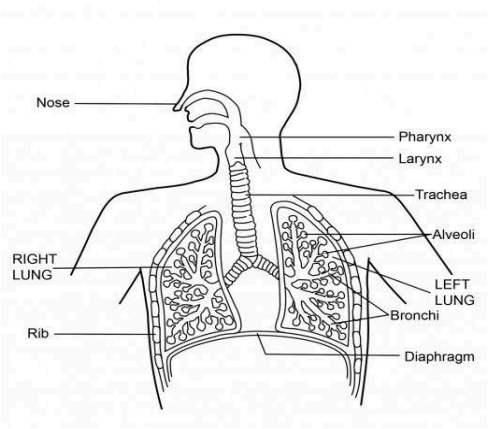
KENDRIYA VIDYALAYA SANGATHAN (LUCKNOW REGION)
PREBOARD - II 2023-24
CLASS X
SCIENCE
MARKING SCHEME

Q.N.	Answers	Marks
	Section A	
1	(c) $Cl_2$and $CaOCl_2$respectively	1
2	(d)Hydrochloric acid	1
3	(d) silver nitrate and potassium chloride undergo double displacement reaction to form silver chloride and potassium nitrate	1
4	(c) H_2CO_3 and NH_4OH	1
5	(c) Mg, Al, Zn, Fe, Cu **OR** (c) (ii) and (iv)	1
6	(a) absorb moisture from the gas	1
7	(b) (ii) and (iii)	1
8	(d) de-colourise the leaf	1
9	(d) conversion of pyruvate to lactic acid	1
10	(d) A are dwarf and B are tall	1
11	(a) olfactory receptors → dendritic tip of a nerve cell → axon → nerve ending → release of signal →dendritic tip of other nerve cell	1
12.	(b) binary fission	1
13	(b) the shape of the resistor is changed	1
14	(d) upward	1
15	(c) The rheostat can only increase the resistance in electric circuit	1
16	(a) an electric charge moving perpendicular to its direction	1
17	(d) A is False but R is true	1
18	(c) A is true but R is false	1
19	(c) A is true but R is false	1
20	(a) Both A and R are true and R is the correct explanation of A	1
	Section B	
21	One equation each for thermolysis and photolysis **OR** Proper explanation	1+1 2
22	Bile does not contain any enzyme but it is essential for digestion because: 1) The food coming from the stomach is acidic and has to be made alkaline for the pancreatic enzymes to act. 2) Emulsification of fat.	1+1

<table>
<tr><td>23</td><td>No energy is required for water transport in xylem, whereas energy is required for translocation of food in phloem.
Water transportation is unidirectional whereas other is in all direction.</td><td>2</td></tr>
<tr><td>24</td><td>Less synthesis of thyroxin hormone
Causes goitre</td><td>2</td></tr>
<tr><td>25</td><td>If heavy current flows through the wire, the fuse that has a low melting point melts and breaks the circuit and thence electrical appliances are safe</td><td>2</td></tr>
<tr><td>26</td><td>Hawk as it is the top carnivore.
Biological magnification.</td><td>1+1</td></tr>
<tr><td></td><td>Section C</td><td></td></tr>
<tr><td>27</td><td>A is calcium. It reacts with water to give calcium hydroxide. B is calcium hydroxide and is used for white washing. C is calcium oxide.
Respective reactions of each</td><td>1½
1½</td></tr>
<tr><td>28</td><td>(a) Onion juice is an olfactory indicator. As the liquid ‘X’ turns blue litmus red, hence it is an acidic solution.
(b)
(i) Acids react with active metals such as zinc, magnesium etc. and evolve hydrogen gas, for example,
$Zn(s) + dil.H_2SO_4(aq) \rightarrow ZnSO_4 + H_2(g)$
(or any other example)
(ii) Acids react with metal carbonates to give carbon dioxide with brisk effervescence.
For example, $Na_2CO_3 + H_2SO_4 \rightarrow Na_2SO_4 + CO_2 + H_2O$
(or any other example)</td><td>1
½
½
½
½</td></tr>
<tr><td>29</td><td>The lymphatic transport system moves fluid, macromolecules, and formed elements from within the interstitial spaces into the lymphatic capillaries in the form of lymph.
<table>
<tr><th></th><th>Lymph</th><th></th><th>Blood</th></tr>
<tr><td>1.</td><td>It is a colourless fluid that does not contain RBCs.</td><td>1.</td><td>It is a red-coloured fluid that contains RBCs.</td></tr>
<tr><td>2.</td><td>It contains plasma and lesser number of WBCs and platelets.</td><td>2.</td><td>It contains plasma, RBCs, WBCs, and platelets.</td></tr>
<tr><td>3.</td><td>It helps in body defence and is a part of the immune system.</td><td>3.</td><td>It is associated with the circulation of oxygen and carbon dioxide.</td></tr>
<tr><td>4.</td><td>Its plasma lacks proteins.</td><td>4.</td><td>Its plasma has proteins, calcium, and phosphorus.</td></tr>
<tr><td>5.</td><td>It transports nutrients from the tissue cells to the blood, through lymphatic vessels.</td><td>5.</td><td>It transports nutrients and oxygen from one organ to another.</td></tr>
</table>
(Any two differences)
OR</td><td>1
1+1</td></tr>
</table>

		1 ½ X4=2
30	Magnification, m = −v/u ⇒ -2 = −v/u ⇒ v = 2u Now, if v = – 30 cm then u = – 15 cm As focal length of the mirror is 1/f=1/v + 1/u 1/f= -1/30 -1/15= -10 cm f=-10cm If the object is shifted 10 cm towards the mirror, then the object is between principal focus and the optical centre and the image formed will be virtual and erect.	½ ½ ½ ½ 1
31	(a) Hypermetropia (b) Causes (i) the focal length of the eye lens is too long, (ii) the eyeball has become too small. (c) convex lens	1 ½ + ½ 1
32	(a) Imaginary lines around a bar magnet. (b) Direction in which the needle of the compass moves. (c) Lines never intersect, arise from north and ends in south outside a bar magnet (or any other two) **OR** (a) Solenoid. (b) Uniform magnetic field. (c) (i) Magnitude of current flowing through it. (ii) Number of turns of a circular coil.	1 1 ½ + ½ 1 1 ½ + ½
33	Ultraviolet radiations split the oxygen molecules present in stratosphere into free oxygen atoms. These free oxygen atoms then combine with molecular oxygen to form ozone.	1

	$O_2 \rightarrow O + O$ $O_2 + O \rightarrow O_3$ Ozone layer is a protective layer which protects the earth from harmful UV radiations. Any damage to the ozone layer would result in UV rays entering the earth's atmosphere. These UV rays can cause diseases such as skin cancer and cataract. They can also adversely affect the crops. The ozone layer is damaged as a result of chlorofluorocarbons. These are often used in refrigerators, air conditioners and fire extinguishers.	1 1
	Section D	
34	(a) 800 (Flow chart) (b) Recessive trait as it present is in heterozygous condition with dominant allele. (c) 1:2:1 (d) tall	1+1 1 1 1
35	(a) f=15cm object at S. No. 3 indicates u=-30 cm, v=+30cm i.e. center of curvature so, f=30/2=15 cm P=100/f = 100/15 = 6.6 D (b) S. No. 6 is incorrect. As object distance is less than focal length, so image will be formed on object side. (c) S. No. 3, as object distance is same as image distance. (d) Real image and inverted	1 1 ½ + ½ 1 1
36	(a) (i) Hydrogen gas is not evolved when a metal reacts with nitric acid because nitric acid is a strong oxidizing agent; it oxidizes the hydrogen to produce water. (ii)ZnO reacts both with acids as well as bases to form salt and water. Thus, ZnO is an amphoteric oxide. (iii) Metals conduct electricity due to the flow of free electrons present in them. (b) Any two difference between calcination and roasting	1+1+1 2
	Section E	
37	(i) (a) High resistance, high melting point (ii) (a) Low resistance, low melting point (iii) (a) doubled (iv) (b) 2 times	1 1 1 1

	$5^2 \times \rho \frac{L}{\pi r^2} t = 10^2 \times \rho \frac{L}{\pi r'^2} \cdot t$ $\frac{25}{r^2} = \frac{100}{r'^2}$ $\Rightarrow \frac{r'}{r} = 2$ $\Rightarrow r' = 2r$	
38	(a) C=Ethanoic acid (CH3COOH) (b) H_2 (c) Reaction $2CH_3COOH + 2Na \rightarrow 2CH_3COONa + H_2$ (d) Turns blue litmus paper to red	1 1 1 1
39	(i) (d)menstruation (ii) (b) formation of sperm (iii) (d)both (a) & (b) (iv) (a)testis → vas deferens → urethra	1 1 1 1