

EXAM REFRESHER

CLASS 10 – TARGET 50

2024-25

**SUBJECT: SCIENCE
(83E)**

Smart work formula:

How to Score – 50marks

1. Drawings - 12 marks
2. Electron dot structure/Hydrocarbon mol. Formula, str. formula and naming the compounds by using functional groups: 4 marks
3. Formulas for problem solving and important physical terms and SI units 4 marks
4. Balancing chemical equation- 2 marks
5. Differences of important concepts- 4 marks
6. Remembering reactivity series of metals for various type of questions: 2 marks
7. Listing out the uses of chemical compounds: 2 marks
8. Important selected VSAs: 4 marks (out of 8 marks could score 4 marks)
9. Answering easy questions in 2 /3/4 /5 - mark questions: could score minimum 12 marks
10. Answering higher order thinking or diagram based question: Could get minimum 4 marks.

Total: 50

TYPES OF QUESTIONS

SL.NO	QUESTION TYPE	NO. OF QUESTIONS VS MARKS	TOTAL MARKS
1	Multiple Choice questions	8 x 1	8
2	One-mark questions	8 x 1	8
3	2-mark questions	8 x 2 (2 INTERNAL CHOICES)	16
4	3-marks questions	9 x 3 (4 INTERNAL CHOICES)	27
5	4-mark questions	4x4 (1 INTERNAL CHOICE)	16
6	5-mark question	5x1	5
	Total	38 Questions	80 marks

INDEX

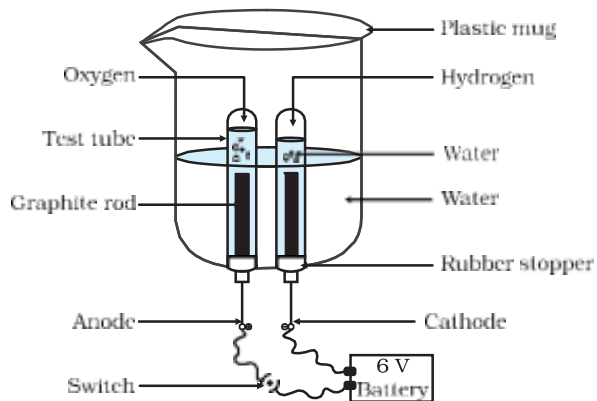
Ch. no	Chapter name
PART-A (PHYSICS)	
1	Electricity
2	Magnetic effects of electric current
3	Light Reflection and refraction
4	Human eye and colourful world
PART-B (CHEMISTRY)	
5	Chemical reactions and equations
6	Acids, Bases and Salts
7	Metals and non- metals
8	Carbon and its compounds
PART- C (BIOLOGY)	
9	Life processes
10	Control and coordination
11	How do organisms reproduce?
12	Heredity
13	Our environment

MARKS WEIGHTAGE TO THEMES

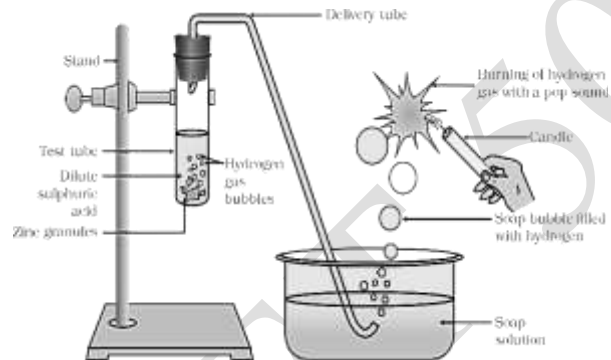
SL.NO	CHAPTER NO.	CHAPTER NAME	WEIGHTAGE IN MARKS
PHYSICS	NATURAL PHENOMENA	1. Light Reflection and Refraction	13
		2. The Human Eye and the Colourful World	
	HOW DO THINGS WORK?	3. Electricity	14
		4. Magnetic effects of Electric current	
			27
CHEMISTRY	MATERIALS IN DAILY LIFE	5. Chemical Reaction and Equations	25
		6. Acids, Bases and Salts	
		7. Metals and Non-metals	
		8. Carbon and its Compounds	
			25
BIOLOGY	WORLD OF LIVING	9. Life Processes	25
		10. Control and coordination	
		11. How do organisms Reproduce	
		12. Heredity	
	OUR ENVIRONMENT	13. Our Environment	3
			28
Total			80

1. Diagrams for practice: TOTAL 12 MARKS

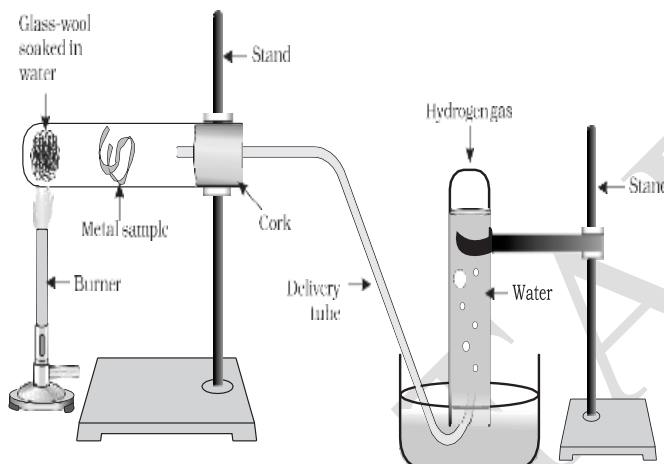
1. Electrolysis of water



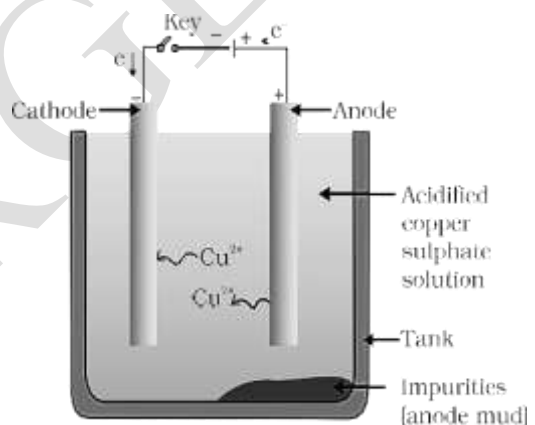
2. Reaction of zinc granules with dilute sulphuric acid and testing hydrogen gas by burning



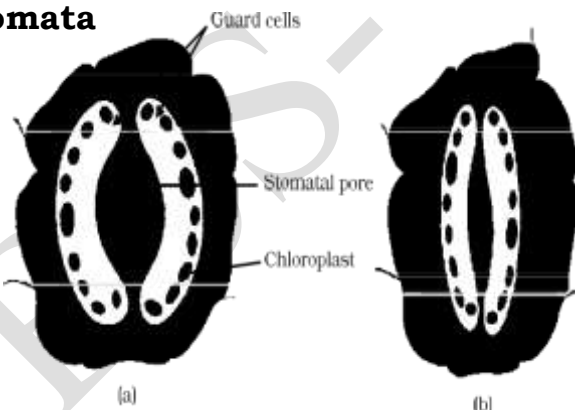
3. Action of steam on a metal:



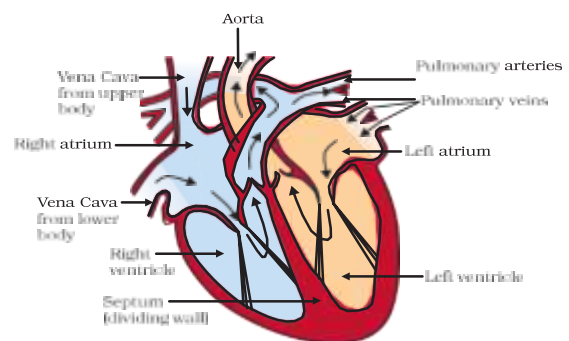
4. Electrolytic refining of copper



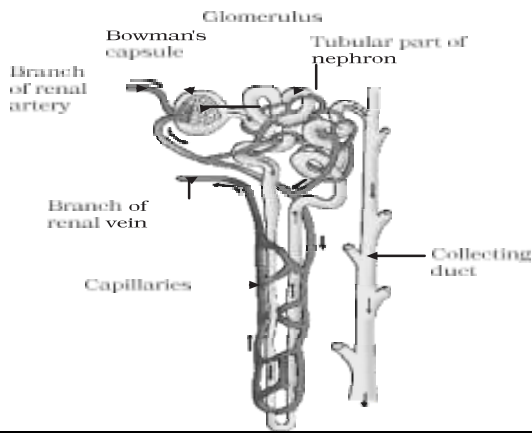
5. Structure of open and closed stomata



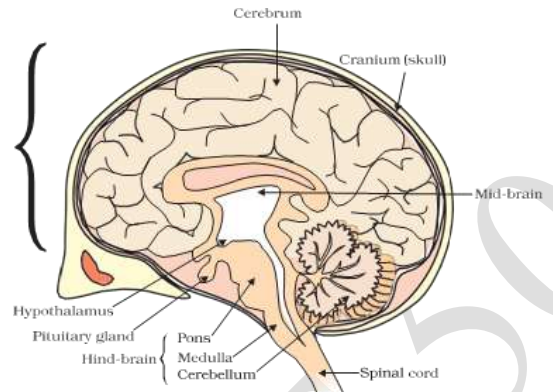
6. Schematic sectional view of the human heart



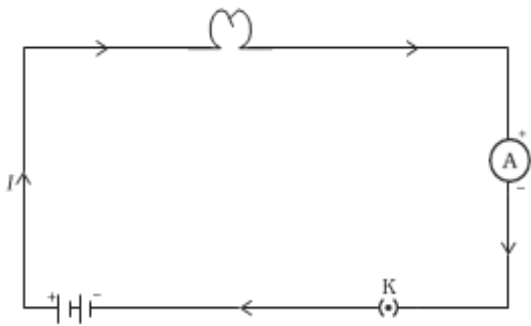
7. structure of nephron



8. structure of LS of human brain



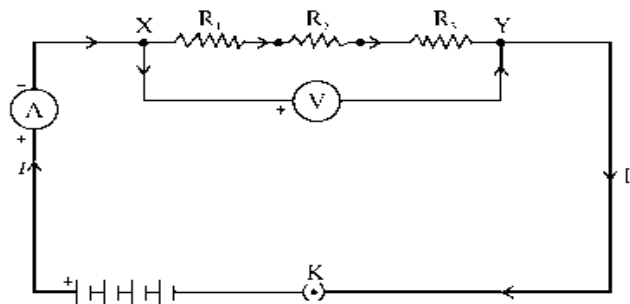
9. Schematic diagram of an electric circuit:



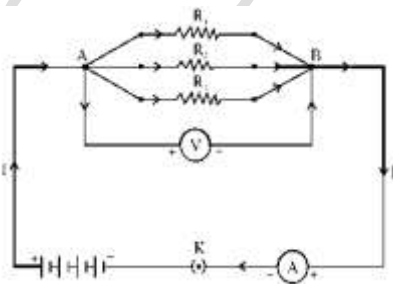
10. Symbols of some commonly used components in circuit diagrams

Sl. No.	Components	Symbols
1	An electric cell	
2	A battery or a combination of cells	
3	Plug key or switch (open)	
4	Plug key or switch (closed)	
5	A wire joint	
6	Wires crossing without joining	
7	Electric bulb	
8	A resistor of resistance R	
9	Variable resistance or rheostat	
10	Ammeter	
11	Voltmeter	

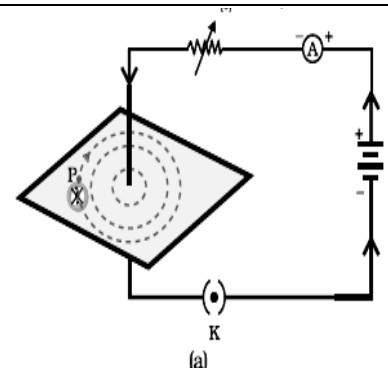
11. Resistors in series



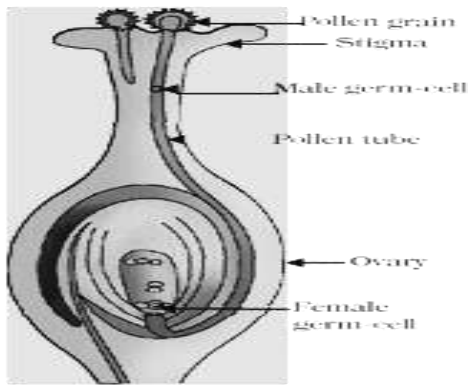
12. Resistors in parallel



13. A pattern of concentric circles indicating the field lines of a magnetic field around a straight conducting wire

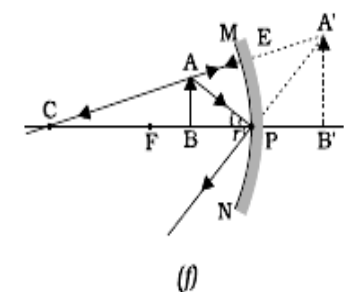
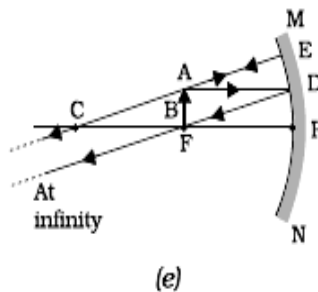
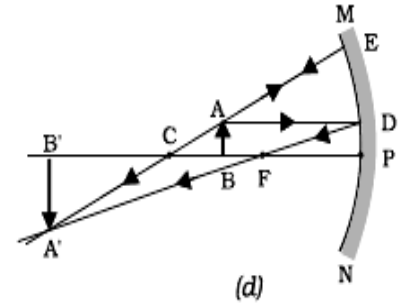
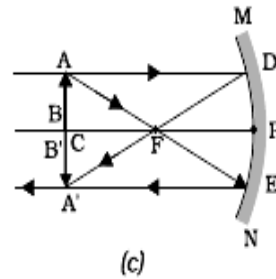
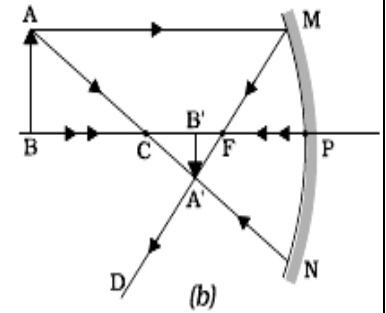
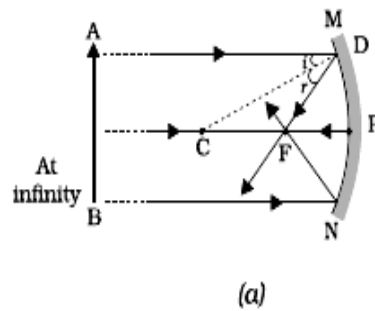


14. Germination of pollen on stigma



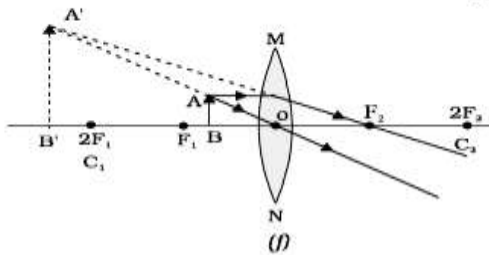
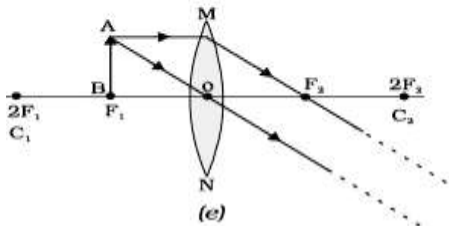
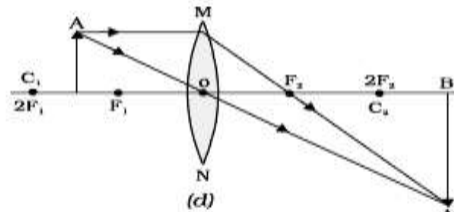
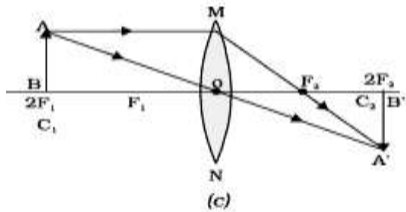
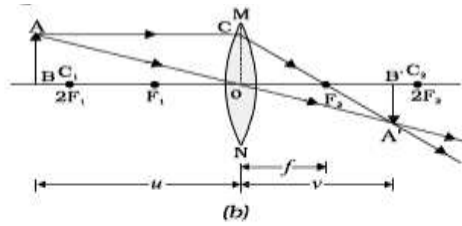
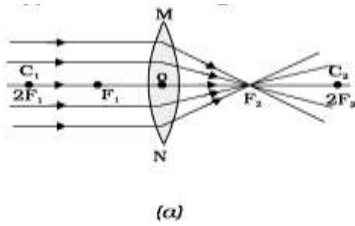
15. Ray diagrams for the image formation by a concave mirror

A	At infinity
B	Beyond C
C	At C
D	Between C and F
E	At F
f	Between P and F

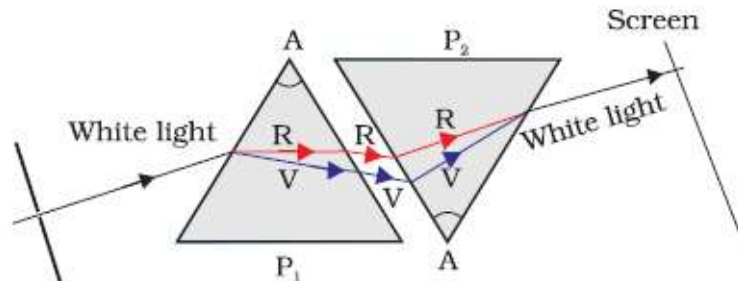


16. Ray diagrams for the image formation by a convex lens

A	At infinity
B	Beyond $2F_1$
C	At $2F_1$
D	Between F_1 and $2F_1$
E	At focus F_1
f	Between focus F_1 and optical centre O



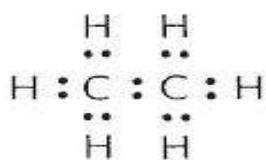
17. Recombination of the spectrum of white light:



2. Electron dot structures (2 marks)

Practice the electron dot structures of the following:

- Electron dot structure of **Ethane: C₂H₆**, **Ethene: C₂H₄** and **Ethyne: C₂H₂**
- Electron dot structure of **propane: C₃H₈**



ethane



ethene



ethyne

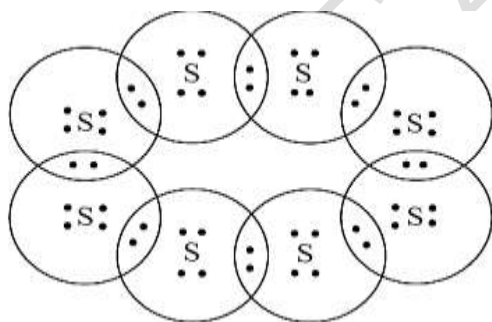
Hydrogen



Carbon

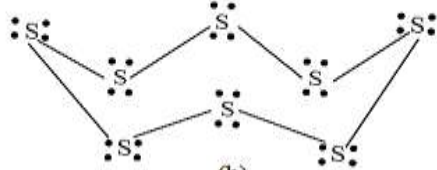


Electron dot structure of S₈ molecule
(Sulphur-8 molecule):



(a)

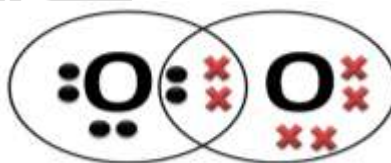
OR



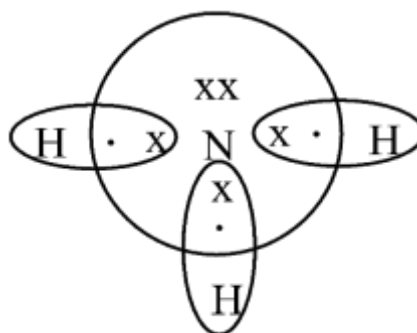
(b)

Sulphur (S₈) molecule

- Electron dot structure of oxygen atoms and oxygen molecule (O₂):



- Electron dot structure of ammonia molecule: (NH₃)



FUNCTIONAL GROUPS

Hetero atom	Class of compounds	Formula of functional group
Cl/Br	Halo- (Chloro/bromo) alkane	—Cl, —Br (substitutes for hydrogen atom)
Oxygen	1. Alcohol	—OH
	2. Aldehyde	$\begin{array}{c} \text{H} \\ \\ \text{—C} \\ \\ \text{O} \end{array}$
	3. Ketone	$\begin{array}{c} \text{—C—} \\ \\ \text{O} \end{array}$
	4. Carboxylic acid	$\begin{array}{c} \text{O} \\ \\ \text{—C—OH} \end{array}$

Naming carbon compounds- 2 marks

Class of compounds	Prefix/suffix	Example
1. Halo alkane	Chloro	$\begin{array}{c} \text{H} & \text{H} & \text{H} \\ & & \\ \text{H—C—C—C—Cl} \\ & & \\ \text{H} & \text{H} & \text{H} \end{array}$ Chloropropane
	Or Bromo	$\begin{array}{c} \text{H} & \text{H} & \text{H} \\ & & \\ \text{H—C—C—C—Br} \\ & & \\ \text{H} & \text{H} & \text{H} \end{array}$ Bromopropane
2. Alcohol	OH- ol	$\begin{array}{c} \text{H} & \text{H} & \text{H} \\ & & \\ \text{H—C—C—C—OH} \\ & & \\ \text{H} & \text{H} & \text{H} \end{array}$ Propanol
3. Aldehyde	CHO - al	$\begin{array}{c} \text{H} & \text{H} & \text{H} \\ & & \\ \text{H—C—C—C=O} \\ & & \\ \text{H} & \text{H} & \end{array}$ Propanal
4. Ketone	C=O, one	$\begin{array}{c} \text{H} & & \text{H} \\ & & \\ \text{H—C—C—C—H} \\ & & \\ \text{H} & \text{O} & \text{H} \end{array}$ Propanone
5. Carboxylic acid	COOH, acid	$\begin{array}{c} \text{H} & \text{H} & \text{O} \\ & & \\ \text{H—C—C—C—OH} \\ & & \\ \text{H} & \text{H} & \end{array}$ Propanoic acid
6. Alkenes	C=C, enes	$\begin{array}{c} \text{H} & \text{H} & & \text{H} \\ & & & \\ \text{H—C—C=C} & & & \text{H} \\ & & & \\ \text{H} & & & \end{array}$ Propene
7. Alkynes	C≡C, ynes	$\begin{array}{c} \text{H} \\ \\ \text{H—C—C} \equiv \text{C—H} \\ \\ \text{H} \end{array}$ Propyne

4. Reactivity series:

Keep on practicing reactivity series according to their increasing reactivity and decreasing reactivity, you may get min. **2 marks**.

potassium	most reactive	K
sodium		Na
calcium		Ca
magnesium		Mg
aluminium		Al
carbon		C
zinc		Zn
iron		Fe
tin		Sn
lead		Pb
hydrogen		H
copper		Cu
silver		Ag
gold		Au
platinum	least reactive	Pt

5. Important Physical terms and SI units: (2 MARKS)

- | | | |
|----------------------------------|------------------|----------|
| 1. Electricity | : Kilo Watt Hour | KWh |
| 2. Electric current | : Ampere | A |
| 3. Electric potential Difference | : Volt | V |
| 4. Electric Resistance | : Ohm | Ω |
| 5. Electric Charge | : Coulomb | C |
| 6. Electric Power | : Watt | W |
| 7. Power of a lens | : Diopter | D |

6. Formulas for problem solving questions: (4 - 6 marks)

Chapter 12. Electricity:

1. To find electric charge: $Q = I t$,

I-electric current, t-time taken

2. To find our Electric current: $I = \frac{Q}{t}$

3. To find out Potential difference

between two points: $V = \frac{W}{Q}$

W= work done, Q=charge

3. potential difference across its ends:

$$V=IR$$

4. To find out resistance: $R = \frac{V}{I}$

5. To calculate Equivalent Resistance in series connection: $R_s = R_1 + R_2 + R_3 \dots$

6. To calculate Equivalent Resistance in

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

Joule's Law of Heating: $H = I^2 R t$

Chapter 5: Periodic classification of elements:

Dobereiners' triad:

$$B = \frac{A+C}{2}, \quad A = 2B - C, \quad C = 2B - A,$$

Chapter 10. Light: Reflection and Refraction

• **Snell's Law:** $n = \frac{\sin i}{\sin r} = \text{constant}$

• **Mirror formula:** $\frac{1}{f} = \frac{1}{v} + \frac{1}{u}$

• **lens formula:** $\frac{1}{f} = \frac{1}{v} - \frac{1}{u}$

• **focal length:** $f = \frac{R}{2}$

• **magnification:** $m = \frac{h'}{h} = -\frac{v}{u}$

(for Mirror)

• **magnification:** $m = \frac{h'}{h} = \frac{v}{u}$ (for lens)

• **power:** $p = \frac{1}{f(m)}$ or $-\frac{100}{f(cm)}$

7. Equations balancing: 2 marks

Collect all the reactions given in first 3 chemistry chapters (select simple reactions) and keep on practice to balance the equations.

Ex:

- $2\text{Mg} + \text{O}_2 \rightarrow 2\text{MgO}$
- $\text{Mg} + \text{H}_2\text{SO}_4 \rightarrow \text{H}_2 + \text{MgSO}_4$
- $\text{Zn} + \text{H}_2\text{SO}_4 \rightarrow \text{ZnSO}_4 + \text{H}_2\uparrow$
- $4\text{Fe} + 3\text{H}_2\text{O} \rightarrow \text{Fe}_3\text{O}_4 + 4\text{H}_2\uparrow$
- $\text{CaO(s)} + \text{H}_2\text{O(l)} \rightarrow \text{Ca(OH)}_2\text{(aq)} + \text{Heat}$
- $2\text{H}_2\text{(g)} + \text{O}_2\text{(g)} \rightarrow 2\text{H}_2\text{O(l)}$
- $\text{CH}_4\text{(g)} + 2\text{O}_2\text{(g)} \rightarrow \text{CO}_2\text{(g)} + 2\text{H}_2\text{O(g)}$
- $6\text{CO}_2 + 6\text{H}_2\text{O} \rightarrow \text{C}_6\text{H}_{12}\text{O}_6$
- $\text{Na}_2\text{CO}_3\text{(s)} + 2\text{HCl(aq)} \rightarrow 2\text{NaCl(aq)} + \text{H}_2\text{O(l)} + \text{CO}_2\text{(g)}$
- $\text{NaHCO}_3\text{(s)} + \text{HCl(aq)} \rightarrow \text{NaCl(aq)} + \text{H}_2\text{O(l)} + \text{CO}_2\text{(g)}$
- $\text{NaOH} + \text{HCl} \rightarrow \text{NaCl} + \text{H}_2\text{O}$
- $\text{CH}_3\text{COOH} + \text{NaOH} \rightarrow \text{CH}_3\text{COONa} + \text{H}_2\text{O}$
- $2\text{Cu} + \text{O}_2 \rightarrow 2\text{CuO}$
- $4\text{Al} + 3\text{O}_2 \rightarrow 2\text{Al}_2\text{O}_3$
- $\text{Mg} + 2\text{HCl} \rightarrow \text{MgCl}_2 + \text{H}_2$

8. Some important concepts for differences type question min. 2 marks

Differences between

Exothermic reaction	Endothermic reaction`
<ul style="list-style-type: none"> • The reaction in which heat is liberated during chemical reaction • Ex: Digestion of food 	<ul style="list-style-type: none"> • The reaction in which heat is utilized or absorbed during chemical reaction • Ex: Melting of ice
Oxidation	Reduction
<ul style="list-style-type: none"> • Addition of oxygen is oxidation • Loosing of electrons • Increase in oxidation no. 	<ul style="list-style-type: none"> • Removal of oxygen is reduction • Gaining of electrons • Decrease in oxidation no.
Corrosion	Rancidity
<ul style="list-style-type: none"> • The process in which metal with atmospheric moisture and chemicals result in the formation of rust • Ex: Rusting of iron 	<ul style="list-style-type: none"> • condition in which food has become un desirable • ex: oxidation of oils and fats
Aerobic respiration	Anaerobic respiration
<ul style="list-style-type: none"> • Glucose breaks down into complete oxidation into carbon dioxide and water • Takes place in the presence of oxygen 	<ul style="list-style-type: none"> • Glucose breaks down into ethyl alcohol, carbon dioxide, and energy • Take place in the absence of oxygen
Arteries	Veins
<ul style="list-style-type: none"> • Carry blood away from the heart • Outer coat is thin and middle coat is thick • Blood flow is rapid through arteries 	<ul style="list-style-type: none"> • Carry blood towards the heart • Outer coat is thick and middle coat is thin • Blood flow is slow through veins
Veins	Capillaries
<ul style="list-style-type: none"> • Carry blood towards the heart • Outer coat is thick and middle coat is thin 	<ul style="list-style-type: none"> • They carry blood from tissues to veins • Outer and middle coats are absent
Geotropism	Phototropism
<ul style="list-style-type: none"> • The growth of plants towards gravity Ex: Roots grow towards soil 	<ul style="list-style-type: none"> • The growth of plants towards light • Ex: The growth of stem
Saturated hydrocarbons	Unsaturated hydrocarbons
<ul style="list-style-type: none"> • These having only single bond between the carbon atoms • Ex: Alkanes and cyclic alkanes 	<ul style="list-style-type: none"> • These having double and triple bonds between carbon atoms along with single bonds • Ex: alkenes, alkynes and Aromatic hydrocarbons.
Self – pollination	Cross pollination
<ul style="list-style-type: none"> • occurs when the pollen from the anther is deposited on the stigma of the same 	<ul style="list-style-type: none"> • the transfer of pollen from the anther of one flower to the stigma of another

flower, or another flower on the same plant.	flower on a different individual of the same species.
<p style="text-align: center;">Bio degradable substances</p> <ul style="list-style-type: none"> • substances that degrade or break down naturally • ex: plants and animal wastes, paper, cotton, leaves, etc. 	<p style="text-align: center;">Non - biodegradable substances</p> <ul style="list-style-type: none"> • substances that do not degrade easily • ex: Plastics, glass, DDT, Detergents wastes

9. Listing out the uses of the following chemical compounds: (2 marks)

1. Sodium carbonate (washing soda):

- It is largely used in production of detergents and soaps.
- It is used in the manufacturing of glass.
- It is used in the production of rayon polymers. , It is used in water softening

2. Sodium hydrogen carbonate (baking soda):

- Leavening- In cooking, people use baking soda in baking as a leavening agent.
- Pest Control- Sodium bicarbonate is an effective way to control fungal growth.
- Fire extinguisher- People use Sodium bicarbonate to extinguish small grease or electrical fires by throwing it over the fire.

3. Calcium oxochloride (Bleaching powder):

- Used as an oxidising agent in chemical industries.
- Used for disinfection of drinking water., Used for bleaching of washed clothes in the laundry.

4. Plaster of Paris:

- Used in making casts and patterns for moulds and statues.
- Used as the cement in ornamental casting and for making decorative materials.
- Used as a fireproofing material and for making chalks.
- Used in hospitals for immobilizing the affected part in case of bone fracture or sprain.

Ethanol:

- It is used to manufacture syrups as medicine, Used as a fuel
- Used to maintain body temperature in cold regions

Ethanoic acid: (acetic acid/ vinegar)

- It can be used for cooking, baking, cleaning and weed control and may aid weight loss and lower blood sugar and cholesterol.

Esters:

- Esters that have fragrant odours are used as a constituent of perfumes, essential oils, food flavourings, cosmetics, etc.
- It is used as an organic solvent.
- Natural esters are found in pheromones.
- Naturally occurring fats and oils are fatty acid esters of glycerol

10. IMPORTANT QUESTIONS WITH ANSWERS:

Part- A Physics: 27 marks

1. Define: Ampere (A)

Ans: Ampere is the SI unit of electric current. It can be defined as the flow of 1 coulomb of charge through a wire in 1 second, it is one ampere.

2. What is meant by saying that the potential difference between two points is 1 V?

Ans: 1 volt potential difference is 1 joule of work is done in moving a charge of 1 coulomb from one point to the other.

3. What is the SI unit of potential difference?

4. State Ohm's law.

Ans: The potential difference (V) across the ends of a given metallic wire in an electric circuit is directly proportional to the current flowing through it, provided its temperature remains the same. ($V \propto I$)

5. What does a electric circuit mean?

Ans: continuous and closed path of an electric current is called an electric circuit.

6. Name a device used to measure the potential difference.

Ans: voltmeter is used to measure the potential difference and the SI unit of potential difference is Volt.

7. Name the device used to measure electric current.

Ans: Ammeter is used to measure the electric current, and the SI unit of electric current is Ampere.

8. What is the resistance of a conductor?

Ans: The property of a conductor to restrain or to retard the motion of electric charges flowing through it is called resistance of a conductor.

9. Which substance is used in electrical heating devices? Why?

Ans: Nichrome is used in electrical heating devices, because it has high resistivity / high melting point/ does not oxidize even at higher temperature.

10. What is electric power? Mention its SI unit.

Ans: The rate at which electric energy is dissipated or consumed in an electric circuit is called electric power. The SI unit of electric power is Watt.

11. Define fuse?

Ans: fuse is an alloy wire; it protects electrical circuit from high voltage.

12. What is the use of earth wire?

Ans: The earth wire is to protect the sudden damage of electrical instruments due to the sudden voltage increase or the leakage of the current.

13. What is reflection of light?

Ans: when a ray of light approaches a smooth polished surface and the light ray bounces back is called reflection of light.

14. What is magnification of a mirror?

Ans: Magnification is the increase in the image size, produced by spherical mirrors.

15. What is refraction?

Ans: When a ray of light travels obliquely from one transparent medium into another it will change its direction in the second medium. This phenomenon is known as refraction of light.

16. What is refractive index?

Ans: The relative speed of propagation of light in different media is called refractive index.

17. What is absolute refractive index?

Ans: The ratio of the velocity of light in a vacuum to its velocity in a specified medium.

18. What is aperture?

Ans: The effective diameter of the circular outline of a spherical lens is called its aperture.

19. Define power of a lens?

Ans: Reciprocal of the focal length of the lens. $P = \frac{1}{f}$

The power of a convex lens is positive and that of concave is negative

20. What is dispersion of light?

Ans: The splitting of light into its component colours is called dispersion of light.

21. What is spectrum?

Ans: The band of the coloured components of a light beam is called its spectrum.

22. Define Tyndall effect?

Ans: The phenomenon of scattering of light by the colloidal particles.

23. What is meant by power of accommodation of the eye?

Ans: The ability of the human eye lens to adjust its focal length to view both distant and nearby objects clearly is called the power of accommodation of the eye.

24. What is a good fuel?

Ans: A good fuel should

- i) be fairly cheap.
- ii) be easily available.
- iii) the ignition temperature should reasonably above normal temperature.
- iv) Be conveniently handled and transported.
- v) Produce less smoke on burning.

25. write any two hazards of nuclear power generation.

Ans: Improper nuclear waste storage and disposal result in environmental contamination. There is a risk of accidental leakage of nuclear radiation.

26. Why are the conductors of electric heating devices, such as bread-toasters and electric irons, made of an alloy rather than a pure metal?

Ans: The resistivity of an alloy is more than that of metals.

These alloys produce large amount of heat and do not burn easily.

27. How does the resistance of a wire vary with its area of cross-section?

Ans: Resistance (R) of a wire is inversely proportional to its area of cross-section (A):

$$R \propto 1/A$$

28. Why are copper and aluminium wires usually employed for electricity transmission?

Ans: Copper and aluminium wires have low resistivity. They are good conductors of electricity. Hence, they are usually employed for electricity transmission.

29. State Ohm's law. How ammeter and voltmeter should be connected in electric circuit? What is the use of these instruments, in the circuit?

Ans: Ohm's law: The potential difference V across the ends of a given metallic wire in an electric circuit is directly proportional to the current flowing through it at constant temperature.

* Ammeter should be connected in series.

* Voltmeter should be connected in parallel in the circuit.

* Ammeter is used to measure current.

* Voltmeter is used to measure potential difference.

30. Mention the disadvantages of connecting electrical appliances in series in domestic wiring.

Ans: i) The total resistance of the circuit increases.

ii) When one component fails in the circuit other components does not work.

31. What is electric power? Write three formulae used to find it.

Ans: The rate at which electric energy is dissipated or consumed in an electric circuit is called electric power.

* **Formulae used to calculate the power are** $P = VI$ & $P = I^2R$ & $P = \frac{V^2}{R}$

32. State Joule's law of heating. (June 2020)

Ans: Joule's law of heating: Heat produced in a resistor is

(i) directly proportional to the square of current for a given resistance,

(ii) directly proportional to resistance for a given current, and

(iii) Directly proportional to the time for which the current flows through the resistor.

Mathematical formula - **$H = I^2 Rt$**

33. Explain the working of electric filament bulb. (June 2020)

Ans: * A strong metal with high melting point such as tungsten is used for making bulb filaments.

* The bulbs are usually filled with chemically inactive nitrogen and Argon gases to prolong the life of the filament.

* Most of the power consumed by the filament appears as heat, but a small part of it is in the form of light radiated.

34. Explain the application of heating effect of electric current in an electric bulb and the fuse used in an electric circuit. (June 2019)

Ans: * A strong metal with high melting point like tungsten which gets very hot and emits light is used in an electric bulb.

* If a current larger than the specified value flows through the circuit then the fuse melts and breaks the circuit.

35. Suggest any two measures to avoid overloading in domestic circuits. (Sept 2020)

Ans: * Live and neutral wires should not come into direct contact.

OR there should not be any short-circuit in the circuit.

* Too many appliances should not be connected to a single socket.

* Should always use quality wires and good quality electrical appliances.

36. What is electromagnetic induction? Name the device that works on this principle. Mention the frequency of the electric current produced in India.

Ans: The process, by which a changing magnetic field in a conductor induces a current in another conductor.

* Electric generator.

* The frequency of AC produced in India is 50 Hz and potential difference is 220 V.

37. What is the centre of curvature of a spherical mirror?

Ans: The reflecting surface of a spherical mirror forms a part of sphere. The centre of this sphere is called the centre of curvature.

38. Define the principal focus of a convex lens. (Sept 2020)

Ans: The rays of light falling on a convex lens parallel to the principal axis, after refraction from the lens converge to a point on the principal axis.

This point on principal axis is called the 'principal focus' of the convex lens.

39. State the laws of refraction of light. (Sept 2020)

Ans: 1st Law: The incident ray, the refracted ray and the normal to the interface of two transparent media at the point of incidence, all lie in the same plane.

2nd law: The ratio of sine of angle of incidence to the sine of angle of refraction is a constant for the light of a given colour and for the given pair of media.

OR If i is the angle of incidence and r is the angle of refraction, $\sin i / \sin r = \text{constant}$.

40. What is Presbyopia? How can it be corrected? (Sept 20)

Ans: The power of accommodation of the eye usually decreases with ageing and hence the near point gradually recedes away and the eye will not see nearby objects and distant objects comfortably. Such an eye defect is called Presbyopia.

* The defect can be corrected by using a suitable bifocal lens (convex and concave lens).

41. Mention any four phenomena that can be observed due to atmospheric refraction of light on the earth.

Ans: * The sun is visible to us two minutes before the actual sunrise.

* The sun is visible to us two minutes after the actual sunset also.

* The apparent position of the star is slightly different from its actual position.

* Twinkling of star

* Formation of rainbow

* The apparent random wavering or flickering of objects seen through a turbulent stream of hot air rising above a fire or a radiator.

BSS-TARGET 50

Part- B (chemistry – 25 marks)

1. What is exothermic reaction? Give an example.

Ans: The reaction in which heat is liberated along with the products is called exothermic reaction.



2. What is endothermic reaction? Give an example.

Ans: The reaction in which heat energy is absorbed is called endothermic reaction.



3. Define: Rancidity, oxidation, reduction, and corrosion with an example.

Ans:

Rancidity: It is a condition in which aerial oxidation of unsaturated fat present in food gives it an unpleasant flavor and odor.

Ex: Rancid coconut oil, Rancid of Edible oils, sweet foods become rancid when exposed air

Oxidation: Reactions in which an element combines with oxygen.

Ex: magnesium ribbon burnt with air; copper become copper oxide when exposed to air

Reduction: loss of oxygen or gain of hydrogen is called reduction.

Ex: $2\text{CuO} + \text{C} \rightarrow 2\text{Cu} + \text{CO}_2$ (copper oxide reduced to copper with the release of carbon dioxide)

Corrosion: metal substances react with moisture to form metallic oxides and become corroded this is called corrosion.

Ex: iron become aqueous iron oxide called rust. ($\text{Fe}_2\text{O}_3 \cdot 2\text{H}_2\text{O}$)

4. An iron ring is to be coated with copper. How can we do this without using electricity?

Ans: Iron ring should be dipped in copper sulphate solution.

Iron displaces copper from copper sulphate solution, and copper is coated on the iron ring. This is because, iron is more reactive than copper.

5. Manufacturers of chips, flush the packets of chips with nitrogen gas. Why?

Ans: To prevent rancidity of chips or to prevent the chips from getting oxidized.

6. Why should magnesium ribbon to be cleaned before burning in air?

Ans: magnesium reacts with oxygen to form a layer of stable magnesium oxide. To remove this layer magnesium ribbon is cleaned before burning in air.

7. State two ways to prevent the rusting of iron.

Ans: Oiling, greasing, painting, galvanization, alloying-are the methods to prevent the rusting of iron

8. Name the acid present in the stinging hair of nettle leaves, ant sting, tomato, sour milk (curd) lemon, tamarind and vinegar.

Ans: Nettle leaves: Methanoic acid (formic acid)

Ant sting: Methanoic acid (formic acid)

Tomato: oxalic acid

Sour milk (curd): lactic acid

Tamarind: tartaric acid

Vinegar: acetic acid (Ethanoic acid)

9. What is pH value of a substance?

Ans: pH of a substance is the measurement of whether the substance is acidic in nature or basic in nature.

10. What is neutralization reaction? Give an example.

Ans: a reaction in which an acid and base react with each other to give salt and water.

(Acid + Base \rightarrow Salt + Water)

Ex: $2\text{NaOH} + 2\text{HCl} \rightarrow 2\text{NaCl} + \text{H}_2\text{O}$

11. What are amphoteric oxides? Give example

Ans: Metal oxides which react with both acids and bases are called amphoteric oxides.

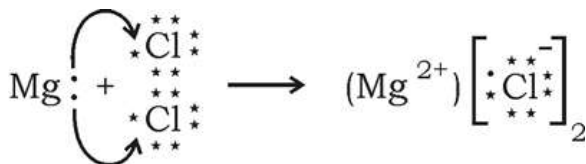
Ex: Aluminium oxide, Zinc oxide.

12. Aluminium oxide is called amphoteric oxide. Why?

Ans: aluminium oxide reacts with both acid as well as base and form salt and water. Hence it is called amphoteric oxide.

13. Show the formation of NaCl and MgCl₂ with the help of electron dot structure.

Ans: (June 2019)



14. What are ionic compounds?

Ans: The compounds formed by the transfer of electrons from metal to a non metal

15. Write the properties of ionic compounds.

Ans: Ionic Compounds:

- are solids and are somewhat hard
- have high melting and boiling points
- are generally soluble in water and insoluble in solvents such as kerosene, petrol
- Conduct electricity in the solution and in molten state.

16. Why do ionic compounds have high melting points?

Ans: Ionic compounds have high melting point, because a considerable amount of energy is required to break the strong inter-ionic attraction.

17. Ionic compounds in solid state do not conduct electricity, whereas in molten state are good conductors of electricity.

Ans: In solid state movement of ions is not possible due to their rigid structure, because of the strong force of attraction between the positive and negative ions.

18. Sodium and potassium metals are stored in kerosene. Why?

Ans: sodium and potassium elements are highly reactive. They can easily react with air and the moisture. Hence, they stored in kerosene.

19. Chemical reaction does not take place when copper is added to iron sulphate solution.

Ans: Reactivity of copper is less than that of iron.

20. Hydrogen gas is not liberated when a metal reacts with concentrated nitric acid. Give reason.

Ans: Nitric acid is a strong oxidising agent. It oxidises hydrogen produced to water and itself gets reduced to any of the nitrogen oxides.

21. What is a covalent bond?

(june -2019)

Ans: Chemical bond which is formed by the sharing of electrons between two atoms is known as covalent bond.

22. List the properties of covalent compounds.

Ans: (i) Ionic compounds have low melting points and boiling points.

(ii) generally gaseous or liquids or soft solids.

(iii) are generally insoluble in water, but soluble in organic solvents like alcohol, acetone.

(iv) They are bad conductors of electricity. (Because, they do not produce ions)

23. Carbon atom does not form C^{4-} anion and C^{4+} cation. Why? (April-2019)

Carbon can gain four electrons. But it would be difficult for the nucleus with six protons to hold on to ten electrons, that is four extra electrons.

It can lose four electrons but it would require a large amount of energy to remove four electrons leaving behind a carbon cation with six protons in its nucleus holding on to just two electrons.

24. What are structural isomers? Name the first member of alkanes that shows structural isomerism.

Ans: Compounds with identical molecular formula but different structures are called structural isomers. Butane or C_4H_{10}

25. Name the first member of alkynes and write its molecular formula.

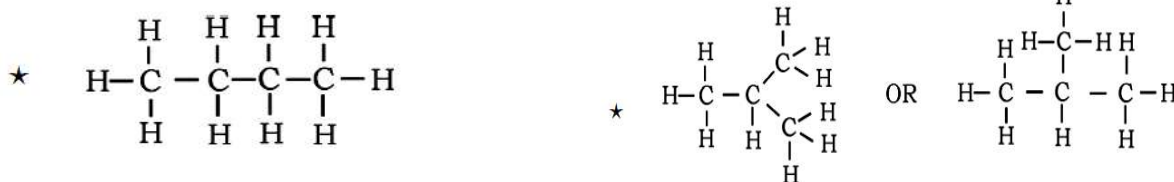
Ans: Ethyne (or Acetylene) C_2H_2

(june -2019)

26. What are structural isomers? Write two structures of butane molecule.

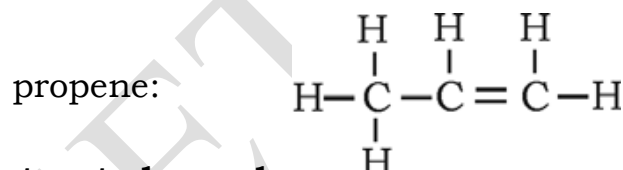
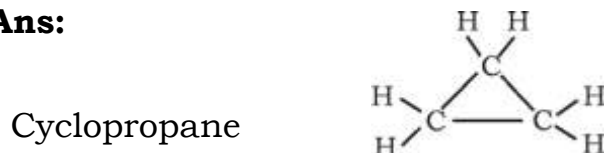
Ans.: Carbon compounds with identical molecular formula but different structures are called structural isomers.

(Septembr-2020)



27. The general formula of two specific groups of saturated and unsaturated hydrocarbons is $C_n H_{2n}$. Write the structures of the member of each group when $n = 3$. (June-2020)

Ans:



28. Write the differences between saturated and unsaturated hydrocarbons. (April-2019)

Ans:

Saturated hydrocarbons	Unsaturated hydrocarbons
i. carbon atoms are satisfied by a single bond between them	i. carbon atoms have double or triple bonds between them
ii. not very reactive	ii. more reactive

29. How can ethanol be converted into ethanoic acid? (april-2019)

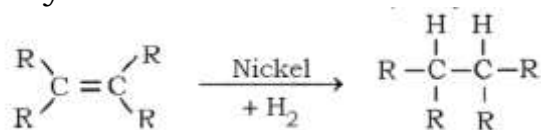
Alkaline potassium permanganate or acidified potassium dichromate is added to ethyl alcohol. When it is heated it oxidised to form ethanoic acid.

30. Explain the addition and substitution reaction with the help of examples. C_2H_6 undergoes substitution reaction but not addition reaction. Why? (June-2020)

Ans: Unsaturated hydrocarbons combine with hydrogen atoms in the presence of catalysts to give saturated hydrocarbons. Ex: Hydrogenation of vegetable oil.

OR

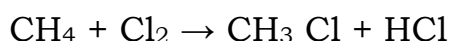
addition reactions of alkenes / alkynes.



C_2H_6 undergoes substitution reaction but not addition reaction because it is saturated hydrocarbon.

31. Explain substitution reaction in hydrocarbons with an example.

Ans: Saturated hydrocarbons are fairly uncreative but undergo substitution reactions in the presence of sunlight. Chlorine can replace the hydrogen atoms one by one. (June-2019)



32. Write the uses of Ethanol and Ethanoic acid.

Uses of Ethanol: 1. used in medicines such as tincture iodine, cough syrups and many tonics (as it's a good solvent).

2. used as a fuel along-with petrol.

3. used as an antiseptic to sterilize wounds and syringes in hospitals.

Uses of Ethanoic acid:

* Dilute solution of ethanoic acid (vinegar) is used as a preservative in pickles and ketchup.

* Ethanoic acid is used to making esters, which are used in perfumes and as flavouring agents.

33. What is esterification? Write the uses of esters.

Ans: A chemical reaction between ethanoic acid and ethanol gives sweet smelling ester. **Uses-** Flavouring and tasting agent.

34. What is hydrogenation? What is its industrial application?

Ans: The process of converting unsaturated hydrocarbons in to saturated hydrocarbons by passing hydrogen in the presence of palladium or nickel catalyst is called hydrogenation.

This reaction is used in the manufacture of vegetables oils.

35. Explain the mechanism of the cleaning action of soaps.

Ans: Cleansing Action of Soaps:

(i) The ionic end of soap interacts with water while the carbon chain interacts with oil.

(ii) The soap molecules thus form structures called micelles, where one end of the molecules is towards the oil droplet while the ionic end faces outside.

(iii) Thus, an emulsion forms in water.

(iv) The soap micelles help in pulling out the dirt in water and thus cleans clothes.

36. Explain the formation of scum when hard water is treated with soap.

Ans: A soap is a sodium or potassium salt of long chain fatty acids.

Hard water contains salts of calcium and magnesium.

When soap is added to hard water, calcium and magnesium ions present in water displace sodium or potassium ions from the soap molecules forming an insoluble substance called scum.

37. Why does micelle formation take place when soap is added to water? Will a micelle be formed in other solvents such as ethanol also?

Ans: A molecule of soap is made up of two parts:

(i) The ionic end of soap interacts with water while the carbon chain interacts with oil.

(ii) The soap molecules thus form structures called micelles, where one end of the molecules is towards the oil droplet while the ionic end faces outside.

(iii) Thus, an emulsion forms in water.

(iv) The soap micelles help in pulling out the dirt in water and thus cleans clothes.

No. micelle formation does not take place in organic solvent ethanol, as soaps are insoluble in organic solvents.

Part-C (Biology-28 marks)

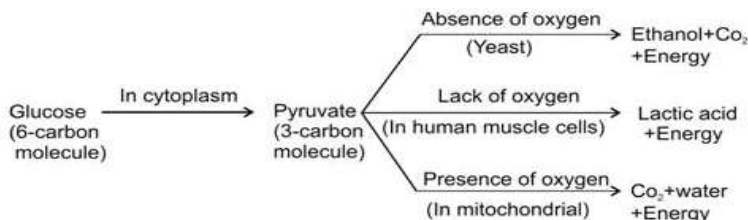
1. Write the functions of digestive enzymes.

Ans: **Salivary amylase** that breaks down complex starch molecule to simple sugar.

- **Pepsin:** digests protein. **Renin:** curdling of milk in infants
- **Trypsin** digests proteins **lipase** breaks down emulsified fats.

2. Briefly explain the pathway of glucose break down in various cells.

Ans:



3. What are the differences between autotrophic nutrition and heterotrophic nutrition?

Autotrophic nutrition	Heterotrophic nutrition
Organisms synthesizes its own food.	Organism cannot synthesize its own food
Organisms use simple inorganic materials like carbon dioxide and water and synthesise their food in presence of sunlight.	Organisms cannot make their own food from simple inorganic matter and depend on other organisms for their food.
All green plants and some algae use this mode of nutrition.	All the animals, most bacteria and fungi use this mode of nutrition.

4. what are the raw materials for photosynthesis?

Ans: CO₂ from the atmosphere. Water from the soil, sunlight from the sun and chlorophyll present in chloroplast found in green leaves and green parts of plants.

5. Why is it necessary to separate oxygenated and deoxygenated blood in mammals and birds?

Ans: (i) it ensures efficient supply of oxygen to the body.
(ii) helpful to supply more energy. (iii) to maintain body temperature.

6. Describe the structure and functioning of nephrons.

Ans: The main components of the nephron are glomerulus, Bowman's capsule, and a long renal tubule.

Functioning of a nephron:

- The blood enters the kidney through the renal artery,
- Waste materials in the blood are filtered and collected by Bowman's capsule.
- Some substances in the initial filtrate, such as glucose, amino acids, salts and a major amount of water, are selectively re-absorbed as the urine flows along the tube.
- The urine forming in each kidney eventually enters a long tube, the ureter, which connects the kidneys with the urinary bladder

7. What are the methods used by plants to get rid of excretory products?

- Ans:** (i) Plants get rid of excess of water by transpiration.
(ii) Waste products are stored in cellular vacuoles.
(iii) Waste products may be stored in leaves that fall off.
(iv) Resins and gums are stored in old xylem.
(v) some waste substances excreted into the soil from roots.

8. Write the events occurring during photosynthesis.

Ans:

- (i) Absorption of light energy by chlorophyll.
(ii) Conversion of light energy to chemical energy and splitting of water molecules into hydrogen and oxygen.
(iii) Reduction of carbon dioxide to carbohydrates.

9. Mention the importance of transpiration in plants

Ans: Transpiration helps in the absorption and upward movement of water and minerals. And helps in temperature regulation.

10. what is double circulation?

Ans: In vertebrates blood goes through the heart twice during each cycle. This is called double circulation.

11. Diagrams given below represent hearts of three different animals. Observe it and answer the question. (June 2019)



Among these, which heart is helpful to the animals that require more energy? Why?

Ans: (i) Heart - 2

(ii) Oxygenated and deoxygenated blood will not mix together Efficient supply of oxygen to the body. Helpful to maintain body temperature.

11. “The rate of breathing in aquatic organisms is much faster than that seen in terrestrial organisms.” Why?

Ans: Because, the amount of dissolved oxygen is fairly low compared to the

13. “The body temperature of frogs and lizards depend on temperature in the environment.” Justify.

Ans: * Both frogs and lizards have three chambered heart.

* Oxygenated and deoxygenated blood mix in the heart.

* Production of energy became slightly less. This energy cannot be used for maintaining constant temperature.

14. Remember Plant hormones and their functions:

plant hormones	Functions
Auxin	helps the cells to grow longer
Gibberellin	help in the growth of the stem
Cytokinins	promote cell division
Abscisic acid	inhibits growth. (Ex-wilting of leaves)

15. Remember List of Endocrine glands, hormone they secrete & their function:

Gland	Hormone	Function
Pituitary Gland	Growth hormone	Controls growth. (Deficiency in the childhood leads to dwarfism & over secretion leads to gigantism.)
Thyroid Gland	Thyroxin	regulates carbohydrate, protein and fat metabolism(Deficiency leads to goitre.)
Adrenal Gland	Adrenaline	Increase heart beat,blood pressure, breathing rate, to face the situation.
Pancreas	Insulin	regulates the blood sugar level. (Deficiency leads Diabetes)
Testis	Testosterone	changes associated with puberty in males
Ovary	Estrogen	changes associated with puberty in females

16. How does chemical coordination occur in plants?

Ans: The growth, development, and responses to the environment in plants is controlled and coordinated by a special class of chemical substances known as plant hormones.

17. What is geotropism?

Ans: Upward growth of shoots and downward growth of roots, respectively, in response to the pull of earth or gravity.

18. A person's face has become pale and his breathing rate has increased due to fear. Analyse the process which enables the person to deal with this situation. (Sept 2020)

Ans: * Adrenaline is directly secreted into the blood. The blood to the skin is reduced due to contraction of muscles around small arteries.

* The breathing rate increases because of the contractions of the diaphragm and the rib muscles. The heart beats faster, resulting in supply of more oxygen to the muscles.

19. How is the function of thyroid gland helpful for balanced body growth in humans?

Ans: Thyroxin regulates carbohydrate, protein and fat metabolism in the body and provides the best balance for growth.

20. Explain the function of pancreas as an endocrine gland.

Ans: Pancreas secretes an important hormone insulin which helps in regulating blood sugar levels.

21. Imagine the following situations:

(i) Clapping at the end of a programme,

(ii) Fluctuating blood pressure in the body.

How these situations are functionally different? Give reason. (June 2019)

Ans: (i) Voluntary action

* Based on deciding what to do next (Action performed based on thinking)

* Controlled by forebrain.

(ii) Involuntary action : * Action without thinking control * Controlled by hind brain.

22. “We withdraw our leg when stepped on thorn unknowingly.”

(a) Trace the sequences of events which occur in this action.

(b) Which part of human nervous system controls this action?

Ans: (a) (i) Receptors receive the stimulus of pain

(ii) Messages reach spinal cord through sensory neuron.

(iii) Responses reach motor neuron through association neuron.

(iv) Responses reach effector through motor neuron.

(v) Muscles withdraw the leg.

(b) Spinal cord / reflex arc.

23. Write the function of Forebrain, Medulla and Cerebellum in human brain.

Ans: Forebrain: 1. Control the voluntary actions.

2. Stores information collected from sense organs (**Memory**)

3. Receives sensory impulses from various body parts and integrates it.

4. Sensation of hunger.

Cerebellum: 1. Controls posture and balance.

2. Control precision of voluntary actions.

Medulla: Controls involuntary actions e.g. blood pressure, salivation, vomiting

24. Micro-organisms like bacteria are called decomposers. Why?

Ans: * Break down the complex organic substances into simple inorganic substances.

* Break down dead remains and wastes of organisms.

25. A student places a piece of cucumber, a glass piece, a banana peel and a plastic pen in a pit and closes it. What changes can be observed in these materials after a month? Give scientific reason for these changes. (April 2019)

Ans: -Cucumber piece and banana peel are organic substances. - They are biodegradable substances, and are ecofriendly.

* Glass piece and plastic pen are inorganic / synthetic substances. -They are non-biodegradable substances and cause soil pollution.

26. “As energy moves progressively through various trophic levels of food chain it is no longer available to the previous level.” Give reasons. The flow of energy in the food chain is unidirectional. Why? Justify.

Ans: The flow of energy in the food chain is unidirectional.

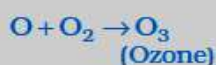
* The energy that is captured by autotrophs does not revert back to the solar input.

* The energy which passes to the herbivores does not come back to autotrophs.

* The energy available at each trophic level gets diminished progressively due to loss of energy at each level.

27. How is ozone formed?

Ans:



OR

At higher level, molecular oxygen is divided by UV radiation and form oxygen atoms. These oxygen atoms further combine with molecular oxygen and form ozone.

28. How is ozone layer getting depleted?

Ans: The synthetic chemicals like chlorofluorocarbons (CFCs), which are used as refrigerants and in fire extinguishers divide ozone in the presence of UV radiations.

29. How is ozone important us?

Ans: It shields the surface of the earth from the ultra violet radiation. This radiation is highly damaging to organisms. It is caused skin cancer in human beings.

30. Give reason: Protecting of ozone layer is necessary. (Sept 2020)

Ans: Ozone layer shields the surface of the earth from ultraviolet radiation from the sun. This radiation is highly damaging to organisms.

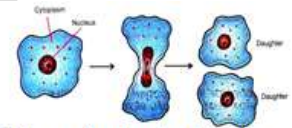
31. Remember the type's asexual reproduction and examples.

Asexual reproduction: It Reproduction involving single parent.

There are different modes of asexual reproduction-

- **Fission:** For unicellular organisms, cell division, or fission, leads to the creation of new individuals.

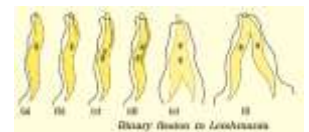
Ex: *Amoeba*, bacteria.



Binary fission in *Amoeba*

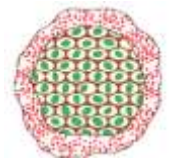
- **Binary fission:** It is a division of the organism such as bacteria into two or more parts. In binary fission division can take place in any plane.

- In some unicellular organism's binary fission occur in a definite orientation. Ex: *Leishmania*.

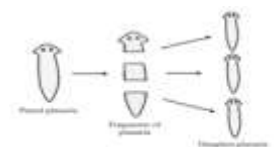


Some single celled organisms divide into many daughter cells simultaneously by multiple fission. Ex: *Plasmodium*.

- **Fragmentation** is another mode of asexual reproduction in which organism breaks into pieces and each piece give rise to a new organism. For example, *Spirogyra*, *Planaria*.

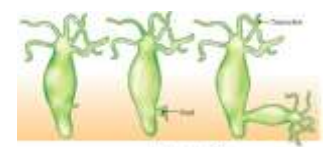


- **Regeneration** is the ability to form new organism from the body parts. Cut or broken part generates a new organism. For example, *Hydra*, *Planarians*



Regeneration *Planaria*.

- **Budding** is defined as an outgrowth from the body of the organism. This outgrowth then detaches from the body and form a new independent organism. For example, *Hydra* and *Yeast*.



Budding in *Hydra*

Vegetative reproduction is another method of asexual reproduction. In this form of reproduction, stem, root and leaves are used to form plants when provided with suitable conditions. Layering and cutting are the two common methods used for vegetative propagation. For example, banana, rose, jasmine etc.

Spore formation is another method of asexual reproduction that involves specific reproductive parts such as blob-on-a stick structure.

Ex *Rhizopus*.



Spore formation in *Rhizopus*

32. what are the advantages of vegetative propagation?

Ans: i. Plants raised by vegetative propagation can bear flowers and fruits earlier than those produced from seeds.

ii. The plant produced through vegetative propagation is genetically identical to parent plant.

33. Define variation?

Ans: Variation is the change in characters or traits of an individual, which has not existed in their parents.

34. What is pollination?

Ans: The transfer of pollen from anther to stigma is called pollination.

35. What is fertilization?

Ans: The fusion of male and female gametes is called fertilization.

36. Name the male and female sexual part of the flower.

Ans: stamen is a male part and pistil is the female part.

37. Name the male and female reproductive structures and secreting hormones of Humans.

Ans: Pair of testicles are the Male reproductive structures and these secrete testosterone hormone

Ovaries are female reproductive structures and these secrete Estrogen hormone.

38. What is menstruation cycle?

Ans: If egg is not fertilised, it lives for about one day and this time inner lining of the uterus slowly breaks and comes out through the vagina as blood and mucous. This is called menstruation. This cycle takes place roughly every month and it is known as menstruation cycle.

39. In sustaining reproductive fertility of a person (June-2019)

(a) position of the testis in the body

(b) secretion of the testosterone

(c) secretion of the prostate gland

are supplementary to each other. Explain scientifically.

Ans: (a) Sperm formation requires a lower temperature than body temperature.

(b) Testosterone regulates / stimulates the formation of sperm.

(c) Secretion of Prostate gland makes the transportation of sperm easier.

Thus, reproductive fertility is sustained by the formation, stimulation to the formation and proper transportation of sperms.

40. "The consistency in DNA replication during reproduction is very important." Justify. (June-2020)

Ans: The consistency of DNA copying during reproduction is important for maintenance of body design features that allow the organism to use that particular niche [area where organisms live].

- Reproduction is linked to the stability of population of species

41. Explain the significant function of each structure in human male reproductive system. (June-2020)

Ans: i) Testis: They produce sperms and testosterone hormone which is responsible for male characters.

ii) **Scrotum:** They regulate temperature necessary for production of sperms.

iii) **Urethra and vas deferens:** Transport sperm from testis.

iv) **Prostate gland and seminal vesicle:**

They add their secretion to make the sperm transport easier and provide nutrition.

v) **Penis:** Delivers the sperms to the site of fertilization.

42. In the human female reproductive system where does fertilization occur?

Ans. Oviduct or Fallopian tube.

43. Explain the development of fertilized egg into a foetus in a woman.

Ans: (september-2020)

- The fertilized egg starts dividing and forms a ball of cells or embryo.
- The embryo is implanted in the lining of the uterus where they continue to grow and develop organs to become foetus.

44. Explain the structure and important role of placenta during gestation period of woman. (June-2020)

Ans: During pregnancy period the embryo gets nutrition from the mother's blood with help of disc shaped special tissue embedded in the uterine wall is called placenta.

- It contains villi on the developing side of the tissue.
- Villi provide glucose and oxygen to pass from mother to embryo.
- Removes the wastes generated from the embryo.

45. In humans, how the surgical contraceptive methods can be used to prevent pregnancy? (September-2020)

Ans: If the vas deferens in the man is blocked, sperm transfer will be prevented. Fertilisation will not take place.

- If the fallopian tube in the woman is blocked, the egg will not be able to reach the uterus. Fertilisation will not take place.

46. Differentiate between male and female gametes.

Male gametes	Female gametes
Smaller in size	larger in size
Does not contain stored food	contains stored food
Motile	Non motile

47. Explain the significant function of each structure in human female reproductive system.

Ans: (i) Ovaries: Produce eggs (female gametes)

(ii) Fallopian tube/Oviducts: Carries the egg from ovary to the womb and is the site of fertilization.

(iii) Uterus: An elastic bag like structure where the embryo is implanted and continues to grow and develop organs to become foetus.

(iv) Vagina: The sperms enter through the vaginal passage during sexual intercourse.

48. What are the different methods of contraception?

Ans: (i) Creation of mechanical Barrier: Condoms on the penis or similar coverings

worn in the Vagina. Using loop or the copper-T inside vagina.

(ii) **Changing the hormonal balance** -by using drugs or pills.

(iii) **Surgical methods:** Blocking the vas deferens in male or the fallopian tube in female.

49. Write the differences between the sex chromosomes of man and sex chromosomes of woman. (April -2019)

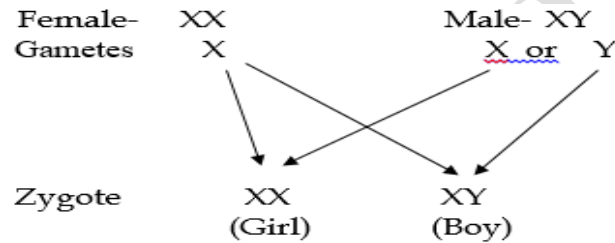
- Woman has a perfect pair of sex chromosomes, both called X.
- Man has a normal sized chromosome X and another short size chromosome Y.

50. Sex of a child is determined by the father. How? / “Chromosomes inherited from the father determines the sex of a child.” Explain. (June-April - 2019)

Ans: A child who inherits X chromosome from her father will be a girl and a child who inherits Y chromosome from his father will be a boy.

56. How is the sex of the child determined in human beings?

Ans:



59. What is the phenotypic and genotypic ratio of monohybrid cross of Mendel's experiment?

Ans: Phenotypic ratio: 3 : 1, Genotypic ratio: 1 : 2 : 1
