## **ANSWER KEY**

## **SAHODAYA PRE BOARD EXAMINATION – 2024-25**

	SECTION-A	Bit	Total		
		Marks	Marks		
1	C. 2,3,3		1		
2	D. (iii) and (iv)		1		
3	D. Hydrochloric acid		1		
4	B. NH <sub>4</sub> Cl		1		
5	A. ZnO & C		1		
6	B. a-iv B. b-i C.c-ii D. d- iii		1		
7	A. (i) and (ii)		1		
8	C. Cytoplasm and Ethyl alcohol		1		
9	B. Pulmonary vein		1		
10	C. Saliva will breakdown starch into simple sugar molecules.		1		
11	A. Part X will grow and bent towards the window.		1		
12	D. 100%, 75%		1		
13	B. A, D, r		1		
14	B.4 cm		1		
15	D. 10:1		1		
16	B. By splitting of a molecular oxygen into free oxygen atoms in presence of high energy UV radiations.		1		
17	B. Both A and R are true but R is not the correct explanation of A.		1		
18	D. A is false but R is true.		1		
19	D. A is false but R is true.		1		
20	A. Both A and R are true and R is the correct explanation of A.		1		
	SECTION-B				
21	A. $2Cu + O_2 + Heat \xrightarrow{heat} 2CuO$	1	2		
	B. Combination reaction, A combination reaction is a chemical reaction where	1/2 +			
	two or more substances combine to form a single new substance.	1/2			
22	A.	1	2		
	1- Thin membrane of the alveoli				
	2- Rich supply of the blood capillaries.				
	3- Balloon like structure that increases surface area. (any one)				
	B.	.5+.5			
	1- Amount of excess water present.	.5⊤.5			
	2- Amount of dissolved wastes to be excreted.				

23	Pepsin – Stomach	.5x4	2
	Trypsin – Pancreas		
	OR		
	A. Since the blood emerges from the heart under high pressure, the arteries have		
	thick, elastic walls.	1	
	B. Plants are stationary and plant bodies have a large proportion of dead cells in		
	many tissues	1	
24	A. $n_{gb} = n_g / n_b => 1.2 = n_g / 1.5 => n_g = 1.2 \times 1.5 = 1.8$	1	2
	B. Correct Ray diagram	1	
25	$R = 16 \Omega$	1/2	2
	1' = 1/2.	1/2	
	$ \begin{array}{l} \rho = \rho \\ A' = 2 A \end{array} $	,2	
	$R' = 2 A$ $R' = \rho 1'/A'$		
	$= \rho 1/2 / 2A$		
	$= \rho 1/4A$	1	
	$= 1/4 \rho 1/A$ =1/4 × 16		
	$= 1/4 \times 10$ $= 4 \Omega$		
	OR	1/	
	Resistance: $R_b > R_a > R_c$	1/2	
	$R_a = \rho l/A,$ $R_b = \frac{\rho 3 l}{\frac{A}{2}} = 9 \rho l/A$ $R_c = \frac{\frac{\rho l}{3}}{\frac{3A}{3A}} = \frac{1}{9} \frac{\rho l}{A}$	1	
	Resistivity is same in all cases because it does not depend upon the dimensions of the conductor.	1/2	
26	A. Grass → Mouse → Eagle (no marks for incomplete chain)	1	2
	B. The eagle will be most affected.	0.5	
	Biological magnification	0.5	
	SECTION-C		
27	<ul> <li>A. X=Zn Ore- calamine or zinc carbonate</li> <li>B. As Sodium metal has more affinity towards oxygen than carbon.</li> <li>C. At cathode: Na<sup>+</sup> + e<sup>-</sup> → Na</li> <li>At anode 2Cl<sup>-</sup> → Cl<sub>2</sub> + 2e<sup>-</sup></li> </ul>	1/2+1/2 1	3
20	A. P: Plaster of Paris, CaSO <sub>4</sub> . ½ H <sub>2</sub> O, Q: Gypsum, CaSO <sub>4</sub> . 2 H <sub>2</sub> O	1/2	3
28	B. CaSO <sub>4</sub> . ½ H <sub>2</sub> O + 1½ H <sub>2</sub> O CaSO <sub>4</sub> . 2 H <sub>2</sub> O	1/2	3
	C. Setting fractured bone	1	
	Making surface smooth (any other relevant)	$\frac{1}{2} + \frac{1}{2}$	
	OR		
	A. Baking soda solution As baking soda is basic in nature and shall neutralize the acid	1	
	formed in the stomach.	1	
	B. Antacids are mild non corrosive base which used to neutralize the	1	
	excess acid secreted in stomach and hence gives relief from pain.		

29	A. X: transpirational pull	0.5	3
	Y: root pressure	0.5	
	B. Transpirational pull: evaporation of water molecules from the stomata of a leaf due to transpiration creates a suction that pulls water from the xylem cells of roots.	1	
	Root pressure: Active absorption of ions by roots from the soil causes water to steadily move into the root xylem creating a column of water that is pushed upwards.	1	
30	(Any letter which clearly indicated dominant and recessive ears,		3
	example, L or E or any other)		
	A.		
	Long Ear Short Ear		
	LL x //  L /	1	
	$F_1 \longrightarrow LI$ Long Ear $L = I$		
	$F_2 \begin{cases} L & LL & Ll \\ l & Ll & ll \end{cases}$		
	1 LL : 2 Ll : 1 ll	1	
	B. No change in ratio/the ratio of F <sub>2</sub> generation will still be 1LL:2Ll:1ll/	1	
	ratio will be the same. As the cross is still between a pure dominant and	1	
	recessive allele / genes / traits as shown in the cross above.		
31	(a) Myopia (b) Concave lens $u = -\infty$ , $v = -2m$ $\frac{1}{v} - \frac{1}{u} = \frac{1}{f}$	1/2 1/2	3
	$=> \frac{1}{-2} - \frac{1}{(-\infty)} = \frac{1}{f}$ $=> \frac{1}{-2} = \frac{1}{f} \qquad \left( \frac{1}{(\infty)} \rightarrow 0 \right)$	1/2	
	$=> f = -2 m$ $P = \frac{1}{f}$ $\Rightarrow P = \frac{1}{-2}$ $\Rightarrow P = -0.5 D$	1/2	
	(c) Correction for myopia	1	
	Diagram NCERT BOOK page 189 fig 11.2 (c)		

22	2 220 ¥ 220 2420	1/	
32	A. $R = V^2/P = \frac{220 \times 220}{60} = \frac{2420}{3}\Omega$	1/2 1/2	3
	A. $R = V^2/P = \frac{220 \times 220}{60} = \frac{2420}{3} \Omega$ $P_{\text{new}} = V^2/R \Rightarrow P = \frac{110 \times 110 \times 3}{2420} = 15 \Omega$	/2	
	(OR) by this method		
	$P\alpha V^2$ when R is constant		
	$\Rightarrow P_{\text{new}} = P/4 = 60/4 = 15 \Omega$		
	B. $R_p = 5 \Omega/4 = 1.25 \Omega$		
	C. Cost = Rs 3 x 30 $x \frac{400}{1000}$ x 8 = Rs 288/-	1 1	
33	A. (i) displacement is more as more force is experienced.	1/2	3
	(ii) displacement is less as less force is experienced.	1/2	
	B. (i) The strength of the magnetic field at the centre of a circular coil is	1/2	
	inversely proportional to the radius of the coil.	1/2	
	(ii) The strength of the magnetic field at the centre of a circular coil is directly	, -	
	proportional the number of turns in the coil.		
		$\frac{1}{2} + \frac{1}{2}$	
	C. South, Fleming's left hand rule  SECTION-D		
	SECTION-D		
2.4		1/2	_
34	A. The phenomenon in which more than one compounds have the same chemical formula but different chemical structures.	1	5
	보유         보유		
	н- ç- с- ç- ç- р-н	1	
	H O H H H              H-C-C-C-C-H 	1	
	C. (i) 'X' – $CH_3COOC_2H_5$ , Y- ethane ( $C_2H_4$ )	1 1	
	(ii) $CH_3COOH + C_2H_5OH \rightarrow CH_3COOC_2H_5 + H_2O$	1	
	(iii) Hydrogenation, Ethane $(C_2H_6)$ OR		
	B. Carbon has the unique ability to form bonds with other atoms	1	
	of carbon, giving rise to large molecules. This property is called		
	catenation.		
	HH		
	H · z C z C z · H	1	
	B.		
	i) Compund -A		
	., Н Н		
	H C C H	1	
	H—C C—H		
	H—C C—H		
	н / н		
	ii) Compound B –		
	н н н н н	1	
		1	
	H - C = C - C - C - C - C - H		
	С. н н н н	1	
	iii) Isomer		

35	A.	Refer to Page No 117 of NCERT Science Text Book, Std-X (any two)	1+1	5
	B.	Non-reproductive parts are hyphae and reproductive parts are the sporangia which contain the spores	.5+.5	
	C.	The spores are covered by thick walls that protect them until they come	.5	
		in contact with a moist surface and begin to grow		
	D.	Amoeba divides into two daughter cells in any plane. Leishmania forms two daughter cells in a specific plane i.e., longitudinally while Plasmodium divides to form many daughter cells by multiple fission.  OR	.5x3	
	A.	Planaria shows the property of regeneration So, if we cut a portion of		
		Planaria, it will develop into a new organism from just a broken or cut	1	
		part of parent organism.	1	
	B.	Stigma is the terminal part of the carpel. It helps in receiving the pollen		
		during pollination. So, if we remove the stigma then pollination will not	1	
		occur.		
	C.	If style is plugged from a flower, than pollen grain containing male	1	
		gametes will not be able to reach ovary and fertilisation will not occur as		
		the hollow style provides path for pollen tube development.		
	D.	Implantation will not takes place.	1	
	E.	If the Fallopian tube is plugged then the egg will not be able to reach the uterus and thus fertilisation will not take place.	1	
36	A. R.	$a_{0} = \frac{8 \times 8}{8 + 8} = 4\Omega$	1/2+1/2	5
			1/2+1/2	
	B. <i>I</i> =	$=\frac{V}{R_{eq}} = \frac{8V}{8\Omega} = 1A$	1/2+1/2	
		$= IR = 1A \times 4\Omega = 4V$	1/2+1/2	
	D. <i>P</i>	$=\frac{V^2}{R}=\frac{4^2}{4}=4W$	72+72	
		o difference can be seen in ammeter's reading. As same current flows rough each element in a series circuit.  OR	1/2+1/2	
	A in s	series, $R_{eq} = 9+9+9=27 \Omega$	1/2+1/2	
		parallel, $1/R_{eq} = 1/9 + 1/9 + 1/9$ , $R_{eq} = 9/3 = 3\Omega$	½+1	
		Ω in series $Ω$ and the combination in parallel with $Ω$	½+1	
		$1/R_{eq} = 1/18 + 1/9$	/2:1	
		$= 6\Omega$		
	1	agram representation can also be awarded)		
	D. any	y two advantages of parallel combination one appliance stops working, others are not affected appliance have same potential difference across them	1/2+1/2	

	SECT			
37	A. A chemical reaction in which an es	1	4	
	and salt of the carboxylic acids is known is esterification.			
	B. Micelle	1		
	C. Soaps are sodium salts of long-	chain carboxylic acids. Detergents are		
	generally sodium salts of sulphonic act	ids or ammonium salts with chlorides or	2	
	bromides ions, both have long-hydrocar	bon chain.		
		)R		
	D. Soap, as it forms scum in hard wate	r whereas detergent do not form scum in	1+1	
	hard water.			
38	A. It is an unconscious, automatic and involuntary response of the body to a stimulus which is monitor through the spinal cord is called reflex action.  When the reflex arc is formed in the spinal cord the information input goes on to reach the brain.  OR			4
	B. Limitations of Nervous coordination (i) Firstly, they will reach only those cell not each and every cell in the animal bo (ii) Secondly, once an electrical impulse the cell will take some time to reset its retransmit a new impulse.	1+1		
	C.			
	Reflex Action	Walking		
	Reflex action take place without thought	Walking takes place after thought		
	Controlled by spinal cord	Controlled by cerebellum.	1	
	The intensity of the impulse cannot be changed	The intensity can be changed		
	It has survival and protection value	It has various functions other than survival and protection		
	(Any one point can be considered)		.5+.5	
	D. Cerebrum / Forebrain and cerebellum/ hindbrain			
39	A. converging or convex lenses / $(L_1$ - Convex, $L_2$ - Convex)  B. $L_1$ as it has more power  C. $f = 20$ cm, $u = -15$ cm $1/v = 1/u + 1/f$ $= -1/15 + 1/20 = -1/60$ Or $v = -60$ cm		1/2 + 1/2 1 1+1	4
		OR		
	D. $f = 30 \text{cm}$ P = $100/\text{f} = 100/30 = 3.33 \text{D}$		1+1	
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