

SECTION-A

1. Detect the presence or direction of current.
2. It burns completely/ burns without smoke / high calorific value.

SECTION -B

3. Modern periodic table consists of groups and periods. Where number of valence electrons determines the group and number of shells determines the period.

OR

(a) Group - 14, Period - 3

(b) Silicon

Non - metallic / poor conductor of electricity (or any other property)

4. - Aerobic / Presence of oxygen

Product - CO₂ and H₂O

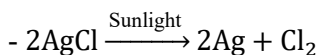
- Anaerobic / Absence of oxygen

Product - lactic acid

5. -Power of accommodation - Ability of eye lens to adjust its focal length.
- Curvature increases/lens becomes thick

SECTION- C

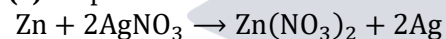
6. -White silver chloride turns grey in sunlight



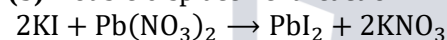
- Decomposition reaction / Photolytic decomposition

OR

(a) Displacement reaction



(b) Double displacement reaction



7. -Acid - Hydrochloric acid/HCl

Base - Sodium hydroxide/ NaOH

- Neutral Salt

- When it forms brown crystals combined with impurities

- Drying up of seas

8. (i) A₂O - Valency of group one is 1 and of oxygen is 2

(ii) AX₃ - Valency of group 13 is 3 and of halogen is 1

(iii) AB₂-Valency of element A of group 2 is 2 and of element B of group seventeen is 1.

9. - Arteries - No valves/thick walled/carry oxygenated blood/carry blood away from heart.

- Veins - Presence of valves/thin walled/carry deoxygenated blood/carry blood towards heart.

- Capillaries - very fine/mixed blood/found in tissues/sites for material exchange.

10. Receptor Cells of eyes/retina → Sensory Neuron → Brain / CNS

↓

Pupil contracts / Eye lids close/blink ← Eye Muscles ← Motor Neuron

11. Plant hormones - Chemical substances which help the plant to coordinate growth and development

(i) Auxins/ Gibberellins

(ii) Cytokinins

(iii) Absciscic Acid / ABA

(iv) Auxins/ Gibberellins

12. - Pea Plant / Garden pea / Pisum sativum

- F₁ - All tall; F₂ - Tall and short

- Ratio - Tall : Short

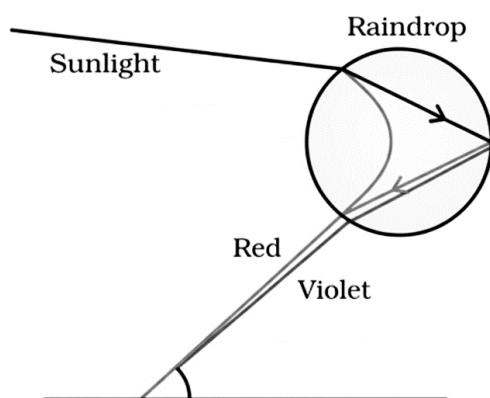
3: 1 / 1:2:1

OR

Acquired Traits	Inherited Traits
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(1) These traits are not transferred from one generation to the next generation	(1) These traits are transferred from one generation to the next
(2) They do not bring about change in DNA Example: Acquiring any skill	(2) They bring about changes in DNA Example: Eye colour

13. Rainbow - A natural spectrum of sunlight appearing in the sky after a rain shower

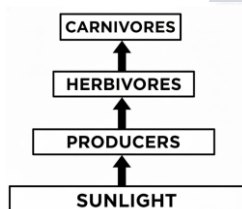


Rainbow Formation

14. Segregation of waste; Recycling; Composting; Reducing the use of non - biodegradable material: Reuse (Any Three)

OR

The system where all the living organisms in an area together interact with the non-living constituents of the environment.



15. - A technique used to collect and store water for future use

- Advantages - Available resource in time of need Recharging the ground water level
- Causes - Overuse of ground water Deforestation

SECTION-D

16. (a)

Metals		Non Metals	
(i)	Metals form basic oxides with oxygen	(i)	Non - metals form acidic or neutral oxides with oxygen
(ii)	Metals react with dilute acids to liberate hydrogen	(ii)	Non metals do not displace hydrogen from dilute acids

(iii)	Metals form positively charged ions	(iii)	Non metals form negatively charged
(iv)	by losing electrons	(iv)	ions by gaining electrons

(b) (i) Metals have loosely bound electrons / Loose electrons easily / free electrons

(ii) Molten iron produced during reaction joins the cracked machine parts.

17. - C₂H₅OH, Ethanol/Ethyl alcohol

- Good solvent; used in medicines (Any other)

(i) 2C₂H₅OH + 2Na → 2C₂H₅ONa + H₂

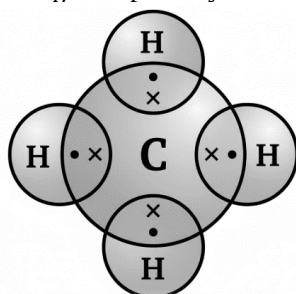
Sodium ethoxide

(ii) C₂H₅OH $\xrightarrow[443\text{ K}]{\text{Hot Conc. H}_2\text{SO}_4}$ CH₂ = CH₂ + H₂O

Ethene

OR

- CH₄/ Simplest hydrocarbon



- Covalent bonds

(i) No ions or charged particles are formed

(ii) Due to weak covalent bonds

- Carbon dioxide and water are produced/

CH₄ + 2O₂ → CO₂ + 2H₂O

18. - Pollination - Transfer of pollen from anther / stamen to stigma of the flower

- Type of Pollination -

(a) Self pollination - Transfer of pollen from anther / stamen to stigma occurs in the same flower

(b) Cross pollination – Pollen is transferred from anther / stamen of one flower to stigma of another flower

- Agents of pollination – Wind, Water, Insects and Animals (any 2)

- A tube grows out of the pollen grain and travels through the style, to reach the female germ cell in the ovary to cause fertilization

OR

(a)- Female reproductive system

- Name of parts –

(1) Fallopian tube/Oviduct

(2) Ovary

(3) Uterus

(4) Cervix

(5) Vagina

(b) - Method to avoid pregnancy

- Advantages

- Proper gap between two pregnancies

- Avoiding unwanted pregnancy

- Keeping population under control

19. (i) u = -60 cm f = -30 cm v = ?

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

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

$$= \frac{1}{(-30 \text{ cm})} + \frac{1}{(-60 \text{ cm})} = \frac{-3}{60}$$

$$\therefore v = -20 \text{ cm}$$

$$m = v/u = \frac{-20 \text{ cm}}{-60 \text{ cm}} = \frac{1}{3}$$

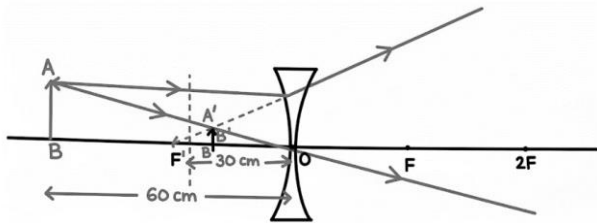
(ii) Nature:- Virtual

Position:- 20 cm from lens on the same side as the object

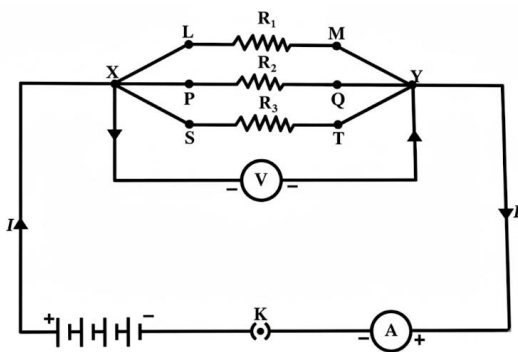
Size:- Diminished

Erect/Inverted:- Erect

(iii)



20. (a)



From figure:

$$I = I_1 + I_2 + I_3$$

$$I_1 = \frac{V}{R_1}, I_2 = \frac{V}{R_2}, I_3 = \frac{V}{R_3}$$

$$\therefore \frac{V}{R_p} = \frac{V}{R_1} + \frac{V}{R_2} + \frac{V}{R_3}$$

$$\frac{1}{R_p} = \frac{1}{R_1} + \frac{1}{R_2} + \frac{1}{R_3}$$

$$(b) R_1 = R_2 = 12\Omega, V = 6 \text{ V}$$

$$\frac{1}{R_p} = \frac{1}{12} + \frac{1}{12} = \frac{1}{12} + \frac{1}{12}$$

$$\therefore R_p = 6\Omega$$

$$I = \frac{V}{R_p} = \frac{6 \text{ V}}{6\Omega} = 1 \text{ A}$$

OR

$$(a) R = R_1 + R_2$$

$$= 20\Omega + 4\Omega = 24\Omega$$

$$(b) I = \frac{V}{R}$$

$$= \frac{6 \text{ V}}{24\Omega} = 0.25 \text{ A}$$

(c) (i) For electric lamp:

$$V = IR$$

$$= \frac{6}{24} \times 20 = 5 \text{ V}$$

(ii) For Conductor:

$$V = IR$$

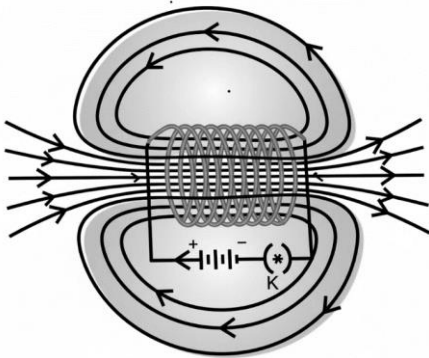
$$= \frac{6}{24} \times 4 = 1 \text{ V}$$

$$(d) P = VI$$

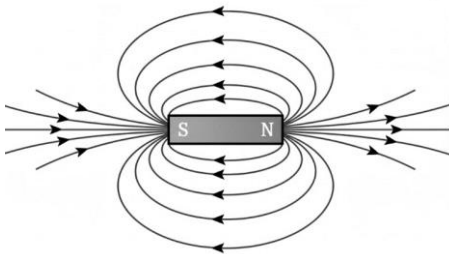
$$= 5V \times \frac{6}{24} \text{ A} = 1.25 \text{ W}$$

21. - A coil of many turns of insulated copper wire wrapped closely in the shape of a cylinder

(i)



(ii)



- Distinguishing features –

Solenoid	Bar Magnet
(1) Field disappear on stopping the current	(1) No effect of current on field.
(2) Strength of the field can be changed by changing the current	(2) Strength cannot be changed
(3) Direction can be reversed by changing the direction of current through it.	(3) Direction is fixed and cannot be reversed.

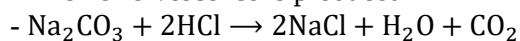
SECTION E

22. - Test Tube A

- It changes the colour from blue to red Hydrochloric acid turns blue litmus red.

OR

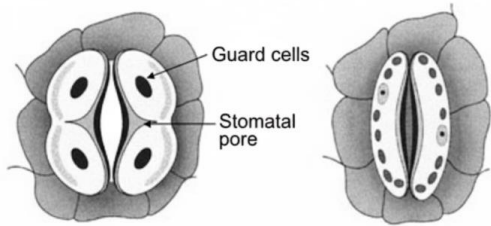
- Brisk effervescence is produced



23. - In test tube A

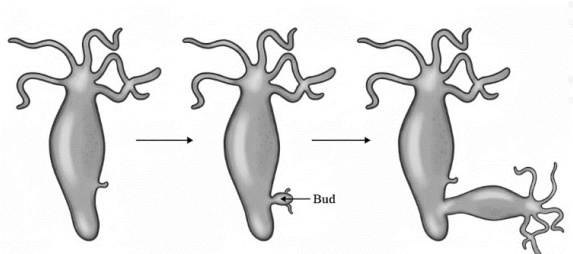
- As distilled water contains no salts

24.



Any one diagram with any two labellings)

OR



Drawing in proper sequence

Labelling – Bud

25. - Substance taken: KOH

- Function: It absorbs CO₂ produced by the germinating seeds Consequence: The water level rises in the test tube dipped in the beaker / partial vacuum is created.

26. - Potential difference (V) is directly proportional to current (I) or $V \propto I$

- Method: Finding slope of the graph

OR

- Measure the zero error

- Value of zero error should be adjusted to the observed values

27. Precautions:

(a) Lens should be held in vertical position with its faces parallel to the screen

(b) Clear and sharpest image should be obtained by adjusting the position of lens

(c) Three observations should be taken at least.

(d) Base of lens, screen and measuring scale should be in straight line (or any other)