

SSLC EXAM 2022

SCIENCE

Important 100+ Questions

By Arun S

learn all the questions and read text book to score Good marks.

KSEEB PREPARATORY EXAM TIME TABLE FEB 2022

Date	Subject	Timings
21/02/2022	1 st Language	10:30AM - 1:45PM
22/02/2022	Social Science	10:30AM - 1:45PM
23/02/2022	2 nd Language	10:30AM - 1:30PM
24/02/2022	Mathematics	10:30AM - 1:45PM
25/02/2022	3 rd Language	10:30AM - 1:30PM
26/02/2022	Science	10:30AM - 1:45PM

KSEEB ANNUAL EXAM TIME TABLE MARCH - APRIL 2022

Date	Subject	Timings
28/03/2022	1 st Language	10:30AM - 1:45PM
30/03/2022	2 nd Language	10:30AM - 1:30PM
04/04/2022	Mathematics	10:30AM - 1:45PM
06/04/2022	Social Science	10:30AM - 1:45PM
08/04/2022	3 rd Language	10:30AM - 1:30PM
11/04/2022	Science	10:30AM - 1:45PM

Answer the Following Questions

1) Name the following:

Question	Answer
Liquid metal at room temperature	Mercury
Name the Liquid non-metal at room temperature.	Bromine
Soft metal that can be cut with a knife	Sodium
two metals which are poor conductors of heat	Lead and Mercury
The non-metal conducting electricity	Graphite
Metal with highest malleability.	Gold
Metal used almost exclusively for making filament of electric bulb	Tungsten
Metals which are kept under kerosene	Sodium and potassium
Name the part of brain maintains posture and equilibrium of the body	cerebellum
Name the type of reaction energy is absorbed	Endothermic
Name the type of reaction energy is released	Exothermic
Name the compound used for white washing.	Quick lime (CaO)
Name the compound used in black and white photography	Silver chloride
Name olfactory indicators	Vanilla essence, onion and clove oil
Name amphoteric oxides	ZnO and Al ₂ O ₃
Gas liberated when an acid reacts with a metal	Hydrogen gas
Substance which turns blue litmus to red	Acids
Substance which turns red litmus to blue	Bases
Example for antacids	Milk of magnesia, sodium hydrogen carbonate
Acid produced in our stomach	Hydrochloric acid
Acid present in nettle sting	Formic Acid
Tooth enamel is made of	Calcium phosphate
Chemical composition of table salt	Sodium chloride
Chemical formula of Bleaching powder	CaOCl ₂

Chemical name and formula of baking soda	Sodium hydrogen carbonate (NaHCO_3)
Chemical formula of Bleaching powder	$\text{Na}_2\text{CO}_3 \cdot 10\text{H}_2\text{O}$
White coloured powder is used by doctors for supporting fractured bones.	Plaster of Paris
Sodium compound used for softening hard water.	Sodium carbonate
Medicine used of treating indigestion/acidity	Antacids
Metal which displaces hydrogen gas from nitric acid	Magnesium
Most ductile metal	Gold
General formula of Alkane	$\text{C}_n\text{H}_{2n+2}$
General formula of Alkene	C_nH_{2n}
General formula of Alkyne	$\text{C}_n\text{H}_{2n-2}$
First member of alkene series	Ethene
First member of alkyne series	Ethyne
First member of alkane series	Methane

2) What is solar cell? List out the applications and limitation of the solar cell?

Ans : Solar cell it is a device that converts solar energy into electrical energy.

Application of solar cell:

- Artificial satellites
- Traffic light controller
- Radio and wireless transmission
- TV relay stations

Limitations:

- Highly expensive
- Low efficiency

3) Define water of crystallization?

Ans: Water of crystallization is the fixed number of water molecules present in one formula unit of salt.

4) Name the principle of an electric motor.

Ans : The electric motor works on the **principle of magnetic effects of current.**

5) Give reasons.

a) Herbivores have longer small intestine as compared to carnivores?

Ans. Herbivores who eat grass need longer small intestine to allow the cellulose to be digested.

b) Mucus is secreted along with hydrochloride acid in the stomach?

Ans. Mucus protects the stomach wall from the action of HCl.

c) magnesium ribbon should be burned before cleaning in air.

Ans. To remove unwanted impurities and to burn only pure magnesium metal.

d) we apply paint on iron articles.

Ans. To prevent the rusting of iron

e) aluminium is a highly reactive metal, yet it is used to make utensils for cooking.

Ans. Aluminium forms a non-reactive layer of aluminium oxide on its surface.

6) a) Refractive index of water is 1.33, what does it mean?

Ans : This means the ratio of the speed of light in air and the speed of light in water is equal to 1.33

b) Name the factors that influence the refractive index.

- Nature of a medium
- Density of a medium
- Colour of light (wave length)

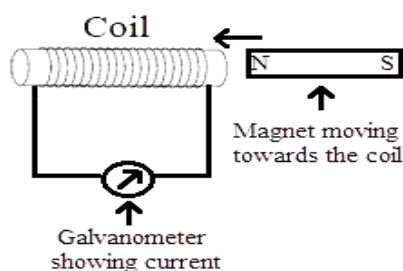
7) Write the properties of Magnetic field lines.

Ans : The magnetic field lines have the following properties:

- They originate from north pole of a magnet and end at its south pole.
- These lines are closed and continuous curves.
- They are crowded near the poles, where the magnetic field is strong and separated far from the poles, where the magnetic field is weak.
- Field lines never intersect with each other. If they do, that would mean that there are two directions of the magnetic field at the point of intersection, which is impossible.

8) Explain Faraday's experiment of magnet and coil. State Electromagnetic induction with the help of this experiment .

Ans:



- The phenomena of inducing an electric current in a coil by changing magnetic field around it is called electro magnetic induction .
- Take a coil of wire AB having a large number of turns and connect the ends of the coil to a galvanometer .
- Take a strong bar magnet and move it's north pole towards the ends B of the coil .
- Now there is a deflection in the needle of the galvanometer which indicates the presence of a current in the coil AB .
- Now withdraw the north pole of magnet away from the coil . Now the galvanometer is deflected towards the left , showing that the current is now set up in the direction opposite to the first.
- When the coil is kept stationary with respect to the magnet , the deflection of the galvanometer drops to zero.

09) List the uses of convex mirror and concave mirror

Ans : **Uses of convex mirror :**

- Convex mirror is commonly used as rear- view Mirrors in vehicle. These mirrors are fitted on the sides of the vehicle, enabling the driver to see traffic behind him/her to facilitate safe driving.
- Convex Mirrors are preferred because they always give an erect, though diminished image. Also, they have a wider field of view as they are curved outwards.

Uses of concave mirrors:

- Concave mirrors are commonly used in torches, search - lights and vehicles headlights to get powerful parallel beam of light.
- Concave mirrors are often used as shaving mirrors to see a large image of the face.
- The dentist use concave mirrors to see large images of teeth of patients.
- Large concave mirrors are used to concentrate sunlight to produce heat in solar furnaces.

10) Ionic compounds in solid state do not conduct electricity, but in molten State are good conductors of electricity. why?

Ans: Ionic compounds in solid state do not conduct electricity, but in molten State are good conductors of electricity because in molten State ions become mobile and conduct electricity whereas in solid form, ions are fixed in a lattice and thus the salt does not conduct electricity.

11) What is synapse?

Ans: The gap between two neurons is called synapse.

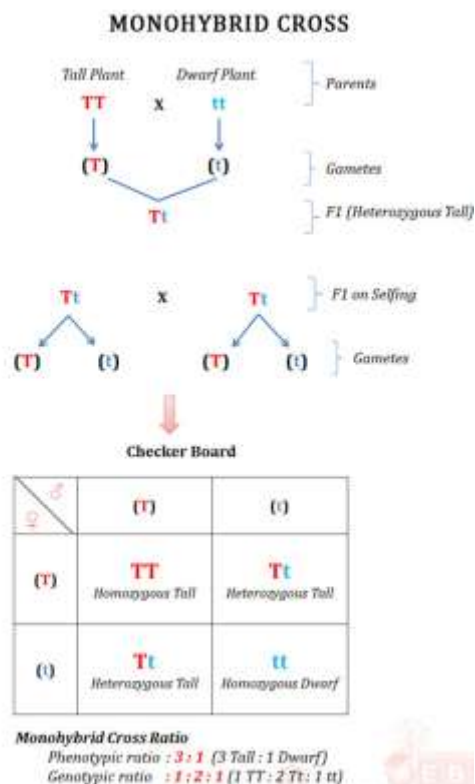
12) Write the difference between Electric motor and Electric generator

Ans:

Electric motor	Electric Generator
It converts electric energy into mechanical energy.	It converts mechanical energy into electrical energy.
Current is supplied to the coil	Current is induced in the coil.
It is based on magnetic effect of electric current	It is based on electromagnetic induction
It follows Fleming's left hand rule	It follows Fleming's Right-hand rule

13) How do Mendel's Experiment shows that traits may be dominant or recessive ?

Ans :



- When Mendel crossed pollinated pure tall pea plant with pure dwarf pea plant, he got tall plants in F1 generation.
- When Mendel self-pollinated F1 tall plant, he got both tall and dwarf plants in the ratio of 3 : 1
- This shows that dwarf character was present in F1 generation but it was not expressed and only trait of tallness was expressed.
- From this we conclude that the traits may be dominant or recessive.
- The trait which gets expressed in the presence of its contrasting form is called dominant trait and the trait which remain unexpressed in the presence of its contrasting form is called recessive trait.

14) Explain male reproductive system ?

Ans: The male reproductive system consists of different parts they produce the germ cells and deliver the germ cells to the site of fertilisation.

Testis

Testis are paired, oval shaped male sex organs.

The Functions of Testis are

- Male gametes sperms are produced.
- Produce a male sex hormone called testosterone.

Scrotum

Small pouch that contains testis. Present outside the abdominal cavity. As sperms are formed here, this requires a lower temperature than the normal body temperature.

Vas deferens

Tube- like structure which connects testis to the urethra in order to allow the passage of semen

Urethra

Common passage for not the sperms and urine. It never carries both of them at the same time. Secretes seminal fluid and nutrients

Prostate gland and seminal vesicles

Fluid and nutrients combine with sperm to form semen, for nourishing and stimulating sperms

Penis

External male genital organ. Transfer sperms into the vagina of the female during copulation.

15) Define Magnification.

Ans: Magnification produced by a spherical mirror gives relative extent to which the image of an object is magnified with respect to the object size.

It is expressed as the ratio of the height of the image to the height of the object.

$$m = \frac{\text{height of the image}}{\text{height of the object}}$$

$$m = h' / h$$

The magnification m is also related to the object distance (u) and image Distance (v).

it can be expressed as.

$$\text{Magnification (m)} = \frac{-v}{u}$$

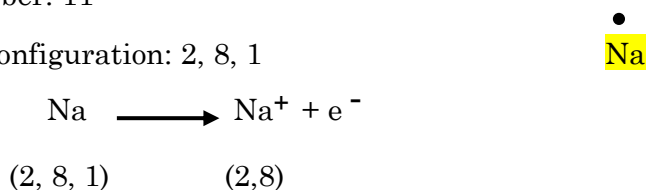
16) Electron dot structure of

- a) sodium b) oxygen c) magnesium d) Chlorine

Sodium

Atomic Number: 11

Electronic Configuration: 2, 8, 1

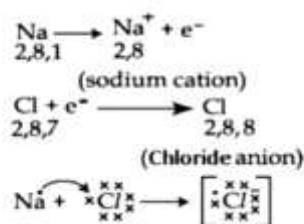


17) Show the formation of following compounds by transfer of electrons.

- a) NaCl b) MgO c) Na₂O d) MgCl₂

a) NaCl

Try Yourself (b, c, d)



18) State The limitations of Mendeleev's classification.

Ans : The Limitations of Mendeleev's Classification are

- Position of hydrogen was not justified
- Increasing order of atomic could not be maintained
- Isotopes have similar chemical properties but different atomic masses ,they cannot be given separate places.

19) What were the limitations of Newland's law of octaves?

Ans : The Limitations of Newland's law of octaves are

- The law was applicable to elements up to calcium (ca) only.
- It was assumed by Newland that only 56 elements existed in nature and no more elements would be discovered in the future but later on several new elements were discovered whose properties didn't fir into the law of octaves.
- In order to fit elements into the table, Newland's adjusted two elements in the same slot but also put dissimilar elements under same note. resembles cobalt and nickel in properties, has been placed differently away from these elements.

20) Compare Mendeleev's periodic table with modern periodic table.

Ans :

Mendeleev's periodic table	Modern periodic table
Elements are arranged in the order of increasing atomic mass.	Elements are arranged in the order of increasing atomic number.
There are nine vertical columns called group.	There are eighteen vertical columns called group.

21. State joule's law of heating

Ans :

$$H = I^2 R t$$

Joule's law of heating states that the heat produced in a resistor is

- Directly proportional to the square of current for a given resistance
- Directly proportional to the resistance for which given current
- Directly proportional to the time for which current flow

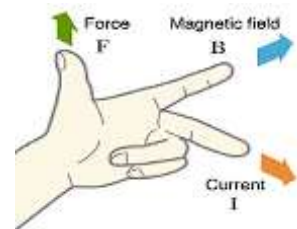
22. State Newland's laws of octaves

Ans- Newland arranged known elements in the order of increasing atomic mass and it was found that every eight element had properties similar to that of first.

23. State Fleming left hand rule

Ans. Fleming left hand rule states that stretch the thumb, forefinger and middle finger of left hand, which are mutually perpendicular to each other.

- Fore Finger - Direction of magnetic field
- Middle finger - Direction of current
- Thumb finger - Direction of motion of conductor



24. Write the properties of ionic compounds

Ans : The properties of ionic compounds are

- Ionic compounds consist of ions.
- Ionic compounds are solid.
- Ionic compounds have high melting and boiling point.
- Ionic compounds are generally Soluble in water.
- Ionic compounds conduct electricity in molten state.

25. a) Write the uses of baking soda.

The uses of baking soda are

- Baking soda is used in soda acid fire extinguisher.
- Baking soda is used as an ingredient in antacid.
- Baking soda is used for making baking powder

(Baking powder is mixture of baking soda and Tartaric acid).

b) Write the uses of washing soda.

The uses of washing soda:

- Sodium carbonate (washing soda) is used in glass, soap and paper industries.
- It is used in the manufacture of sodium compounds such as borax.
- It is used as cleaning agent for domestic purpose.
- It is used for removing permanent hardness of water.

26. Mention the products obtained during chlor-alkali-process?

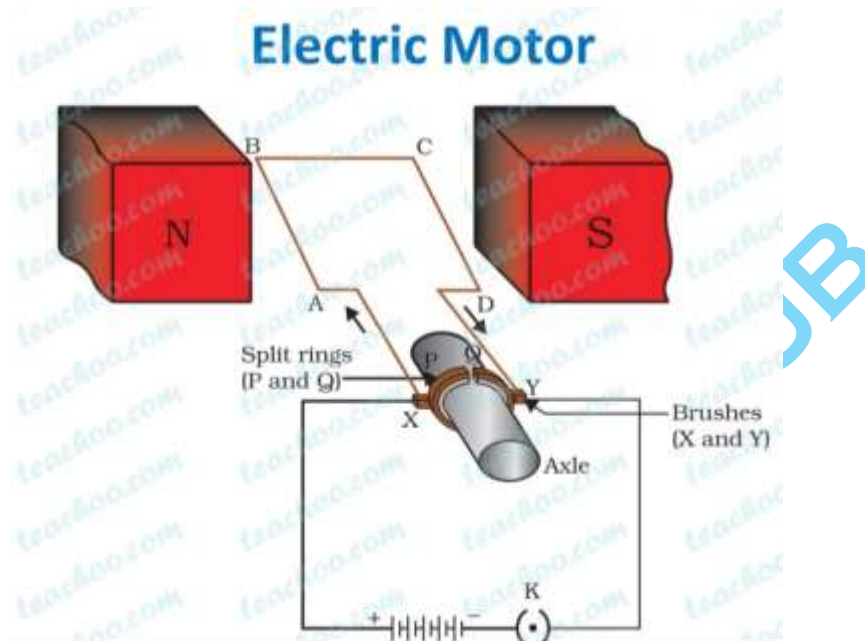
Ans: The products formed in chlor-alkali-process is

- Chlorine gas at the anode.
- Hydrogen gas at the cathode.
- Sodium hydroxide in the solution.

27. What is catenation?

Ans : Carbon has the unique property to form bonds with other atoms of carbon giving rise to large molecules this property is known as Catenation.

28. Draw a neat labelled diagram of Electric Motor.



29. State laws of refraction

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 and given colour and for the given pair of media. This law is also known as Snell's law of refraction.

$$\frac{\sin i}{\sin r} = n$$

30. Why is sodium kept immersed in kerosene oil?

Ans: Sodium is very reactive metal if it is exposed to air, it reacts vigorously and catches fire, hence sodium is kept immersed in kerosene oil.

31. How does overloading and short-circuit occur in an electric circuit? Explain. What is the function of a fuse during this situation?

Ans :

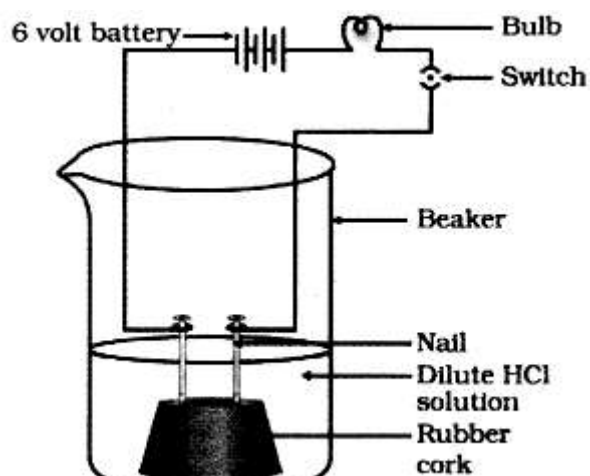
Overloading and Short-circuit

- Overloading can occur when the live wire and the neutral wire come into direct contact.
- Overloading occurs when the insulation of wires is damaged or there is a fault in the appliance or when many electrical appliances are connected to one circuit simultaneously.
- In such a situation, the current in the circuit abruptly increases and short circuit occurs.

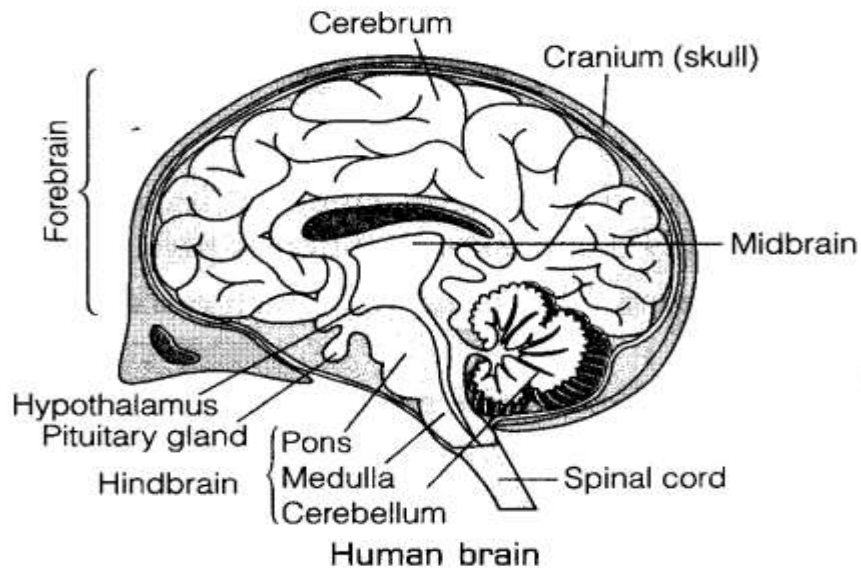
Fuse

- Fuse is an electrical safety device that made of alloys and has high resistance and low melting points.
- When excess current flows during over loading and short circuit the fuse wire melts and breaks the circuit and protect the devices from damage.

32. Draw the diagram of the arrangement of apparatus to show the electrolysis of water.



33. Draw the diagram showing structure of human brain.



34. Write the uses of Bleaching powder.

The uses of Bleaching powder are:

- Used as a bleaching agent in the textile industry.
- As an oxidising agent in many chemical industries.

35. Why are traits acquired during its lifetime of an individual not inherited?

Ans: Acquired traits are not inherited because they do not cause any change in the DNA of the organism.

(Traits acquired by an organism during its lifetime are known as acquired traits)

36) Give Reasons

a) Power of lens is +2.0D. What do you mean by this statement?

Ans: This means the lens prescribed is convex

The focal length of lens is +0.5 metres

b) Power of lens is -3.0D. What do you mean by this statement.

Ans: This means that lens prescribed is concave

The focal length of lens is +3.0 meters

37) Explain the versatile nature of carbon?

Ans : Versatile nature of carbon is due to two special properties Catenation and tetravalency

i) Catenation :

- Carbon has the unique ability to form bonds with other atoms of carbon, giving rise to large molecules This Property is called Catenation.
- These compounds may have long chains of carbon, branched chains of carbon or even carbon atoms arranged in rings. In addition carbon atoms may be linked by single, double or triple bonds.
- Compounds of carbon having single bond between carbon atoms are called Saturated compounds.
- Compounds of carbon having double or triple bonds between their carbon atoms are called unsaturated compounds

ii) Tetravalency

- Since carbon has a valency of four. it is capable of bonding with four other atoms of carbon or atoms of some other monovalent elements
- Compounds of carbon are formed with oxygen, hydrogen nitrogen, Sulphur chlorine and many other element giving the rise to Compounds with specific property which depend on the elements other than carbon Present in the molecule.

38)

a) What is combination reaction?

A reaction in which two or more reactants combine to form a single product is called combination reaction

Example :

b) What is decomposition reaction?

A reaction in which a single reactants breaks down to form two or more products ,is known as decomposition reaction.

Example :

c) What is displacement reaction ?

When a more reactive element displaces less reactive element from its compounds, it is called displacement reaction.

Example :

d) What is double displacement reaction?

The reaction in which two different ions or group of atoms in the reactant molecules are displaced by each other is called double displacement reaction.

Example :

39) What is homologous series?

Ans : Series of compounds with some functional groups and similar chemical properties in which each successive member differ by CH_2

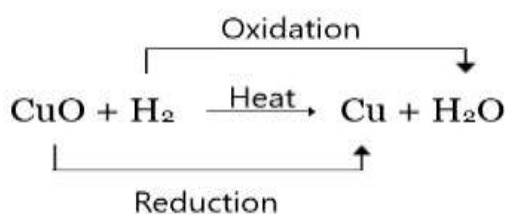
Example:

Alkane	General formula — $\text{C}_n\text{H}_{2n+2}$
Methane	CH_4
Ethane	C_2H_6
Propane	C_3H_8
Butane	C_4H_{10}

$\left. \begin{array}{l} \text{CH}_4 \\ \text{C}_2\text{H}_6 \\ \text{C}_3\text{H}_8 \\ \text{C}_4\text{H}_{10} \end{array} \right\} -\text{CH}_2$

40) What is Redox reaction? Give example.

Ans : A chemical reaction in which oxidation and reduction take place simultaneously are called redox reaction.



41. What is rancidity? Mention ways by which rancidity can be prevented.

Ans: When the substance containing oils and fats are exposed to air they get oxidised and become rancid due to which their smell, taste and colour change. This process is known as rancidity.

It can be prevented by –

- Adding antioxidants
- Flushing with nitrogen gas

42. What are amphoteric oxides? Give Example.

Ans: Metal oxides which show acidic as well as basic behavior i.e. they react with both acids as well as bases to produce salt and water are known as amphoteric oxides.

Example: Aluminium Oxide (Al_2O_3)

Zinc Oxide (ZnO)

43. What is acid rain?

Ans : When the pH of rain water is less than 5.6, it is called acid rain

44. Name the factors on which resistance of a conductor depends on.

Ans : The resistance of a conductor depends on

- i) Length
- ii) Area of cross section
- iii) Nature of its material
- iv) its temperature

45. State Ohms law.

Ans: Ohms law states that “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.”

Mathematically

$$V \propto I$$

$$V = I \times R$$

Where V = Potential Difference

I = Current

R = Resistance

46. Write the functions of the following hormone.

a) Thyroxin b) Insulin

Ans :

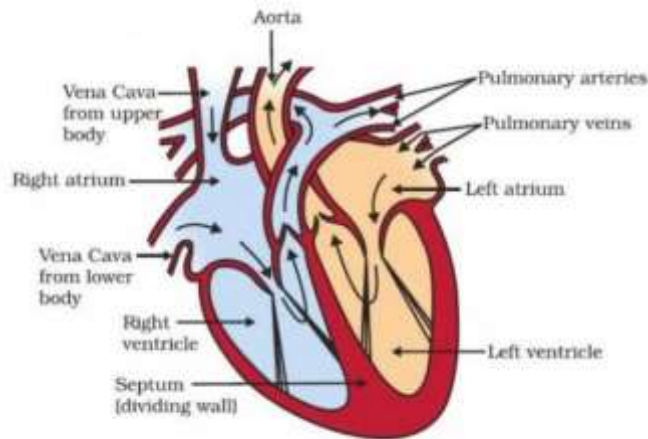
- a) Thyroxin regulates carbohydrate, protein and fat metabolism in the body so as to provide the best balance for growth.
- b) Insulin helps in regulating blood sugar levels.

47. What is the function of placenta during pregnancy.

Ans :

- The embryo gets nutrition from the mother’s blood with the help of placenta
- The waste substance generated by embryo is removed through placenta

48. Draw a neat labelled diagram of Human heart.



49. Write the difference between Homologous and Analogous organs.

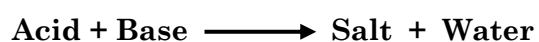
Homologous organs	Analogous organs
<ul style="list-style-type: none"> • They have same origin 	<ul style="list-style-type: none"> • They differ in origin
<ul style="list-style-type: none"> • Structure is similar 	<ul style="list-style-type: none"> • Structure is different
<ul style="list-style-type: none"> • Perform different function 	<ul style="list-style-type: none"> • Perform same function
<p>Example : The forelimbs of frog, man, and the flippers of the whale</p>	<p>Example : The wings of insects, bats and birds</p>

50. Name the gas liberated when an acid reacts with a metal?

Ans : Hydrogen gas.

51. What is neutralisation reaction? Give example.

Ans : The reaction between an acid and a base to give salt and water is called neutralisation reaction.



52. What are fossils? How is the age of fossil determined?

Ans: Preserved traces of living organisms in earth's crust are called fossils.

Determination of age of fossils:

- i) One is relative, the fossils we find closer to the surface are more recent than we find in deeper layers of earth's crust.
- ii) Second way of dating fossils by detecting the ratios of different isotopes of same element in the fossil material.

53. State a) Mendeleev's periodic law b) Modern periodic law

Ans :

- a) Mendeleev's periodic law states that "The properties of elements are the periodic functions of their atomic masses".
- b) Modern Periodic Law states that "The properties of elements are the periodic functions of their atomic number".

54. Define refractive index of a medium.

Ans: The refractive index (n) of a transparent medium is the ratio of speed of light in vacuum (c) to the speed of light in medium(v)

$$n = \frac{c}{v}$$

- n = refractive Index
- c = speed of light in vacuum/air
- v = speed of light in medium

55. Name the filtration unit of Kidney.

Ans : Nephron.

56. Define power of a lens.

Ans : Power of a lens is defined as the reciprocal of its focal length.

$$P = \frac{1}{f(\text{in meter})}$$

- P = Power
- f = focal length

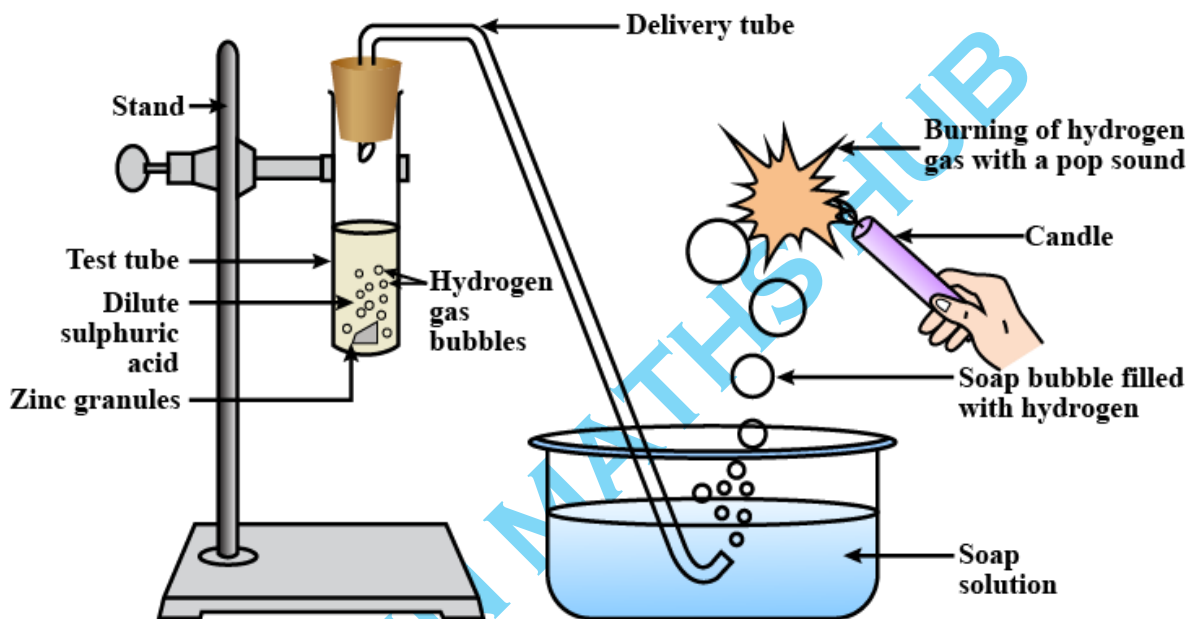
Note: SI unit of Power of Lens is Dioptre

57. Define Speciation. List the factors that help in speciation.

Ans : Speciation is a formation of new species from pre existing population.

- ✓ Natural selection
- ✓ Geographic isolation
- ✓ Genetic Drift
- ✓ Change in DNA or Number of Chromosomes.

58. Diagram Reaction of Zinc granules with dilute sulphuric acid



59. State the laws of reflection

Ans: 1st law : The angle of incident is equal to the angle of reflection.

2nd law : The incident ray, the normal to the mirror at the point of incidence and the reflected ray all lie in the same plane.

60. List the characteristics of good source of energy

The Characteristics of good fuel are:

- Large amount of work per unit volume / mass.
- Easily available.
- Easy to transport.
- Less pollution and smoke free
- Cheap and economical.

61. List out the disadvantages of fossil fuels?

Ans :

- i) Burning of coal or petroleum products causes air pollution.
- ii) The oxides of Carbon, Nitrogen and Sulphur are released on burning fossil fuels forms acidic oxides. It leads to acidic rain and affect water and soil.

62. Define the following

- a) Malleability: Metals can be beaten into thin sheets .This property is called malleability.
- b) Ductility: The ability of metals to be drawn into thin wires is called ductility.
- c) Sonorous: The metals that produce a sound on striking a hard surface are called sonorous.

63. What are decomposers write it role?

Ans: Organism that feed on dead plants and animals are called decomposers, e.g. Bacteria, fungi, etc. They breakdown the complex organic compounds present in dead remains into simpler substance and obtain nutrition from them and these substances are released into soil and the atmosphere.

Decomposers play the following roles

1. They help in recycling of materials replenishment of the soil' s nutrients, etc.
2. They clean our surroundings by decomposing dead organism waste.

64. In the following food chain , grass provides 4000j of energy to the grasshopper, grass, grasshopper, frogs, snake. how much energy will be available to snake and frog?

Ans :



- Energy available at Frog is 40j
- Energy available at Snake 4j

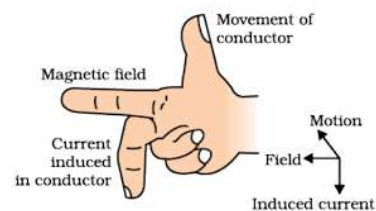
65. What is ozone?

Ans: Ozone is a molecule formed by three atoms of oxygen (O₃), which protects earth from harmful ultraviolet radiation.

66. State Fleming right hand rule.

Ans : Fleming right hand states that stretch the thumb finger , forefinger and middle finger of right hand so that they are perpendicular to each other

- Forefinger-indicates the direction of magnetic field.
- Middle finger-direction of motion of induced current.
- Thumb finger-direction of motion of conductor.



66. What are the different methods of contraception?

- Barrier method : Condom, diaphragm, Copper -T.
- Hormonal methods : Oral contraceptive pills
- Chemical methods : Spermicide
- Surgical Method : Vasectomy, tubectomy

67. What could be the reason for adopting contraceptive method?

The reason for adopting contraceptive method is

1. To avoid frequent pregnancies, which in turn helps in population control.
2. To prevent the spread of sexually transmitted diseases (STDs)

68. What are Functional Groups. List the functional group of carbon.

Ans : If an atom or group of atom which Confers the specific Properties for the compounds is known as functional group.

Hetero atom	Functional group	Formula of functional group
Cl/Br	Halo- (Chloro/bromo)	-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	$\begin{array}{c} \text{O} \\ \\ \text{---C---OH} \end{array}$

69. State Dobereiner's laws of triads?

Ans- Dobereiner identified the group of three element with similar properties called as triads.

The elements in triads were arranged in the increasing order of atomic masses. the atomic mass of middle elements was roughly the average of atomic masses of the other two elements.

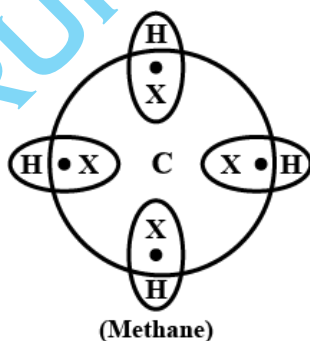
70. Write the structures of the following carbon compound.

1. Methane. 2. Ethane. 3. Propane. 4. Butane. 5. Pentane. 6. Hexane. 7. Ethene. 8. propene. 9. Butene. 10. Pentene. 11. Hexene. 12. Ethyne. 13. Propyne. 14. Butyne. 15. Pentyne. 16. Hexyne. 17. Benzene. 18. Cyclo hexane. 19. Cyclo pentane.

71. Explain the dot structure of methane.

Ans: Compound : Methane

- Molecular formula: CH_4
- Valency of carbon: 4
- Valency of hydrogen: 1



- Methane has molecule formula CH_4
- Carbon is tetravalent because it has 4 valence electrons and hydrogen has 1 electron
- In order to achieve noble gas configuration carbon shares valences electrons with 4 atoms of hydrogen.

72. What happens when fertilisation does not occur in female body ?

Ans : In female, ovaries release ovum or eggs once every 28 days from the age of puberty. The uterus prepare itself every month to receive a fertilised egg. This, its lining becomes thick and spongy. If the egg is not fertilised it lives for about a day. Afterwards this lining of uterus is no longer required and menstruations occurs.

Menstruation is the phase of uterine bleeding in which an unfertilised egg and the thick uterine lining . It occurs through the vagina as blood and mucus. Menstruation lasts for 3 -5 days

73. Explain female reproductive system?

Ans : The female germ cell or eggs are made in ovaries and also responsible for the production of some hormones.

Ovaries

- Paired, oval-shaped organs located in the abdominal cavity near the kidney
- Produce thousands of egg cells.
- Secrete female sex hormone like oestrogen and progesterone.

Oviduct

- It has a funnel shaped opening near the ovary.
- Carries ova or egg from ovary to the uterus .
- It is the site of fertilisation
- These open into the uterus from both the sides.

Uterus

- Hollow, pear shaped bag like structure .
- Here the growth and development of foetus take place.

Cervix

- It is lower and narrower portion of uterus which opens into vagina .

Vagina

- Receives the sperms from the male partner and serves as a birth canal.

74) Important Key Words related to electricity.

Key Word	Meaning / Definition
Electric Circuit	A continuous and closed path of an electricity is called electric circuit.
One Ampere	One Ampere is constituted by the flow of one coulomb of charge per second.
Ammeter	An instrument used to measure electric current in a circuit. (It is always connected in series)
Potential Difference	Electric potential difference between two points in an electric circuit carrying some current is the work done to move a unit charge from one point to another.
One Volt	Electric potential difference between two points in a current carrying conductor when 1 joule of work done to move a 1 coulomb of charge from one point to another.
Voltmeter	An instrument used to measure Electric potential difference in a circuit. (It is always connected in parallel)
Resistance	Resistance is the property of a conductor to resist the flow of charges through it.
Resistivity	Resistivity is defined as the electrical resistance of a conductor of unit cross-sectional area and unit length.
Electric Power	Electric power gives the rate at which electric energy is dissipated or consumed in an electric circuit.
1 Watt	It is the power consumed by a device that carries 1A of current when operated at a potential difference of 1V.
One watt hour	Power consumed when 1 watt of power is used for 1 hour.

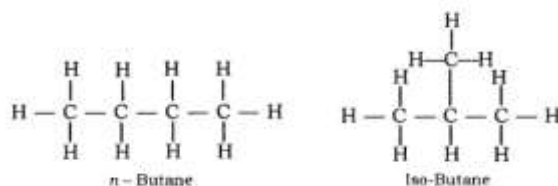
75) Write the SI units of the following.

Electric Charge	Coulomb(C)
Electric Current	Ampere (A)
Potential Difference	Volt (V)
Resistance	Ohm (Ω)
Resistivity	Ohm-metre (Ω -m)
Electric Power	Watt (W)

76) Define Isomers. Write the isomers of the following carbon compounds.

Ans: Compounds having same molecular formula but different structural arrangements are called isomers

Example :

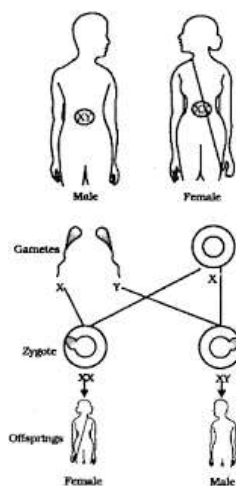


77) What is reflex action and reflex arc?

Ans:

- Reflex action : Reflex action is an automatic and immediate response to the external stimulus by the spinal cord independent of brain is called reflex action.
- Reflex arc : The path way involved in the reflex action is called reflex arc.

78) How is the sex of the child Determine in human being ?



- In human beings, sex is determined by the XX-XY chromosomes.
- Females contain XX chromosomes and males contain XY chromosomes.
- So, if the male gamete X chromosome fuses with the female X chromosome, then the child will be female or when male gamete Y fuses with the female X chromosome then it will be the male child.

79. Name the methods of Waste Disposal.

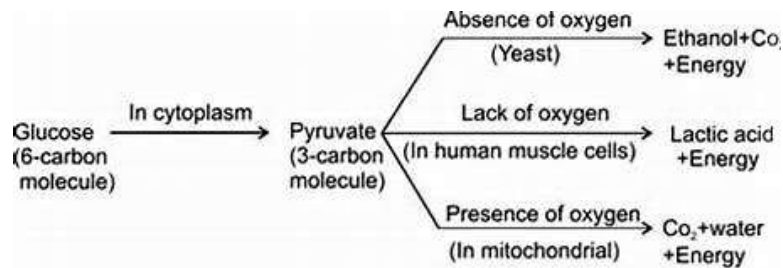
Ans : There are various methods of waste disposal are as given below

- (i) Recycling (ii) Composting (iii) Incineration
- (iv) Landfills (v) Sewage Treatment (vi) Biogas Production

80. What are the different ways in which glucose is oxidized to provide energy in various organisms?

Ans : First step of breakdown of glucose into pyruvate which takes place in cytoplasm.

Further breakdown of pyruvate the take place in different manners in different organisms.



Anaerobic respiration:

1)When breakdown of glucose is carried out in the absence of oxygen in a cell it is called anaerobic respiration.

2)This type of respiration is observed in yeast where pyruvate is converted into ethanol carbon dioxide and energy.

3)sometimes when there is a lack of oxygen especially during sudden activity in our muscle pyruvate is converted into lactic acid and energy which causes cramps.

Aerobic respiration:

1)When breakdown of glucose is carried out in the presence of oxygen in cell it is called aerobic Respiration.

2) During this type of respiration pyruvate is converted into carbon di oxide, water and energy is released.

81. why is the use of iodised salt advisable.

Ans : Iodised salt is advisable because it contains iodine, which is essential elements, for the synthesis of thyroxine hormone by thyroid gland in case iodine is deficient in our diet there is a possibility of suffering from simple goitre.

82. Write the dual purpose served by urethra in males.

Ans : The urethra of male function both for the passage of sperms and urine .

83. a) Define atomic size .

b) Atomic size increases down the group Explain

c) Atomic size decreases across the period Explain.

Ans: a) The term atomic size to the radius of an atom. The atomic size may be visualised as the distance between centre of the nucleus and the outermost shell of an isolated atom.

b) Ans : The atomic size increases down the group. This is because new shell are being added as we go down the group. This increases the distance between the outermost electrons and the nucleus so that the atomic size increases are spite of the increase in nuclear charge.

C) Ans : The atomic radius decreases in moving from left to right along a period. This is due to increase in nuclear charge which tends to pull the elections closer to the nucleus and radius and reduces the size of the atom.

84.) Explain Metallic and Non-Metallic Properties

Ans : **Metallic properties :**

- Elements having tendency to lose one or more electrons and form positive ions are called metals
- These are present on the left side as well as in the centre of the periodic table. The tendency of these elements of lose electrons is called their metallic character.
- Variation Along a period and group
- As the effective nuclear charge acting on the valence shell electrons increases across a period, the tendency to lose electrons will decrease.
- Down the group, the effective nuclear charge experienced by valence electrons decreases because the outermost electrons are farther away from the nucleus. Therefore , these can be lost easily . Hence metallic character decreases across a period and increases down a group

Non-Metallic Properties

- Non-metals are the elements which have a tendency to gain one or more electrons to form negative ions , Thus there are electronegative elements.
- Thus are present on the right side in the periodic table .
- Variation Along a period and a Group.
- Non - Metallic character, however increases across a period and decreases down a group

85. Variation that confer an advantage to an individual organism only will survive in population justify.

Ans : Reproductive processes, especially sexual reproduction, give rise to new individuals that are similar , but subtly different. Thus, different variants emerge in a species. The variants which are suitable to prevailing environment survive by natural selection. Other members of a species may vanish.

Environment also goes on changing. now, individuals which are suitable to the changed environment will survive. Thus, continuity of the species will be maintained. For example: Bacteria variants which can tolerate heat will survive bacteria in a heat wave than variant which cannot withstand heat wave, It provides that creation of variations in a species promote survival.

86. Why are some patients of diabetes treated by giving injection of insulin.

Ans:

- Insulin is a hormone produced by the pancreas and helps in regulating blood sugar levels in our body.
- If sugar level increases in the blood due to lack of insulin it leads to many harmful effects.
- Hence diabetes patients are given injections of insulin to fulfil the requirement of insulin in their body.

87. Name a sexually transmitted disease and a method to avoid it.

Ans : Sexually transmitted disease are

- a) Gonorrhoea or syphilis.
- b) AIDS / warts STDs spread thorough sexual act.

Methods to avoid it:

- Using condom for the penis during sex helps to prevent transmission of many of these infections to some extent.
- Avoiding multiple sexual contacts.

88. Explain Double circulation ?

Ans : During double circulation in human beings, blood passes through heart twice for completing one cycle of circulation.

The double circulation includes the following processes

(i) Pulmonary circulation:

In this circulation, the deoxygenated blood is pushed by right ventricle to the lungs for oxygenation through pulmonary artery. This oxygenated blood is then brought back to the left atrium of the heart through pulmonary veins.

(ii) Systemic circulation :

In this circulation, oxygenated blood brought to left atrium goes to the left ventricle. It is then passed on to different body parts of body through aorta.

Such separation allows a highly efficient supply of oxygen to the body. This is useful in animals that have high energy needs, such as birds and mammals, which constantly, use energy to maintain their body temperature.

89. How are fat digested in our body? Where does this process take place?

Ans: Digestion of fat takes place in the small intestine. Fat reaches the small intestine in the form of large globules. The liver releases bile juice which emulsifies the fat i.e. it breaks down the large globules into smaller globules. Lipase acts and breaks down the globules into molecules. The small intestine then releases juices that convert these fat molecules into fatty acids and glycerol, which can be used by the body.

90. list the different strategies plants used for excretion.

Ans :

- They can get rid of excess water and oxygen through stomata.
- Many plant waste Products are stored in cellular vacuoles.
- waste Products may be stored in leaves that fall off.
- waste Products are stored as resins and gums especially in old xylem.

91. Name the plant hormone responsible for Phototropism. Explain it's effect?

Ans :

- Auxin is the plant hormone responsible for phototropism.
- Auxin is the plant growth hormone which Synthesized at the shoot tip it promote all cell elongation, root formation it also leads to apical dominance and Phototropism

92. Give reason.

a) Series arrangements are not used for domestic circuits.

Ans:

- In series arrangements same current will flow through all the appliances, which is not desired.
- Total resistance becomes large and the current gets reduced.
- We cannot use independent on/off switches with individual appliances.

b) Platinum, gold and silver are used to make jewellery.

Ans: Because the metals used in jewellery are highly lustrous metals which are resistant to corrosion. They are highly malleable and ductile. So, it can be transformed into any shape.

c) Ventricles have thicker muscular walls than the atria.

Ans: Their muscular walls are thicker than the atria because they have to pump blood out of the heart to various organs of the body

d) Transpiration is useful to plants

Ans : Transpiration is useful to plants because

- Transpiration in the absorption and upward movement of water and dissolved minerals from roots to the leaves.
- it also regulates the temperature of leaves.

e) Veins have thin wall as compared to atria.

veins collect the blood from different organs and bring it back to the heart. The blood in the veins is under low pressure than artery so Veins have thin wall as compared to atria.

f) blood circulation in human heart called as called as double circulation.

Ans: The main difference is that the blood follows twice-one for oxygenated blood and the another one for deoxygenated blood. The majority of mammals, including humans utilize a double circulatory system.

g) Herbivores have longer small intestine as compared to carnivores?

Herbivores who eat grass need longer small intestine to allow the cellulose to be digested.

h) Mucus is secreted along with hydrochloride acid in the stomach?

Ans. Mucus protects the stomach wall from the action of HCl.

i) Refractive index of rock salt is 1.54. what do you mean by this statement?

Ans : The ratio of speed of light in air and the speed of light in rock salt is equal to 1.54.

j) Tungsten is widely used for filament of electric bulbs.

Ans : Tungsten has high resistance and high melting point when the current is passed through it, it becomes hot and emits light.

k) Coils of electric heating devices are made of an alloy rather than a pure metal.

Ans : Resistivity of an alloys is greater than its constituent metals hence they do not oxidise (burn) at higher temperature.

93. What is lymph? Mention the functions of lymph.

Lymph is colourless and contains Less protein than plasma. lymph is colourless fluid containing white blood cells.

Functions.

- Carry digested fat/absorption of fat.
- Drains excess fluid from extra cellular space back into the blood.

94. Define electro negativity and Electro positivity?

Ans:

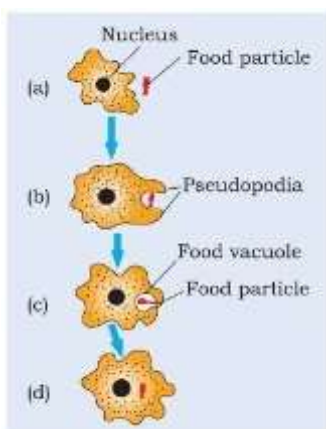
Electro negativity

The electronegativity of an element is the tendency of an atom to attract in its combined state It also shares a Pair of bonded electrons.

Electro positivity.

The electro positivity of an element is the tendency of an atom to donate electrons and also withdraw from the covalent bonds only to form Positively charged cations (ion).

95. Explain the process of nutrition in Amoeba?



- Amoeba takes in food using temporary finger like extensions of the cell surface which fuse over the food - particle forming a food vacuole.
- Inside the food vacuole complex substances are broken down to simplex ones which then diffuse into the cytoplasm.
- The remaining undigested material is moved to the surface of the cell and thrown out of the body.

96. a) Why should curd and sour substances not be kept in brass and copper vessels?

Ans: Curd and sour substances are acidic and acids react with brass and copper and so are not kept in brass and copper vessels.

b) Why does an aqueous solution of an acid conduct electricity?

Acids give ions in aqueous solution and in solution current is carried through ions. Thus, aqueous solution of acid conducts electricity.

c) Why does dry HCL gas not change the colour of the dry litmus paper?

Dry HCL gas does not generate H⁺ ions and hence does not change the colour of dry litmus paper.

97. Important Terms from the Unit Light Reflection and Refraction

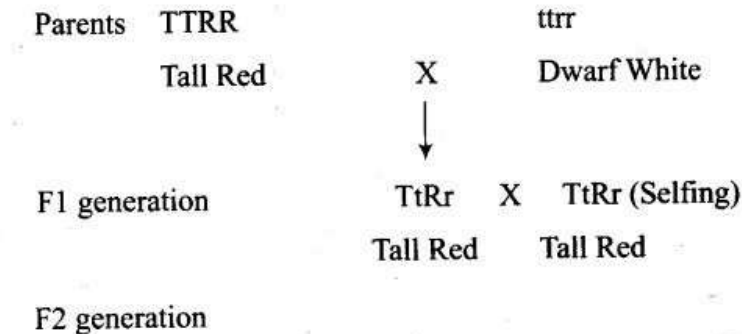
- a) Pole:** it lies on the centre of the reflecting surface of the spherical mirror this point is called the pole.
- b) Centre of curvature:** The reflecting surface of a spherical mirror forms part of sphere this sphere as a centre this point is called the centre of curvature.
- c) Radius of curvature:** The radius of the sphere which the reflecting surface of a spherical mirror forms a part is called radius of curvature.
- d) Principal Axis:** A straight line passing through the pole and the centre of a spherical mirror is called the principal axis.
- e) Principal focus:** A number of rays parallel to the principle axis after reflection all the rays will be meeting at a point on the principle axis is called principle focus.
- f) Focal length:** The distance between the pole and the principle focus is called focal length.it is represented by the Letter (f).
- g) Relationship between radius of curvature and focal length (f) : **$R=2f$**
- h) Define Concave mirror :** A Spherical mirror, whose reflecting Surface is curved inwards are called a concave mirrors.
- i) convex mirror:** A Spherical mirror, whose reflecting surface is curved outwards is called a convex mirror.

Important terms related to lens.

- 1) Convex lens :** A convex lens has two spherical surfaces which are bulging outwards and thicker at the middle as compared to the edges.
- 2) Concave lens :** Concave lens is bonded by two spherical surfaces, which are curved inwards and thicker at the edges than at the middle.
- 3) centre of curvature:** A lens has two spherical surfaces each of those surfaces form a part of a sphere. this centre of this sphere is called centre of curvature.
- 4) Radius of curvature:** The Radius of the spherical reflecting surfaces of a lens forms a part of a sphere this is called as radius of curvature.
- 5) Optical centre:** the centre point of a lens is optical centre.
- 6) Aperture:** The effective diameter of the circular outline of a spherical lens is called aperture.
- 7) Principal focus:** A number of Rays parallel to the principle axis after reflection all the rays will be meeting at a point on the principle axis.
- 8) Principal Axis :** A straight line passing through the pole and the centre of curvature of a spherical lens is called as principle axis.
- 9) Focal length:** The distance between the pole and the principle focus of spherical lens is called focal length.
- 10) 1 dioptrre :** It is the power of a lens whose focal length is 1 metre

98. The tall pea plant bearing red colour flowers (TTRR) is crossed with dwarf pea plant bearing white flowers (ttrr). Represents the result obtained in F₂ generation of dihybrid cross with the help of checker board. Mention the ratio of different plants obtained in F₂ generation.

Ans :



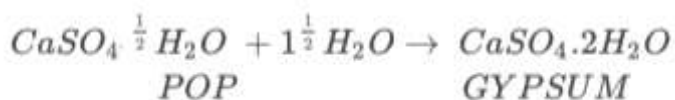
Gametes	TR	Tr	tR	tr
TR	TTRR tall red	TTRr tall red	TtRR tall red	TtRr tall red
Tr	TTRr tall red	Ttrr tall white	TtRr tall red	Ttrr tall white
tR	TtRR tall red	TtRr tall red	ttRR dwarf red	ttRr dwarf red
tr	TtRr tall red	Ttrr tall white	ttRr dwarf red	ttrr dwarf white

Ratio - tall red : tall white : dwarf red : dwarf white

$$9 : 3 : 3 : 1$$

99. Write the reaction between plaster of Paris with water?

When Plaster of Paris is mixed with water it changes to gypsum.



100. A Potted plant when falls horizontally on soil how does it grows explain with a reason.

Ans: The shoot tips will begin to grow Towards the sun, against gravity due to negative geotropism and positive geotropism while the roots will grow Towards the ground due to positive geotropism. The plant Will be bent at two places.

Important Difference between Questions

Pollination and Fertilization

Pollination	Fertilization
The transfer of pollen grains from the male to the female part of a flower.	The fusion of male and female gamete
Pollination takes place before fertilization.	Fertilization takes place after pollination.
It leads to fertilization	It leads to formation of seeds.
Pollination is an external process.	Fertilization is an internal process.

Metal and Non Metals (Physical Properties)

Metal	Non-Metal
All metals are solid except mercury	Non-metals exist in all three states
Metals have high melting point and boiling point	The melting and boiling points of non-metals are comparatively low
Metals are malleable and ductile.	Non-metals are neither malleable nor ductile
Metals are good conductors of heat and electricity.	Non-metals are poor conductors of heat and electricity. (except graphite)
Metals are lustrous.	Non-metals are non-lustrous

Metal and Non Metals (Chemical Properties)

Metal	Non-Metal
Metals are electro-positive.	Non-metals are electronegative.
Metals reacts with oxygen to form basic oxides.	Non-metals react with oxygen to form neutral or acidic oxide.
Metals react with water to form hydroxide and hydrogen.	Non-metals do not react with water.
Metal oxides and hydroxides bonds have ionic bonds.	Non-metal oxides and hydroxides have covalent bonds
Metals react as reducing agent by donating electrons.	Non-metals are oxidizing agents that can gain the electrons.

Renewable and non renewable

Renewable	Non renewable
They are the energy resources which cannot be exhausted.	They are the energy resources which can be exhausted.
These resources are pollution free.	These resources are not pollution free
These resources are present in unlimited quantity.	These resources are present in a limited quantity only.
The total cost of these resources is low.	The total cost of these resources is comparatively high.
Sunlight, wind, ocean current are the examples of renewable resources.	Coal, petroleum, natural gases, batteries, are the examples of non-renewable resources

18. Saturated and unsaturated hydrocarbons

Saturated hydrocarbons	Unsaturated hydrocarbons
Saturated Hydrocarbons have single covalent bonds between carbon atoms	Unsaturated hydrocarbons are the straight chain compounds containing double or triple covalent bonds.
These are also known as alkanes.	Hydrocarbons with a double bond between carbon atoms are known as alkenes. Hydrocarbons with triple bonds between carbon atoms are known as alkynes.
Saturated Hydrocarbons are less reactive.	Unsaturated Hydrocarbons are more reactive
Gives a clean flame on burning.	Gives yellow flame with lots of black smoke on burning.
Saturated hydrocarbons under go substitution reactions	Unsaturated hydrocarbons under go addition reactions.

Homologous and Analogous organs

Homologous organs	Analogous organs
Homologous organs have similar origin and basic structure but perform different functions in different organisms	Analogous organs are different in basic structure but perform same functions.
Inherited from a common ancestor	Not inherited from ancestors
Developed as a result of the adaptation to a different environment	Developed as a result of the adaptation to a similar environment
An arm of a human, the leg of a dog or a flipper of a whale are all homologous structures	From wings in birds, bats and insects to fins in penguins and fishes are all analogous structures

Exothermic and Endothermic reactions

Exothermic Reaction	Endothermic Reaction
1) Chemical reaction in which energy is evolved (given out) is called exothermic reaction	1) The chemical reaction in which energy is absorbed are called endothermic reactions
Example 1: $2\text{Mg} + \text{O}_2 \rightarrow 2\text{MgO} + \text{Heat}$	Example 1: $\text{NH}_4\text{Cl} \xrightarrow{\text{Heat}} \text{NH}_3 + \text{HCl}$
Example 2: Respiration	Example 2: Photosynthesis

Oxidation and Reduction

Oxidation	Reduction
Oxidation is a process in which oxygen is added to a substance	Reduction is a process in which oxygen is removed from a substance
Oxidation is a process in which hydrogen is removed to a substance	Reduction is a process in which hydrogen is added to a substance
Oxidation is a process in which substance loses electrons	Reduction is a process in which substance gains electrons
Example: $2\text{Cu} + \text{O}_2 \xrightarrow{\text{Heat}} 2\text{CuO}$	Example: $2\text{KClO}_3 \xrightarrow{\text{Heat}} 2\text{KCl} + 3\text{O}_2$

Displacement and double displacement reaction

Displacement reaction	Double displacement reaction
In Displacement reaction, a more reactive element displaces a less reactive element from its salt solution	In Double displacement reaction, two reactants in solution exchange their partner ions (Two atoms or groups from different compounds displace each other)
Example: Zinc displaces copper from copper sulphate solution $Zn + CuSO_4 \longrightarrow ZnSO_4 + Cu$	Example: The precipitation of barium sulphate by adding $BaCl_2$ to K_2SO_4 solution $BaCl_2 + K_2SO_4 \longrightarrow BaSO_4 + 2KCl$

Acids and Bases

Acids	Bases
Acids are sour in taste	Bases are bitter in taste
Acids turn blue litmus to red	Bases turn red litmus to blue
In presence of water, acids give H^+ ion or H_3O^+ ion	In presence of water, bases give OH^- ion
pH of acids is less than 7	pH of base is more than 7
Examples: Hydrochloric acid (HCl), Sulphuric acid (H_2SO_4), nitric acid (HNO_3)	Examples: Sodium Hydroxide (NaOH), Calcium Hydroxide $Ca(OH)_2$

Practice

- Ray Diagrams
- Numerical from Electricity and Light – reflection and refraction
- All the diagrams from all units.
- Any questions missed will be posted soon...

Make your concepts clear.... Instead of memorising the question and answers