Refraction	SA-II	3	H
31	Ch-11: Electricity	SA-II	3	U
32	Ch-3: Metals & Non-metals (Up to Page no. 49 excluding occurrence of metals)	SA-II	3	U
33	Ch-1: Chemical Reaction & Equation	SA-II	3	S(1), K(1), U(1)
34	Ch-11: Electricity	LA	5	A

35	Ch-5: Life Processes	LA	5	S(2)A(1)K(2)
36	Ch-2: Acids, Bases and Salts	LA	5	H
37	Ch-10: The Human Eye & the Colourful World	CBQ	4(1+1+2)	H
38	Ch-2: Acids, Bases and Salts	CBQ	4(1+1+2)	K(2)A(2)
39	Ch-5: Life Processes	CBQ	4(1+1+2)	A(2)K(2)

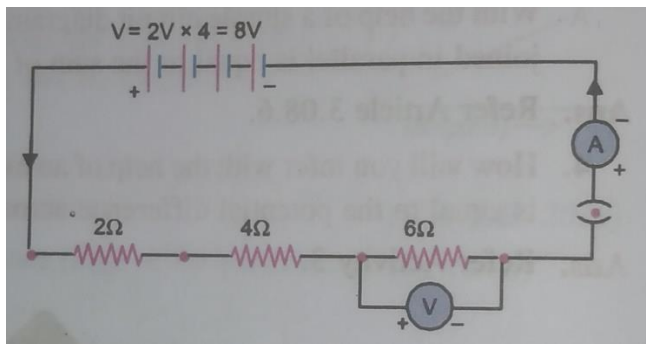
DAV PUBLIC SCHOOLS, ODISHA**PERIODIC ASSESSMENT-II(2023-24)CLASS: X SUBJECT: SCIENCE****MARKING SCHEME (SET – 2)****TIME ALLOWED: 3 HOURS MAX. MARKS: 80**

Q. NO.	VALUE POINTS	MARKS ALLOTTED	PAGE NO. OF TEXT BOOK
1	(b) Auxin- Wilting of leaves	1	Pg. 108
2	(d) (ii) and (iv)	1	Pg. 23
3	(c) (i),(ii) and (iii)	1	Pg. 95
4	(d) Receptors →sensory neuron→ spinal cord →motor neuron→ muscles	1	Pg. 103
5	(d) Caustic soda	1	Pg. 22
6	(d)dil.HNO ₃	1	Pg. 42
7	(c) CaO	1	Pg. 8
8	(a) High melting point	1	Pg. 49
9	(c) Baking soda	1	Pg. 31
10	(c) (i) and (ii)	1	Pg. 6
11	(c). I-Nucleus, II-Stomatal pore, III-Epidermal cell, IV-Guard cell	1	Pg 83
12	(d) C only	1	Pg.107
13	(c)Remain unchanged	1	Pg .162

14	(c)	1	Pg. 101
15	(c) $R_3 > R_2 > R_1$	1	Pg.176
16	(b) Tracheids transport water and minerals & sieve tubes transport food	1	Pg. 94 &95
17	(d) Assertion (A) is false but reason(R) is true.	1	Pg. 180
18	(c) Assertion is true but the Reason is false.	1	Pg. 110
19	(c) Assertion is true but the Reason is false.	1	Pg.45
20	(b) Both A and R are true. R is not the correct explanation of A.	1	Pg.82
21	<p>Here $u = -10\text{cm}$ and $m = -3$ But $m = -v/u$ or $v = -mu = -(-3) \times (-10) = -30\text{cm}$</p> <p style="text-align: center;">OR</p> <p>$f = 20\text{ cm}$, $v = 40\text{ cm}$, $u = ?$ Using the lens formula $1/v - 1/u = 1/f$ $-1/u = 1/f - 1/v = 1/20 - 1/40 = -1/u = 1/40$ or $u = -40\text{cm}$ $m = h_2/h_1 = v/u = 40/-40 = -1$ Image is real and inverted and of same size as that of object.</p>	2	Pg. 145 , 155
22	<p>Auxin Tendrils are sensitive to touch. When they come in contact with any support, the part of the tendril in contact with the object does not grow as rapidly as the part of the tendril away from the object. This causes the tendril to circle around the object.</p> <p style="text-align: center;">OR</p> <p>Feedback mechanism If the sugar level in blood rises, they are detected by the cells of pancreas. Pancreas produce more insulin to reduce the sugar level. When the blood sugar level falls, insulin secretion is reduced.</p>	$\frac{1}{2}$ $1\frac{1}{2}$ OR $\frac{1}{2}$ $1\frac{1}{2}$	Pg. 106 Pg. 111
23	<p>Adrenaline</p> <ol style="list-style-type: none"> i. Heart beat faster to supply more oxygen to our muscles. ii. Blood to the digestive system and skin is reduced and diverted to skeletal muscles iii. Breathing rate decreases due to contraction of diaphragm and rib muscles. 	$\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$	Pg.109
24	<p>Here, $H = 400\text{ J}$, $t = 4\text{ s}$, $R = 4\Omega$ Using $H = (V^2/R) \times t$ $V = (HR/t)^{1/2} = [(400 \times 4)/4]^{1/2} = 20\text{ volt}$</p> <p style="text-align: center;">or</p> <p>Any other correct method will be awarded.</p>	2	Pg. 189

25	<p>a) Evolution of gases having characteristics odour of burning Sulphur</p> <p>b) Formation of Brown residue</p> $2\text{FeSO}_4(\text{s}) \xrightarrow{\text{heat}} \text{Fe}_2\text{O}_3(\text{s}) + \text{SO}_2(\text{g}) + \text{SO}_3(\text{g})$	1 1	Pg.8
26	<p>a) Because the amount of dissolved oxygen in water is fairly low as compared to the amount of oxygen in the air.</p> <p>b) Because haemoglobin has a very high affinity for oxygen & carbon dioxide is more soluble in water than oxygen.</p>	1 1	Pg. 89 Pg. 90
27	<p>1-Cerebrum, 3- Cerebellum</p> <p><u>Cerebrum</u>- It is the part of fore brain. It is the largest part of brain. It is the main thinking part of the brain.</p> <p><u>Cerebellum</u>- It is the part of hind brain. It is the 2nd largest part of brain. It is responsible for voluntary actions and maintains posture & balance of the body.(any 2 points)</p>	1 2	Pg.104
28	<p>a. (i)The increase in focal length of eye lens (ii) The size of the eye ball too small</p> <p>b. (i). Hypermetropic eye</p>  <p>ii. correction of hypermetropic eye with suitable optical device</p>  <p>Correction of hypermetropic eye</p>	1+1+1	Pg. 163
29	<p>(a) (i) In yeast, pyruvate is broken down in to ethanol, carbon dioxide & energy in absence of oxygen.</p> <p>(ii) In our muscle cells, pyruvate is broken down to form lactic acid & energy due to lack of oxygen.</p> <p>(b) Cytoplasm, Due to incomplete breakdown of glucose in absence of oxygen.</p>	1 1 $\frac{1}{2} + \frac{1}{2}$	Pg. 88
30	<p>i. L_1 and L_2 are convex lens and L_3 is concave lens</p> <p>ii. Focal length of L_1 ,$f_1 = 100/10 = 10\text{cm}$ Focal length of L_2 ,$f_2 = 100/5 = 20\text{ cm}$ Focal length of L_3 ,$f_3 = 100/-10 = -10\text{ cm}$</p> <p>iii. The image of an object at 15 cm from lens L_2 will be virtual and magnified</p>	1 1 1	Pg. 155

31	<p>(a) 3Ω and 6Ω are in parallel</p> $1/R_p = 1/3 + 1/6 = 1/2$ $R_p = 2\Omega$ <p>As R_p and 10Ω are in series</p> $R_s = R_p + 10\Omega = 12\Omega$ <p>(b) total current = $V/R_s = 12/12 = 1\text{ A}$</p> <p>(c) P.d across $10\Omega = 1 \times 10 = 10\text{ V}$</p> <p style="text-align: center;">OR</p> <p>(a) When bulb B_1 gets fused, the current through B_2 and B_3 remains same as potential diff across each remains same. So they glow with the same brightness.</p> <p>(b) When bulb B_2 gets fused, reading of A_2, A_3 and A are $2\text{A}, 2\text{ A}$ and 4A are respectively.</p> <p>(c) Power consumed when 3 bulbs are connected = $VI = 12\text{V} \times 6\text{A} = 72\text{W}$</p> <p style="padding-left: 40px;">Power consumed when B_2 gets fused = $VI = 12\text{V} \times 4\text{A} = 48\text{W}$</p>	<p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>$\frac{1}{2}$</p> <p>$\frac{1}{2}$</p>	<p>187</p> <p>NCERT exemplar</p>
32	<p>Sodium reacts both with air and water. It is therefore kept in kerosene oil in order to avoid contact with both air and water.</p> <p>Platinum, Gold and silver are placed at the bottom of the activity series and are very little reactive in nature and are known as noble metals. They are not even affected by air, water and even by chemicals. Since they have bright lusture, we can use them for making jewellery.</p> <p>Metal : Mercury Non metal: Bromine</p>	<p>1</p> <p>1</p> <p>1</p>	<p>Pg.38-40</p>
33	<p>a. Redox / oxidation / combination Reaction</p> <p>b. $2\text{Cu} + \text{O}_2 \rightarrow 2\text{CuO}$</p> <p>c. If hydrogen gas is passed over this heated material (CuO) the black coating of the surface turns brown and copper is obtained. $\text{CuO} + \text{H}_2 \rightarrow \text{Cu} + \text{H}_2\text{O}$</p> <p style="text-align: center;">OR</p> <p>(i) any one chemical reaction (ii) any one chemical reaction (iii) any one chemical reaction</p>	<p>1</p> <p>1</p> <p>1</p> <p>OR</p> <p>1</p> <p>1</p> <p>1</p>	<p>Pg. 12</p> <p>Pg. 3</p> <p>Chap -1</p>
34		<p>2</p>	<p>Pg -175</p>



Total $V = 2 \text{ volt} \times 4 = 8 \text{ V}$
 Total resistance in the circuit $R = R_1 + R_2 + R_3$
 $= 2 \Omega + 4\Omega + 6\Omega = 12 \Omega$
 According to Ohm's law
 $V = IR$
 $I = V/R = 8/12 = 0.67 \text{ A}$
 Current, $I = 0.67$ ampere flows in circuit
 Potential difference across 6Ω , $V = IR = 2/3 \times 6 = 4 \text{ V}$

OR

Electrical energy consumed by refrigerator in one day
 $= \text{power} \times \text{time} = 40 \text{ W} \times 10 \text{ h} = 4000 \text{ Wh} = 4 \text{ Kwh}$
 Energy consumed by 2 electric fans in one day $= 2 \times 80 \text{ W} \times 12 \text{ h}$
 $= 1920 \text{ Wh}$
 $= 1920 / 1000$
 $= 1.92 \text{ KWh}$
 Energy by 6 electric bulbs in one day $= 6 \times 18 \text{ W} \times 6 \text{ h}$
 $= (648/1000) \text{ KWh} = 0.648 \text{ KWh}$
 Total electrical energy consumed in one day
 $= 4 \text{ units} + 1.92 \text{ units} + 0.648 \text{ units}$
 $= 6.568 \text{ units}$
 Total electrical energy consumed in the month of June (30 days)
 $= 6.568 \times 30 = 197.04 \text{ units}$
 Total cost $= 197.04 \times 3 = \text{Rs. } 591.12$

2

Pg -191

1

OR

1

1

1

2

35

- (a) i. Lipase- E, Substrate- Emulsified fats
 ii. Salivary amylase- A, Substrate- Starch
 (b) Bile juice
 It emulsifies fats, provide alkaline medium for pancreatic enzymes to act (any one)
 (c) i. In stomach, pepsin secreted by gastric glands breaks down proteins in acidic medium.
 ii. In small intestine, trypsin secreted by pancreas digests proteins in alkaline medium.

OR

- (a) 1---Pulmonary artery 2---Vena cava
 (b) Ventricles have thicker elastic wall than atria because they have to pump blood in to various organs whereas atria pump blood to ventricles only.
 (c) Birds & mammals
 Such separation allows a highly efficient supply of oxygen to the body to provide more energy to maintain constant body temperature.

2

Pg. 85,86

1

2

OR

2

Pg. 93

1

2

Pg. 94

	<p>water which is called gypsum.</p> $\text{CaSO}_4 \cdot \frac{1}{2} \text{H}_2\text{O} + \frac{3}{2} \text{H}_2\text{O} \rightarrow \text{CaSO}_4 \cdot 2\text{H}_2\text{O}$	1	
		1	
39	<p>a. The natural kidneys are able to reabsorb water and reduce the amount of initial filtrate, but in Hemodialysis no reabsorption takes place.</p> <p>b. 180L, due to selective reabsorption by the tubular parts of nephron.</p> <p>c. Glucose, amino acid, salts and water (any other constituent)</p> <p style="text-align: center;">OR</p> <p>i. Amount of excess water present in the body.</p> <p>ii. Amount of dissolved waste is to be excreted.</p>	1	Pg. 97
		1	
		2	
		2	