

KENDRIYA VIDYALAYA SANGATHAN
LUCKNOW REGION
1ST PRE-BOARD EXAM: SCIENCE
CLASS: X
Marking Scheme

1-C	11.d
2.b	12.C
3.b	13.a
4.a	14.C
5.d	15.b
6.d	16.a
7.d	17. (c)
8.a	18. (a)
9.d	19. (c)
10.d	20. (a)

21. Corrosion :When a metal is attacked by substances around it such as moisture, acids etc.(i) Rusting of iron. i.e Reddish brown coating on iron of is formed. (ii) Black coating on Silver.

- Rancidity :When fats and oils are oxidised they become rancid and their smell and taste change.
- Antioxidants are added to foods containing fats and oil.eg. Nitrogen is added to packet of chips to prevent oxidation of fats and oils.

22. Separation of oxygenated and deoxygenated blood allows good supply of oxygen to the body. This system is useful in animals that have high energy requirement. Mammals and birds constantly need oxygen to get energy to maintain their body temperature constant.

23. Separation of oxygenated and deoxygenated blood allows good supply of oxygen to the body. This system is useful in animals that have high energy requirement. Mammals and birds constantly need oxygen to get energy to maintain their body temperature constant.

24. Functions of nephron : Filtration of blood takes place in Bowman's capsule from the capillaries of glomerulus. The filtrate passes into the tubular part of the nephron. This filtrate contains glucose, amino acids, urea, uric acid, salts and water.

Reabsorption : As the filtrate flows along the tubule, useful substances such as glucose, amino

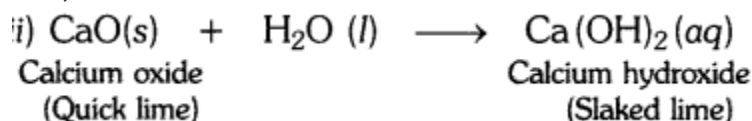
acids, salts and water are selectively reabsorbed into the blood by capillaries surrounding the nephron tubule.

25. Refer NCERT.

26. Focal length = $12 \times$ Radius of curvature = $12 \times 20 \text{ cm} = 10 \text{ cm}$

27. Answer:

(i) The substance whose solution in water is used for white washing is calcium oxide (or quick lime). Its formula is CaO .



28. (i) Mercury

(ii) Sodium

(iii) Silver

29. In our heart blood enters twice and also pumped out twice from the heart. The deoxygenated blood from the body is brought to the right atrium through vena cava from where it is sent to right ventricle. From right ventricle, the blood is pumped to the lungs for oxygenation through pulmonary artery. The oxygenated blood from lungs again enters the left atrium of the heart through pulmonary veins. From left atrium it is sent to left ventricle, from where this oxygenated blood is pumped to different parts of body through the arteries. In this way the blood flows through the heart twice, that's why it is called 'double circulation'.

Necessity of double circulation: The right side and the left side of the human heart are useful to keep deoxygenated and oxygenated blood from mixing. This type of separation of oxygenated and deoxygenated blood ensures a highly efficient supply of oxygen to the body. This is useful in case of humans who constantly need energy to maintain their body temperature.

OR

Xylem	Phloem
1. Xylem conducts water and dissolved minerals from roots to leaves and other parts.	1. Phloem conducts prepared food material from leaves to other parts of plant in dissolved form.

2. In xylem, the transport of material takes place through vessels and tracheids which are dead tissues.	2. In phloem, transport of material takes place through sieve tubes with the help of companion cells, which are living cells.
3. In xylem upward movement of water and dissolved minerals is mainly achieved by transpiration pull. It is caused due to suction created by evaporation of water molecules from the cells of a leaf.	3. In translocation, material is transferred into phloem tissue using energy from ATP. This increases the osmotic pressure that moves the material in the phloem to tissues which have less pressure

30.

Refractive index of glass, $n_g = 1.50$

Speed of light in vacuum, $c = 3 \times 10^8 \text{ ms}^{-1}$.

$$\text{Speed of light in glass} = \frac{c}{n_g} = \frac{3 \times 10^8 \text{ m/s}}{1.5} = 2 \times 10^8 \text{ ms}^{-1}$$

31.

Because the image is real, so magnification m must be negative.

$$m = \frac{h'}{h} = -\frac{v}{u} = -3 \quad \text{or} \quad v = 3u$$

But

$$u = -10 \text{ cm}$$

Therefore,

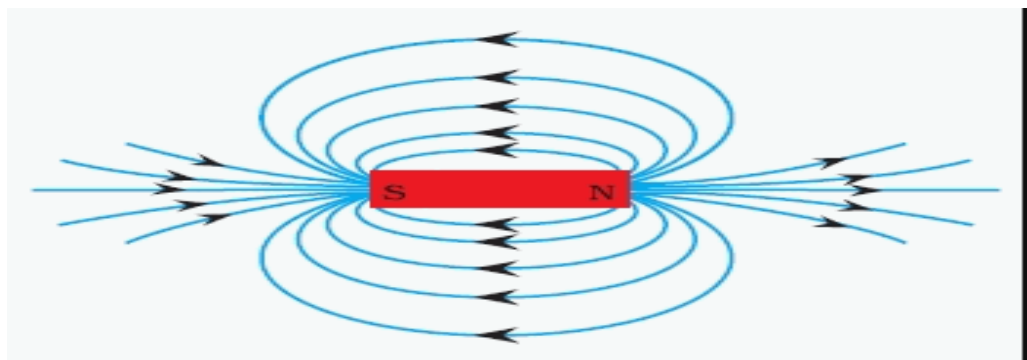
$$m = \frac{-v}{u} \Rightarrow -3 = \frac{-v}{-10}$$

$\therefore$

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

Thus the image is located at a distance of 30 cm from the mirror on the object side of the mirror.

32.



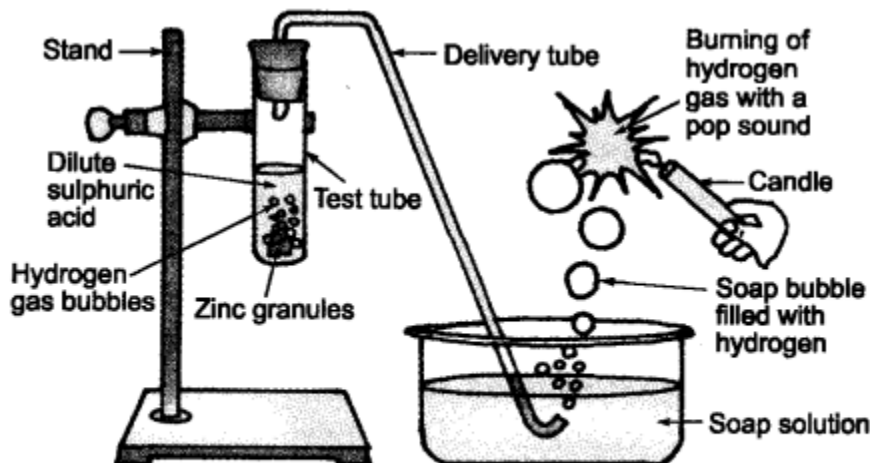
OR

- The magnetic field lines originate from the north pole of a magnet and end at its south pole.
- The magnetic field lines become closer to each other near the poles of a magnet but they are widely separated at other places.
- Two magnetic field lines do not intersect one another.

33.

(i) Hydrogen (H_2) gas is liberated when an acid reacts with a metal.

(ii) Illustration : Set up the apparatus as shown in the given figure. Take some zinc granules in the test tube. Add about 5 mL dilute hydrochloric acid slowly. Soon the reaction between zinc and hydrochloric acid starts and hydrogen gas is evolved.



Reaction of zinc granules with dil. H_2SO_4 and testing for hydrogen gas by burning candle.

(iii) Test for H_2 gas :

H_2 gas is not soluble in water. When passed through soap solution, it gets trapped into bubbles. Bring a burning candle near the soap bubble filled with gas. The soap bubble bursts and hydrogen gas burns with a pop sound.

34. (a) A – Ethanoic acid/ Or any other carboxylic acid , C- Sodium salt of ethanoic acid/ any other carboxylic acid/ sodium ethanoate

(b) Use of A- dil solution used as vinegar in cooking/ preservative in pickles

Use of B – making perfumes, flavoring agent

Conc H_2SO_4

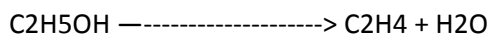
(c) $CH_3COOH + C_2H_5OH \longrightarrow CH_3COOC_2H_5 + H_2O$ (

$CH_3COOC_2H_5 + NaOH \longrightarrow CH_3COONa + C_2H_5OH$

OR

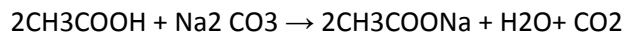
(a) Sulphuric acid acts as dehydrating agent

Conc H₂SO₄, 443K

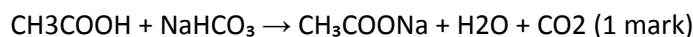


(b) By reaction with sodium carbonate/ bi carbonate 1M with the samples,

ethanol will not react whereas ethanoic acid gives brisk effervescence



OR



35. Seminal vesicles and the prostate gland add their secretions so that the sperms are in a fluid (semen) which makes their transport easier and this fluid also provides nutrition.

Changes seen in girls at the time of puberty are :

1. Breast size begins to increase.
2. Girls begin to menstruate.
3. Growth Of pubic hair.
4. Skin becomes oily.

embryo gets nutrition from mother's blood with the help Of a special tissue called placenta. Through placenta, glucose and oxygen pass from mother to the embryo. Moreover, waste substance of embryo are removed through placenta into the mother's blood.

36. Answer:

$$\text{Radius, } r = \frac{0.5}{2} = 0.25 \text{ mm} = \frac{0.25}{1000} \text{ m} = 0.25 \times 10^{-3} \text{ m}, \quad \rho = 1.6 \times 10^{-8} \text{ ohm cm}$$

$$R = 10 \Omega, \quad l = ?$$

$$\text{Now,} \quad R = \rho \frac{l}{A} = \rho \frac{l}{\pi r^2}$$

$$\begin{aligned} \text{Therefore,} \quad l &= \frac{\pi r^2 R}{\rho} = \frac{3.14 \times (0.025)^2 \times 10}{1.6 \times 10^{-6}} = 12265.625 \text{ cm} \\ &= \mathbf{122.6 \text{ metre}} \end{aligned}$$

$$\text{Again,} \quad R = \rho \frac{l}{A} = \rho \frac{l}{\pi d^2/4}$$

$$\text{i.e.,} \quad R \propto \frac{1}{d^2}$$

If a wire of diameter doubled to it is taken, then area of cross-section becomes four times.
New resistance = $10/4 = 2.5 \Omega$, Thus the new resistance will be $1/4$ times.

SECTION - E

Q.No. 37 to 39 are case - based/data -based questions

37. i) $4\text{Al} + 3\text{O}_2 \rightarrow 2\text{Al}_2\text{O}_3$

ii) Both the elements are highly reactive metals, so they react easily with air and water and catches fire.

To prevent from fire, they are stored under the kerosene oil.

lii) Ans: Sodium Oxide and potassium oxide.

OR

iii) Ans: $\text{Na}_2\text{O}(\text{s}) + \text{H}_2\text{O}(\text{l}) \rightarrow 2\text{NaOH}(\text{aq})$

38.a) In the F1 generation, Dwarf trait is recessive trait which was not expressed. After self pollination, the recessive trait gets expressed in F2 generation

b) Ratio – 3:1

c) All plants of F1 generation will be tall plants.

d) Variations promote the survival only when the species wants to allow by itself for survive to the continuous changing environment and conditions. During variations, different species get different kinds of advantages depending on the nature.

39.i) same size as that of the object

li) either plane or convex

iii)concave, plane and convex

OR

iii) a concave mirror