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७०८ सदाशिव पेठ, कुमठेकर मार्ग, पुणे ४११०३०
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Question Bank

Standard :- 10th

Subject :- Science and Technology Part 1

सूचना

१. फक्त विद्यार्थ्यांना प्रश्नप्रकारांचा सराव करून देण्यासाठीच

२. सदर प्रश्नसंचातील प्रश्न बोर्डाच्या प्रश्नपत्रिकेत येतीलच असे नाही याची नोंद घ्यावी.

Question Bank
Science and Technology Part 1

Que 1: Choose the correct option in the multiple choice answer for the following questions:- (1 mark each)

1) A ……. Is necessary to change the speed as well as the direction of motion of an object.
   a) force b) inertia c) momentum d) motion

2) The orbit of a planet revolving around a star is ……
   a) circular b) linear c) towards the focal point d) elliptical

3)The square of its period of revolution around the sun is directly proportional to the ……. of the mean distance of a planet from the sun.
   a) square b) square root c) cube d) cube root

4) The gravitational force between two bodies is directly proportional to the product of the masses of those bodies and is …….of the distance between them.
   a) inversely proportional to the square
   b) directly proportional to the square
   c) inversely proportional to the cube
   d) inversely proportional to the square root

5) The value of universal gravitational constant (G) in SI unit is……
   a) 6.673×10^{-11} Nm^2/kg^2 b) 6.673×10^{11} Nm/kg
   c) 9.673×10^{-11} Nm/kg d) 9.673×10^{-11} Nm^2/kg^2

6) The ……..force is much weaker than other forces in nature.
   a) gravitational b) electromagnetic c) nuclear force d) inter molecular

7) The value of gravitational acceleration (g) is …….
   a) highest at the poles
   b) highest at the equator
   c) same everywhere on the surface of the earth
   d) lowest at the poles

8) The value of gravitational acceleration(g) is ……at the equator.
   a) 9.78 m/s^2 b) 9.832 m/s^2 c) 9.8 m/s^2 d) 6.67 m/s^2

9) The free fall of an object is possible only in…….
   a) air b) vacuum c) on the surface of earth d) None of these

10) The weight of any object on the moon is nearly ……of the weight of the earth.
   a) 1/6 b) 1/8 c) 1/2 d) 2/6

11) A person weighs 60N on earth. His weight on the moon will be……
   a)360N b) 60N c) 6N d) 10N

12) Dobereiner laid down the…..rule.

a) periodic b)modern periodic c) trictavesad d)octaves

13)Newlands' Law of Octaves is applicable upto…..

a) oxygen b) calcium c) cobalt d) potassium

14) X and Y are two elements having similar properties which obey Newlands's Law of Octaves.The minimum and maximum number of elements in between X and Y respectively are……

a) 6 and 8 b) 7 and 15 c) 8 and 14 d) 6 and 13

15)At the time of Mendeleev …..elements were known.

a) 56 b) 65 c) 63 d) 118

16)In Mendeleev's periodic table eka- silicon was later named as…….

a) Scandium b) Gallium c) Germanium d) Thorium

17)In Modern Periodic Table the number of columns and periods are respectively …….and …….

a) 16,7 b) 6,16 c) 18,7 d)18,6

18)…….is the outermost shell for elements of period 2.

a) K b) L c) M d) N

19)The groups 1 and 2 constitute the……..block.

a) s b) p c) d d) d

20)Which pair of atomic numbers represents elements in the same group ?

a) 11,19 b) 6,12 c) 4,16 d) 8,17

21)which among the following elements would lose an electron easily ?

a) Mg b) Na c) Al d) Cl

22)Which among the following is the largest element?

a) Na b)Mg c) K d)Ca

23) Arrange the following elements in order of their decreasing metallic character.

Na, Si, Cl, Mg, Al

a) Cl > Si > Al > Mg > Na b) Na > Mg > Al > Si > Cl

c) Na > Al > Mg > Cl > Si d) Al > Na > Si > Ca > Mg

24)Which one of the following does not increase while moving down the group of the Modern periodic table

a) Atomic radius b) Metallic character c) Valency d) Number of shells

25) On moving from left to right in a periodic table, the size of the atom…….

a) increases b) decreases

c) decreases first and then increases d) does not change

26)Which of the following statements about the Modern periodic table is correct ?

a) 18 horizontal rows are known as Periods.

b) 7 vertical columns are known as Periods.

c) 18 vertical columns are known as groups.

d) 7 horizontal rows are known as Periods.

27) The d-block elements are called as……elements

a) Transition b) Metalloid c) Normal d) Iner transition

28)The size of an atom is indicated by its…….

a) atomic number b) radius c) number of shells d) atomic mass

29)……..is the distance between the nucleus of the atom and its outermost shell.

a) Atomic radius b) Atomic diameter c) atomic mass d) atomic size

30)Atomic radius is expressed in the unit …..

a) nanometer b) picometer c) micrometer d) millimeter

31)The tendency of an element to form cation is the ……. character of that element.

a) non metallic b) basic c) metallic d) acidic

32)…… is in liquid form in the halogen family.

a) Fluorine b) Chlorine c) Bromine d) Iodine

33)While going from top to bottom in a group the atomic radius……..

a) increases b) decreases c) remains same d) No change occurs

34) The tendency of an element to form anion is the ……. character of that element.

a) non metallic b) basic c) metallic d) acidic

35)The elements from the zero group are called…..

a) alkali metals b) alkaline earth metals c) halogen d) noble gases

36)Writing a chemical reaction in brief by using chemical formulae is called as…….

a) chemical change b) chemical symbol

c) chemical equation d) chemical reaction

37)When the positive charge on an ion increases or the negative charge on them decreases it is called as……..

a) reduction b) corrosion c) oxidation d) decomposition

38)The chemical reaction in which two or more products are formed from a single reactant is called ……..reaction.

a) decomposition b) combination

c) displacement d) double displacement

39) In the chemical equation the ……..are written on the left hand side .

a) products b) reactants c) element d) catalyst

40) Aqueous solution of $ZnSO_4$ is added into the aqueous solution of $BaCl_2$, this is the example of ……reaction.

a) displacement b) double displacement c) redox d) reduction.

41)The unit of electrical power is ….

a) Volt b) Watt c) Joul d) Ampere

42)The 'live' and the 'neutral' wires have potential difference of ……

a) 110 V b) 202V c) 201 V d) 220 V

43) In an electric bulb coil of ……..metal is used.

a) copper b) Tungsten c) aluminium d) iron

44) The electricity bill specifies the usage in …….

a) kilowatt b) Joule c) Volt d) Unit

45) The frequency of AC is ……..Hz

a) 20Hz b) 50Hz c) 25Hz d)75Hz

46) These days when current in the circuit suddenly increases……..switches are used.

a) MCA b) MCC c) MCD d) MCB

47) A coil of an alloy……..is used in electric heater cooker as a resistor.

a) Stainless steel b) Nichrome c) Copper d) Bronze

48) The right hand thumb rule is also called …….rule.

a) Newton's law of motion b) Newland's law of Octave

c) Mendeleev's periodic law d) Maxwell's cork- screw

49)…….is used for electrical measurements.

a) Thermometer b) Galvanometer c) Voltmeter d) Electric meter

50)Which of the following scientist invented the rule of electromagnetic induction?

a) Newton b) Kepler c) Mendeleev d) Michael Faraday

51) Which of the following substance contracts on heating?

a)Lukewarm water b) Ice c) Iron d) Mercury

52)If pressure increases the melting point of a substance …….

a) does not change b) decreases c) increases d) remains constant

53) The vapor content in the air is measured by …….

a) relative humidity b) dew point c) absolute humidity d) none of these

54)Humid and dry nature of air depends on the……

a) amount of vapor in the air b) amount of vapor to make the air saturated

c) temperature of the air d) volume of the air

55) Vapors in air condenses to form……

a) fog b) snowfall c) rainfall d) b and c

56) When the temperature of water decreases below 4^0C it's volume…..

a) decreases b) increases c) remains same d) none of these

57) In a region with a cold climate the aquatic animals can survive at 4^0C, because……

a) Ice floating on water is insulator

b) the heat from water cannot transfer to the atmosphere

c) anomalous behaviour of water

d) all the above

58) From the options given below the specific heat of……..is maximum.

a) copper b) silver c) iron d) mercury

59) Ice-ball is prepared from shredded ice again.This is the example of ……

a) melting b) condensation c) regelation d) freezing

60) The SI unit of specific heat is …….

a) Kcal b) Cal c) Cal/g^0c d) J/Kg^0c

61) ……apparatus is used to study the anomalous behaviour of water.

a) calorimeter b)Joul's apparatus c) Hope's apparatus d) Thermos flask

62) ……heat is necessary to raise 1 Kg of water from 14.5^0 c to 15.5^0 C.

a) 4180 Joul b)1 KJoul c) calorie d) 4180 calorie

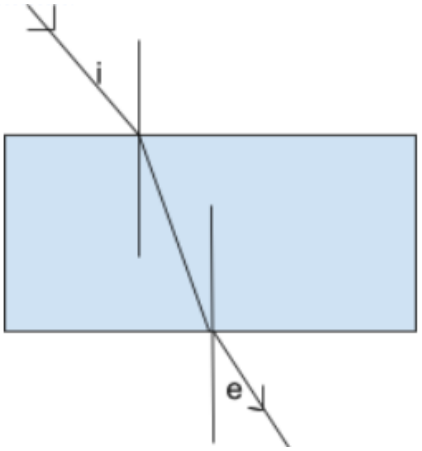
63) due to ……pencil looks bent in water in the given experiment.



a) refraction of light b) dispersion of light

c) internal reflection of light d) reflection of light

64)In the following diagram if ∠ i =40, then ∠ e =… ?



a) 50 b) 40 c) 60 d) 90

65)A ray of light strikes the glass slab at an angle 40^0 with the surface of the slab. Then the angle of incidence will be…….^{0}

a) 50 b) 40 c) 60 d) 90

66)We see the sun even after it goes below the horizon, because…..

a) refraction of light b) dispersion of light

c) partial reflection of light d) reflection of light

67)……this is the unit of refractive index.

a) cm b) m c) degree d) refractive index has no unit

68) n =……this law is also called as Snell's law.

a) $\frac{sinr}{sin\,i}$ b) $\frac{sin\,r}{sine}$ c) $\frac{\text{sin}sin\,e}{\text{sin}sin\,r}$ d) $\frac{\text{sin}sin\,i}{\text{sin}sin\,r}$

69)Lights of different colours are used ad signal for safety transport .From these the wavelength of red light is……nm.

a) 400 b)500 c) 600 d) 700

70)If the refractive index of air with respect to glass is 2/3 .What is the refractive index of glass with respect to air ?

a) 2/3 b) 3/2 c) 1/3 d) ½

71) The process of separation of light into its component colours while passing through a medium is called ……

a) reflection of light b) refraction of light

c) dispersion of light d) absorption of light

72)Light changes its direction when going from one transparent medium to another transparent medium.This is called ……

a) reflection of light b) refraction of light

c) dispersion of light d) absorption of light

73)A ray of light gets refracted ……while entering the lens.

a) once b)twice c) thrice d) doesn't happen

74)The point inside the lens on the principal axis through which light rays pass without changing their path is called ……

a) centre of curvature b) optical centre c) principal focus d) axiom point

75) Virtual image is formed if an object is placed ……..

a)at infinity b) at 2F1 c) at focus F1 d) between F1 and O

76) In the convex lens if an object is placed at 2F1, the image is formed at……

a) F1 b)2F1 c) beyond 2F1 d) On the same side of the lens as the object

77)All distances parallel to the principal axis are measured from the……

a) optical centre b) centre of curvature c) principal focus d) infinity

78)A small hole of changing diameter at the centre if Iris is called ……..

a) optic nerves b) cornea c)optic disc d) pupil

79)For a normal human eye the near point is at……

a) 2.1cm b)2.5cm c)25cm d)5cm

80)The image formed by ……. lens is always virtual and small.

a) plane convex b) biconvex c) biconcave d) bifocal

81)In a relaxed state , the focal length of healthy eyes is ……..

a) 2cm b) 2.5cm c) 25cmd) 5cm

82)For a specific glass lens f=0.5 .This is the only Information given to the student. Which type of lens is given to him and what is its power?

a) power 2D ; convex lens

b) power 1D ; concave lens

c) power -0.5; concave lens

d) power -0.25 D ; convex lens

83) In Myopia the human eye….

a) cannot see nearby objects distinctly b)cannot see distant objects clearly

c) cannot see nearby as well as distant objects clearly

d) can see nearby as well as distant objects clearly

84) Due to elongation of……..and increase in curvature of the eye lens, a person cannot see distant objects clearly.

a) eyeball b) pupil c) eyelid d) cornea

85) In hypermetropia human eye ……..

a) can see distant objects clearly b) can see nearby objects distinctly

c) cannot see nearby as well as distant objects clearly

d) cant see nearby as well as distant objects clearly

86) Bifocal lens is required to correct ……..defect.

a) myopia b) hypermetropia c) presbyopia d) none of these

87} ……. times larger images can be obtained by using a simple microscope.

a) 5 b) 10 c) 20 d) 60

88) …… is a combination of two convex lenses with small focal length.

a)simple microscope b) compound microscope

c) telescope d) none of these

89) Bronze is an alloy of…….

a) copper and tin b) copper and zinc c) copper and iron d) iron and nickel

90)……..is an alloy made from iron, nickel and chromium.

a) brass b) bronze c) stainless steel d) amalgam

91) ……..is basic oxide .

a) CO_2 b) K_2O c) SO_2 d) Al_2O_3

92)In electrolytic reduction of alumina ……..is used as a cathode.

a) sulphur b) graphite c) platinum d) aluminium

93) Iron is…….

a) more reactive than zinc b) more reactive than aluminium

c) less reactive than copper d) less reactive than aluminium

94)If Cu, Fe, Zn, Al elements are arranged in increasing order of their reactivity Then the correct order would be which of the following?

a) Cu, Fe, Zn, Al b) Al, Cu, Fe, Zn c) Zn, Al, Cu, Fe d) Fe, Zn, Al, Cu

95) Which of the following method is used to prevent the accumulation of greenish layer on brass due to corrosion

a) electroplating b) anodization c) tinning d) alloying

96)In Wilfley table method to separate particles of gangue ……..method is used.

a) Magnetic b) Froth floatation c) Leaching d) gravitation

97)Aluminium oxide is ……..oxide .

a) acidic b) basic c) neutral d) amphoteric

98)Atomic number of aluminium is ... and its electronic configuration is……

a) 13, (2, 8, 3) b) 12 (2, 8, 2) c) 13, (3, 10) d) 12, (2, 10)

99) The chemical formula of zinc blend is…..

a) ZnSO4 b) ZnS c) ZnCO3 d) ZnO

100)Extraction of moderately reactive elements is done by …… and ……. method.

a)roasting and calcination b) roasting and reduction

c) separation and calcination d)none of these

101)Corrosion of silver causes a black layer of ……

a)Silver nitrate b) silver oxide c) silver sulphide d) silver carbonate

102)To prevent corrosion of iron and steel ……. method is used .

a) electroplating b) anodization c) tinning d) galvanizing

103) In preparation of Aqua regia hydrochloric acid and……..acid are mixed.

a) sulphuric acid b) nitric acid c) carbonic acid d) phosphoric acid

104)The sound of one metal colliding with another makes a noise, this property is called as ……

a) good conductors b) ductility c) sonority d) malleability

105) …… exist in a liquid state at room temperature.

a) Chlorine b) Bromine c) Iodine d) Fluorine

106)Ionic compounds are electrically ……..

a) positively charged b) negatively charged c) neutral d) conductor

107) ……..is good conductor of heat but bad conductor of electricity.

a) graphite b) diamond c)coal d) iodine

108)……..is the least reactive metal.

a) silver b) sodium c) zinc d) gold

109)……. forms a green colour in the water.

a) CuSO4 b) FeSO4 c) NaCl d) all the above

110)Tin is an alloy of ……..

a) copper b) tin c) zinc d) silver

111) When one of the metals in an alloy is mercury the alloy is called……..

a) amalgam b) sodium amalgam c) zinc amalgam d) all the above

112) The minerals from which the metal can be separated economically are called ……

a) minerals b) ores c) gangue d) alloy

113)Generally the melting and boiling point of carbon compounds are found to be less than ……..^{0}c

a) 300 b) 100 c) 200 d)150

114) Number of valence electrons in a carbon atom is…….

a) 4 b) 5 c) 1 d) 3

115)The bond between two oxygen atoms is ……bond .

a) double b) triple c) single d) none of these

116)The molecule mass of a carbon compound is spread over a range of …..

a)10^{12} b) 10^{14} c) 10^{10} d) 10^{13}

117)The unsaturated hydrocarbons containing a carbon- carbon double bond are called….

a) Alkenes b) Alkanes c) Alkynes d) Alcohol

118) The unsaturated hydrocarbons whose structures contain a carbon -carbon triple bond are called ……..

a) Alkenes b) Alkanes c) Alkynes d) Alcohol

119)The phenomenon in which compounds having different structural formulae have the same molecular formula is called ……..

a) structural isomerism b) catenation c)homologous d) functional group

120) From the following hydrocarbon ……..is the cyclic hydrocarbon.

a) isobutane b) propyne c) benzene d) isobutylene

121) While going in an increasing order of the length there is a rise in the molecular mass of the members by…….

a) 14 u b) 15u c) 16 u d) 17u

122) The general molecular formula for the homologous series of alkynes is …….

a) C_nH_{2n} b)$C_nH_{2n} + 2$ c) $C_nH_{2n} - 2$ d) $C_nH_{2n} - 1$

123) …….is one of the combustible components of L.P.G.

a) Methane b) Ethane c) Propane d) Butane

124)At room temperature ethanol is ……

a)solid b) gas c) plasma d) liquid

125)Generally ……is called spirit.

a) methanol b) ethanol c) propanol d) butanol

126)Due to…….. we can gather information about worldwide events sitting at home.

a) worldwide web b) internet c) artificial satellite d) natural satellite

127) The first person to step on the moon is ……..

a) Neil Armstrong b) Rakesh Sharma c) Kalpana Chawla d) Sunita Williams

128)The first artificial satellite ……was sent to space by Soviet Union in 1957.

a) Apollo b) Chandrayaan c) Sputnik d) Luna 2

129)If a spacecraft is to be sent to travel to outer space.it must have minimum velocity of ……..

a) 11.2 km/s b)11.6km/s c)13.2km/s d)1.4m/s

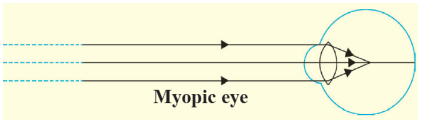
130) A group of students from COEP Pune sent a small satellite …….. through ISRO in 2016.

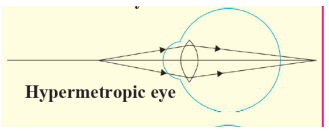
a) Luna 6 b) Apollo 6 c) Swayam d) Param

131)The astronomical object closest to us is the ……..

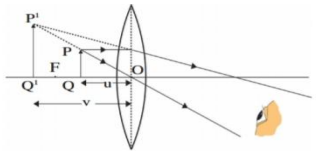
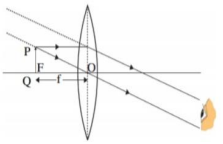
a) Moon b) Mars c) Saturn d) Mercury

Que. 1 B) I. Find the correlation

1. Eka boron : Scandium :: Eka Aluminum : ……..
2. Mendeleev's periodic table : atomic mass :: Modern periodic table :…….. 3. Group 1 and 2 : S block :: group 13 and 18 : …..
4. Group 13 and 18 : P block :: …… D block
5. Two elements in the same position : demerit of Newland's octaves :: place for Isotopes :…….
6. Beryllium : alkaline earth metal :: sodium: ……
7. Cl : halogen group :: Ar : ……
8. Iodine : solid :: bromine : …….
9. Electric motor : converts electrical energy into mechanical energy :: electric generator: ……..
10. Fleming's left hand rule : electric current :: Fleming's right hand rule :……..
11. Alternating current : oscillatory :: Direct current:…….
12. When ice is converted into water : constant temperature :: before the water evaporates : ……..
13. Relative humidity greater than 60% : saturated air :: relative humidity less than 60% :: ……..
14. While studying anomalous behavior of water in Hope's apparatus, the upper temperature of the thermometer : 0°C :: lower temperature of the thermometer : ::……..
15. The density of water is high at 4°C : anomalous behavior of water :: shredded ice converted into solid ice balls : ……..
16. Specific latent heat of vaporisation : J/Kg :: specific heat : ……..
17. 2 n 1 **:** Refractive index of medium 1 with respect to medium 2 :: 1 n 2: ……..
18. Refractive index of air : 1.0003 **::** refractive index of water : ……..
19. Convex lens : converging :: concave lens :----------
20. Nearsightedness: elongated eyeball :: farsightedness:----------
21. Object at 2F1 of a convex lens : Image at 2F2 :: Object at F1 :-------
22. Nearsightedness : concave lense :: farsightedness :----------
23. Simple microscope : Number of convex lens one :: compound microscope :---------
24. Focal length : metre :: power of lens :---------
25. 

: Concave lens :: 

:----

26.  : Object near the lens:: :---- 

27. Brass : Aluminium and zinc : : Bronze : ----------
28. Pressure cooker : Anodizing : : Silver plated spoons : ----------
29. In Electrolytic reduction of alumina, Anode : ------- : : Cathode : Graphite lining
30. Sulphide ores : Roasting : : Oxide ores : ----------
31. Bauxite : Aluminium ore : : Cassiterite : ----------
32. Metal sheets : Malleable : : Electric wires : ----------
33. Zinc sulphide : Roasting : : zinc carbonate : ----------
34. Rusting of iron : Fe2O3 : : corrosion of copper : ----------
35. Diamond : electric insulator : :---------- : electric conductor.
36. Soft metal : Na : : hard metal :------
37. Aluminium:----------: gold : : electric insulator
38. Bronze :--------:: Tin : Cu+Zn.
39. Solid : iodine ::---------: bromine
40. CH3-CH2-CHO : propane :: CH3- COOH : .....
41. Kotone : -CO- :: Ester : .....
42. Cyclohexane : Cyclic hydrocarbon :: Isobutylene : .....
43. Saturated hydrocarbon : Single bond :: Unsaturated hydrocarbon : .....
44. Saturated carbon compounds : blue flame :: Unsaturated carbon compounds : ……..

Que 1 B) II. Find odd one out and give its explanation

1. F , K , Cl , I
2. Lithium, Sodium, Magnesium, Potassium
3. Beryllium, Helium, Neon, Argon
4. Gallium, Scandium, Germanium, Calcium
5. Boron, Arsenic, Germanium, Gallium
6. Dobereiner, Newland, Mendeleev, Moseley
7. Fluorine, Boron, Bromine, Chlorine
8. Carbon, Calcium, Oxygen, Neon
9. Potassium, Magnesium, Calcium, Beryllium
10. Beryllium, Magnesium, Carbon, Oxygen
11. Voltmeter, Ammeter, Galvanometer, Electric motor
12. Loud speaker, Magnet, Microphone, Electric motor
13. Fuse wire, bad conductor, Rubber gloves, Generator
14. Tungsten, Nichrome, Aluminium, Iron
15. Boiler, Electric stove, Electric bulb, Electric bell
16. Temperature, Conduction, Convection, Radiation

17. cal/g, cal/g°C, Kcal/Kg°C, erg/g°C
18. Joule, erg, Calorie, Newton
19. Rainbow, Earthquake, Sunset, Sunrise
20. Focal length, Radius of curvature, Image distance, Size of Image
21. Simple Microscope, Compound microscope, Telescope, Prism
22. Eye lense, Retina, Cerebellum, cornea
23. Object distance, Image distance, focal length, principal axis
24. Eye piece, Magnifier, Kaleidoscope, Telescope
25. Sodium, Potassium, Silver, Sulphur
26. Boron, Chlorine, Bromine, Fluorine
27. Copper, Iron, Mercury, Brass
28. Brass, Bronze, Phosphorous, Steel
29. Tinning, Alloying, Anodization, Froth floatation
30. Zinc coating, Tinning, Electroplating, Calcination
31. Na, K, Cu, Li
32. Ethylene, Styrene, Propylene, Teflon
33. Butane, Methane, Benzene, Ozone
34. CH_4, C_2H_6, C_5H_{12}, $CaCO_3$
35. C_2H_2, C_3H_8, C_2H_6, CH_4
36. C_2H_4, C_4H_{10}, C_3H_8, CH_4
37. Sputnik, Moon, Swayam, Chandrayaan

Que 1 B) III. Answer the following questions in one sentence.

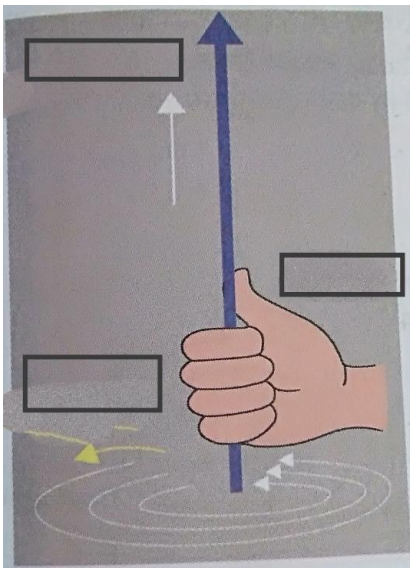
1. Element A and B follows the Newland's octaves rule. How many elements are there in between A and B ?
2. Write the characteristic of Dobereiner's triads?
3. To which element does Newland's octave rule apply?
4. Write the molecular formula of the oxide of any one of the elements in Mendeleev's periodic table.
5. Write the name of noble gas having 2 electrons in its valence shell.
6. Write the name of an element having electronic configuration 2,8,2.
7. Which two elements show an ambiguity regarding their sequence in Mendeleev's periodic table?
8. The elements beryllium, magnesium and calcium are in group 2. What will be their valency?
9. The modern periodic table is divided into which blocks?
10. What determines the chemical reactivity of elements?
11. Write chemical formula for rust.
12. Complete the given chemical reaction.

$$CuSO4\ (aq) + Fe(s) \rightarrow \ldots\ldots + \ldots\ldots$$

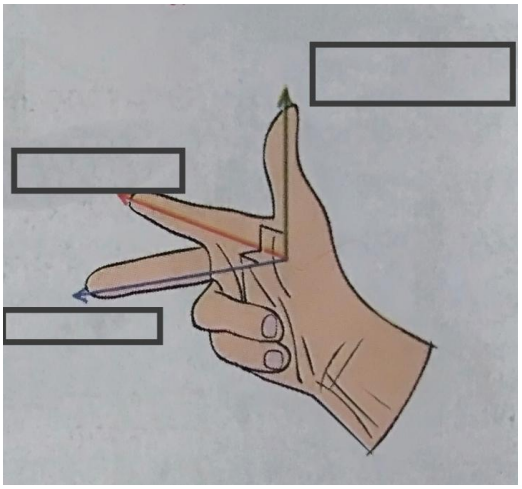
13. What is the heating effect of electric current?

14. Which metal used to make the filament of an electric bulb?
15. What is a short circuit?
16. What is the potential difference
17. How much Volts potential difference between live and neutral wires?
18. What is used to turn off the sudden increase in current in the electrical circuit of the house nowadays?
19. Write two devices based on the heating effect of electric current.
20. Write Fleming's right hand thumb rule.
21. Write Fleming's left hand rule.
22. Write Fleming's right hand rule.
23. What is a solenoid?
24. Write the two names in the following diagram.

A) Right hand thumb rule.



B) Fleming's right hand rule.



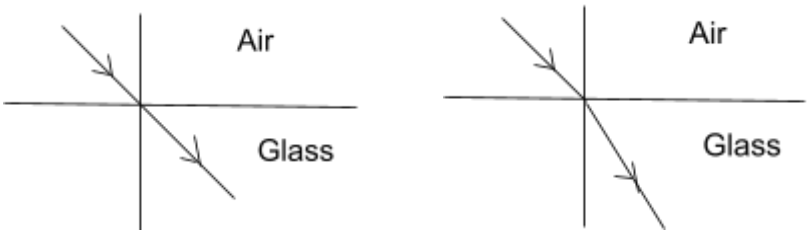
25. Define boiling point of a liquid.
26. What is meant by regelation?
27. How fog is formed?
28. What is a dew point temperature?

29. What does the existence of drops of water on the leaves of a tree in the morning indicate?

30. Which temperature segment is chosen when determining the unit of heat? Why?

31. Identify the wrong figure from the following.

A. B.



32. Write the molecular formula of the given compound.

1. Ethyl ethanoate 2. Sodium ethanoate 3. Sodium ethoxide
4. Stearic acid 5. Oleic acid 6. Palmitic acid

33. Write the molecular formula of the given compound.

1. Ethylene 2. Benzene 3. Acetic acid 4. Propylene
5. Acetylene 6. Ethyl alcohol 7. Acetone 8. Propene
9. Ethanol 10. Ethanoic acid 11. Isobutane

34. Draw electron dot structure and line structure for given molecules.

1. Hydrogen 2. Oxygen 3. Methane 4. Nitrogen 5. Ethene

Que 1 B) IV. Match the columns.

1.

Column A	Column B
1) Eka-aluminium	a) Scandium
2) Eka-Silicon	b) Gallium
3) Eka- boron	c) Germanium
	d) Beryllium

2.

Column A	Column B
1) Triads	a) Mendeleev
2) Octave	b) Dobereiner
3) Atomic number	c) Thomson
4) Atomic mass number	d) Moseley
	e) Newland

3.

Column A Column B

1) s -block
2) p-block
3) d-block
4) f-block

a) Lanthanides and actinides
b) Group 3 to 18
c) Group 1, 2
d) Group 13 to 18
e) Zero group

4.

Column A	Column B
Electronic configuration	Valency
1) 2 , 2	a) 1
2) 2 , 8, 1	b) 2
3) 2 , 5	c) 3
d) 5	

5.

Column A	Column B
1) Alkaline earth metals	a) Group 18
2) Alkali metals	b) Group 17
3) Halogen	c) Group 2
4) Noble gas	d) Group 1
	e) Group 14

6.

Column A	Column B
1) Direct current	a) Oscillatory
2) Alternating current	b) Non oscillatory

7.

Column A	Column B
1) Specific latent heat of fusion	a) Air saturated with vapour
2) Specific latent heat of vaporisation	b) Solid converts into liquid
3) Dew point temperature	c) liquid converts into gas

8.

Column A	Column B
1) Absolute humidity	a) J/cal
2) Latent heat	b) J/Kg° C
3) Specific heat capacity	c) KJ/Kg
4) Heat	d) no unit
	e) Kg/m3

9.

Column A	Column B
1) Dry air	a) 4°C

2) Humid air
3) Saturated air/Dew point temperature
4) Maximum density of water

b) Relative humidity 100%
c) Relative humidity below 60%
d) Relative humidity above 60%
e) -4°C

10.

Substance	Property
1) KBr	a) Combustible
2) Neon	b) Soluble in water
3) Gold	c) No chemical reaction
4) Sulphur	d) High ductility

11.

Group A	Group B
1.Bauxite	a) Mercury
2.Cassiterite	b) Aluminium
3.Cinnabar	c) Tin

12.

Group A	Group B
1. ZnS	a) Copper Sulphide
2. HgS	b) Bauxite
	c) Cinnabar
	d) Zinc blend

13.

Group A	Group B
1) Copper and Zinc	a) Brass
2) Copper and Tin	b) Steel
	c) Stainless steel

14.

Group A	Group B
1) Electroplating	a) Pressure cooker
2) Anodising	b) Silver plated spoons
	c) Coating of tin on copper
	d) Coating of Zinc on iron

15.

Group A	Group B
1. Making sheets of metals	a) Sonority
2. Making metal utensils	b) Malleability
3. Making Copper wires	c) Good conductor of heat
4. Making bells from metal	d) Ductility

16.

Group A	Group B
1) C_2H_6	a) Unsaturated hydrocarbons
2) C_2H_2	b) Molecular formula of one alcohol
3) CH_4O	c) Saturated hydrocarbons
4) C_3H_6	d) Triple bond

17.

Group A	Group B
1 Straight chain hydrocarbon	a) Benzene
2 Branched chain hydrocarbon	b) Propyne
3 Cyclic hydrocarbon	c) Isobutylene

18.

Group A	Group B
1) Ether	a) –OH
2) Kitone	b) -O-
3) Ester	c) -CO-
4) Alcohol	d) -COO-

Que 1 B) V. Complete the incomplete sentence.

1. According to Newland's octave rule, chlorine shows similarity with fluorine. Because, chlorine is ……
2. According to Mendeleev's periodic law properties of elements are……
3. The number of electrons in the outermost shell of an atom determines the ……..
4. Electropositivity means ……..
5. According to Dobereiner's triads rule, three elements in an increasing order of atomic mass shows……

Que.1B) VI. Write the name:

1. The atom having the biggest atomic size from period 2
2. The atom having the smallest atomic radius from zero group.
3. The family of group 1 elements
4. Highest reactive non metal
5. The element having stable electron configuration from the third period.
6. A halogen from period 4
7. The family of elements having zero valency
8. Two elements having two orbits
9. Highest electronegative element
10. Highest electropositive element
11. The atom having smallest atomic radius from group 1
12. The group of elements having electronic configuration 2, 2
13. Product obtained when sugar is heated.
14. The phase in which solid substances are converted into liquid-
15. The amount of heat absorbed at constant temperature by unit mass of a liquid to convert into gaseous phase-
16. Conversion of ice into liquid due to applied pressure and the reconverts to ice once the pressure is removed-
17. The instrument used to study anomalous behavior of water-

18. The instrument used to measure the specific heat capacity of a substance using mixture method-
19. The distance between focus and optical centre-
20. The part of human eye that transmits electrical signals to the brain-
21. The lens used in simple microscope-
22. The ability of lens to adjust the focal length as per need is –
23. The defect of eye occurring due to ageing –
24. The fleshy screen behind cornea –
25. The screen with light sensitive cells in human eye –
26. The sensation on the retina persists for a while is –
27. The persons which are unable to distinguish between different colours -
28. The imaginary line passing through two optical centers of lens -
29. The molecular formula of main ore of aluminium –
30. The ore is produced by using -
31. Non metals which are good conductors –
32. The reagent which dissolves noble metals
33. Metals which are amphoteric in nature –
34. An alloy of copper and zinc –
35. Two highly reactive metals –
36. Strongly heating carbonate ores in insufficient air –
37. Extraction of aluminium from alumina-
38. Method used to present corrosion of copper –

Question 1 . B) Right or wrong sentence.

1. If the distance between two masses is doubled, the gravitational force between them becomes less than the previous force.
2. The CGS unit of G is dyne.cm^2/g^2.
3. The value of gravitational acceleration with the center of the earth is zero.
4. The value of g is highest at the equator.
5. The value of G varies from place to place.
6. As it rises above the earth's surface, its value increases.
7. The speed of release of an object does not depend on the mass of the object.
8. Mass is a qualitative measure of the inertia of an object.
9. The similarity between the properties of the first and eighth elements is called the octave rule.
10. In Dobreiner's triangles, three elements appear to be arranged in ascending order of their atoms.
11. While designing the periodic table, Mendeleev considered the chemical and physical properties of the elements.
12. The modern periodic table has 1 to 7 cycles.

13. The modern periodic table shows the molecular values of the elements in each frame.
14. P-segment is composed of groups 1 and 2.
15. To the left of the serpentine line in the periodic table are the metal elements.
16. The compound of the elements in group 2 is 1.
17. Nanometers use these units to measure atoms.
18. Moving from left to right, the size of the atom decreases.
19. All the elements in the halogen family are gases.
20. The elements lithium and beryllium are in the same cycle because their compounds are similar.
21. Beryllium and calcium are alkaline soil metals.
22. The K and L shells of the elements Na and Mg contain electrons.
23. The number of shields decreases as the calculation goes down from top to bottom.
24. The metal properties of the element decrease as the spiral moves from left to right.
25. The size of an atom depends on the number of compound electrons.
26. Silicon is a metallic element.
27. The properties of the metal increase as it goes down in the calculation.
28. Electrical negativity is the metallic property of an element.
29. If edible oil is kept well for a long time, it will get sour.
30. The alternating current is a vibrating current.
31. Electrical wires and neutral wires have a 220 V potential difference.
32. Increasing the current passing through the wire decreases the magnetic field intensity.
33. Use galvanometers for electrical measurements.
34. The frequency of the alternating current is 50Hz.
35. Electrochemicals are devices that convert electrical energy into mechanical energy.
36. The dew point temperature does not depend on the amount of vapor in the air.
37. The specific heat capacity of water is 1 cal / g ^{0}C.
38. The invisible heat of evaporation is called the conversion of gas into liquid.
39. Use calorimeters to study the inconsistent behavior of water.
40. During reheating, ice is converted to water at a temperature of 0°C.
41. 1 kg of dry air at a temperature of 40 °C can hold a maximum of 49 g of water vapor.
42. Calorimeters are used to measure specific calorific value.
43. All metals have the same specific heat capacity.
44. Humidity relative to dew point temperature is 100%.
45. The unit of absolute humidity is Kg / m^{3}.
46. 1 calorie is 4.81 joules
47. The incident rays and refracting rays are on opposite sides of the column.

48. Purple has the lowest refractive index.
49. The speed of light varies in different media.
50. Convex magnifying glass is called divergent magnifying glass and concave magnifying glass is called converging magnifying glass.
51. The image of the object in the human eye is formed on the cross screen.
52. This defect of vision can be remedied by using endoscopic magnifying glass with proper focal length.
53. If the incident ray is parallel to the main axis, then the refracted ray passes through the main navel.
54. The image of an object at an infinite distance is obtained in a real and smooth form through a convex magnifying glass.
55. The power of the magnifying glass depends on the distance of the magnifying glass.
56. The lens of the eye is flattened when looking at nearby objects.
57. For a healthy human eye the distant point is infinite distance.
58. Vision defects increase the distance between the lens of the eye and the retina of the eye. There are defects in myopia.
59. The virtual shape of the object seen by the eye depends on the angle held by the object with the eye.
60. Electrolysis is used to obtain pure metal from impure metal.
61. Ionic compounds are soluble in kerosene.
62. Stable ionic compounds conduct electricity.
63. Mercury, silver, gold are highly reactive metals.
64. In the electrolytic method, a layer of highly active metal is applied to a less active metal.
65. In the electrolytic dissipation method of alumina, the lining of graphite acts as an anode.
66. The electrolysis of alumina combines fluospar and cryolite to increase the solubility in the precipitation method.
67. Cassiteite is a copper metal.
68. Diamond is a hard substance.
69. Gold and silver are active metals.
70. Halogen reacts with acid.
71. Baux reacts with sodium hydroxide in the Bayer process.
72. The number of electrons in the compound shell of a carbon atom is 4.
73. Your body is made up of carbon.
74. Carbon compounds contain only free chains of carbon atoms.
75. Two carbon atoms can always form one or two covalent bonds.
76. In general, saturated compounds are more reactive than unsaturated compounds.
77. Benzene is a coated unsaturated hydrocarbon.
78. Cyclohexane is a branched chain type of hydrocarbon.

79. As one ascends in any homogeneous category, physical properties change in one direction.
80. There are different common molecules for all members of the homologous range.
81. LPG Butane is a flammable element in.
82. Substances that can give oxygen to other substances are called particulate matter.
83. Potassium permanganate is an oxidizing compound in regular use.
84. Colorless ethanol is in liquid state at room temperature.
85. Ethanol is all soluble in water.
86. Easter is a sweet-smelling dish.
87. The speed of liberation on the moon is less than the speed of liberation on earth.
88. India is the first country to discover the existence of water on the moon.
89. The function of a satellite launcher is based on Newton's second law of motion.

Question 1 (B) VIII. Write an explanation.

1. Group
2. Period
3. Atomic radius
4. Electropositivity
5. Electronegativity
6. Balanced equations
7. Endothermic reaction
8. Critical angle
9. Center of curvature of the lens
10. The optical center of the lens
11. Principal focus
12. Focal length
13. Principal axis
14. Minimum Distance of distinct vision
15. Farthest Distance of distinct vision
16. Magnification
17. Power of accommodation
18. Persistence of vision
19. Alkane
20. Alkene
21. Alkyne

Q1B IX. Identify who I am!

1. Carbon aberrations ----------
2. Mutual oxide forming metal ---------
3. Ores of Aluminum ----------
4. Metal in Liquid state ----------

Question 2 (A) Write Scientific reasons. (2 marks each)

1. The value of acceleration g is greater at the pole than at the equator.
2. The value of gravitational acceleration (g) decreases as we go above the Earth's surface.
3. The value of gravitational acceleration (g) decreases as we go deep inside the earth.
4. When we drop a feather and a stone at the same time from a height the stone reach the earth faster than a feather.
5. The weight of an object varies on different planets.
6. The value of gravitational acceleration (g) is taken to be -g when studying the motion of an object thrown upwards in a straight line.
7. The value of g at the center of the earth is zero.
8. Mendeleev kept vacant places in the periodic table.
9. There was ambiguity about the correct position of hydrogen in Mendeleev's periodic table.
10. Boron and oxygen elements are placed in the second period in periodic table .
11. There was no definitive place for isotope in Mendeleev's periodic table.
12. Lithium and sodium are included in the same group in periodic table.
13. In same periods boron and oxygen elements have different atomic size.
14. The metallic character of elements increases while going down the groups.
15. The non-metallic character increasing while going from left to right in a period.
16. In a group , the size of the atom increases as it goes down from the top.
17. In group 2, beryllium and calcium elements, calcium is the most electropositive element than beryllium.
18. Elements belonging to the same group have the same valency .
19. Always Paints door and windows before using their nets.
20. It is recommended to use air tight container for storing oil for long time.
21. When the gas formed heating the limestone is passed through the freshly prepared lime water, the lime water turns milky.
22. It takes time for pieces of Shahabadi tile to disappear in HCl but it's powder disappears rapidly.
23. In practice the unit of kWh is used for the measurement of electrical energy, rather than Joule.
24. Tungsten metal is used to make a solenoid type coil in an electric bulbs.
25. For electric power transmission , Copper or aluminum wires is used.
26. Nowadays MCBs are used in homes, for stop the current in the circuit which suddenly increases .
27. A coil made up of alloy Nichrome is used in the electric heater-cooker as a resistor.
28. It is beneficial to carry electrical energy in reverse form as it is carried over long distances.
29. In cold regions, in winter the pipes for water supply breaks .

30. Even if boiling water is constantly heated, its temperature does not rise.
31. Use a pressure cooker to cook food in cold air.
32. In the cold regions, snow falls in winter.
33. The bottom of some steel utensils used for cooking is copper.
34. Drops of water can be seen accumulating on the glass of vehicles in the early hours of winter.
35. During winter season, we may have observed a white trail at the back of flying high in the clear sky or sometimes it may not get formed.
36. Fish can survive even in frozen ponds in cold regions.
37. Placing a plastic bottle filled with water in the freezing compartment in the freezer can cause the bottle to explode.
38. Even the wire moves through the ice slab , the ice slab does not break.
39. The sun appears on the western horizon for some time after sunset.
40. It looks like a sack that encloses with a drawstring.
41. The stars twinkle but we don't see twinkling of planets .
42. The coin in the disappeare to have been seen from a specific location. But as soon as the water is poured into the pot to a certain level, the coin appears.
43. A pencil appears to be broken near the surface of water .
44. A convex lens is called a converging lens.
45. Nearsightedness, this defect can be corrected by using spectacles with concave lens.
46. Farsightedness, this defect can be corrected by using convex lens.
47. Adults need bifocal lens spectacle.
48. Presbyopia effect is more common in people over 40 years of age.
49. Simple microscope is used for watch repairs.
50. One can sense colours only in bright light.
51. The movie cannot be enjoyed if it is too close to the screen in the cinema.
52. We can not clearly see an object kept at a distance less than 25 cm from the eye.
53. Sodium is always kept in kerosene.
54. Pine oil is use in froth formation.
55. Lemon or tamarind is use for cleaning copper vessels turned greenish.
56. Anodes need to be replaced from time to time during the electrolysis of alumina.
57. Generally the ionic compounds have high melting points.
58. Adding zinc particles to a solution of copper sulphate makes the blue solution colorless.
59. Anodization method is useful for prevention of the corrosion of the aluminium.
60. On exposure to air , silver articles turn blackish after some time.
61. Magnetic separation method is used to separate the magnetic ingredients in the ores.
62. Coins are made from metals and alloys.

63. Meena's mother uses lemon or tamarind for cleaning copper vessels turned greenish.
64. In the laboratory, sodium is immersed in kerosene.
65. Ethylene is an unsaturated hydrocarbon.
66. The flame appears yellow in the ignition of naphthalene.
67. The color of iodine disappears in the reaction between vegetable oil and tincture iodine.
68. Vegetable ghee is formed from the hydrogenation of vegetable oil in presence of nickel catalyst.
69. Carbon has the property of forming many compounds.
70. Benzene compounds are called aromatic compounds.
71. The velocity at the earth's surface must be greater than the escape velocity of the earth.
72. Space debris can be harmful to the artificial satellites.
73. Satellite launch vehicles are used to place satellites in their specific orbits.
74. The Launch vehicles are very costly.

Q.2 (B) Solve the following Questions.(Each 2 Marks)

1)Complete the following chart regarding the weight and mass of an object.

Object	On Earth	On moon
Mass	X	.....
Weight	.....	Y

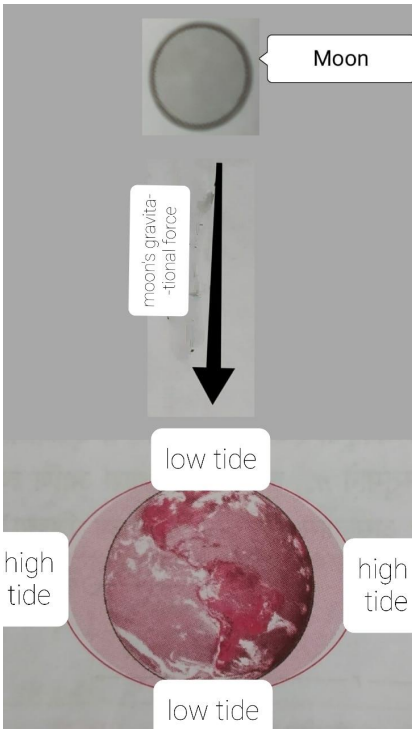
2)State Newton's Universal Law of Gravitation.

3)Define acceleration due to gravity.Write its value on the surface of Earth.

4)If a person weighs 750N on Earth, what will be the weight of the person on moon?(The mass of moon is $\frac{1}{81}$ times the mass earth and its radius is $\frac{1}{3.7}$ times that of earth.)

5)Mahendra and Virat are sitting at a distance of 1m from each other.Their masses are 75Kg and 80Kg respectively.What is the gravitational force between them?
($G = 6.67 \times 10^{-11}\ Nm^2/kg^2$)

6)Identify the mistake in the given diagram and draw it again.



7)The mass of planet 'X" is four times that of the earth and its radius is double the radius of the earth. The escape velocity of a body from the earth is 11.2×10^3 m/s. Find the escape velocity of a body from the planet 'X'.

8)State the following.

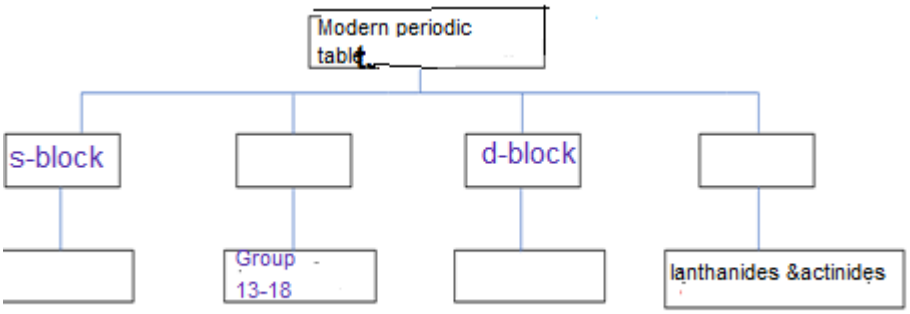
a)Doberenier's law of Traids

b)Newlad's Law of Octaves

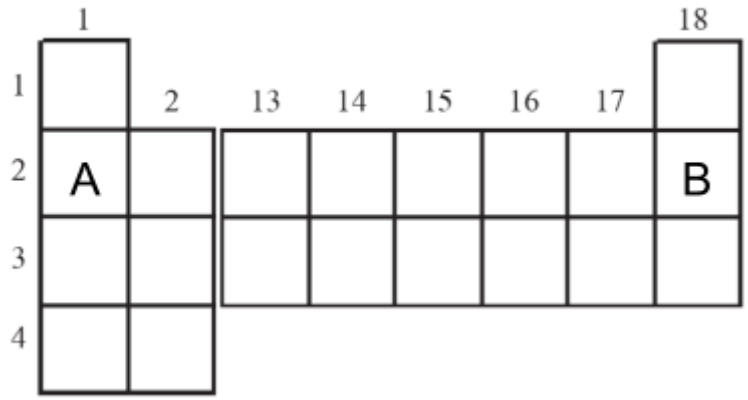
c)Mendeleev's Periodic Law

d)Modern Periodic Law

9)Complete the following flow chart.



10) In the modern periodic table, the positions of 1 to 20 elements are shown here. Identify the elements A and B. Write their atomic number.



11)some elements and their atomic radii are given here. Arrange them in a decreasing order of their atomic radii. Identify which of the above elements is the biggest atom and which is smallest?

Element	K	Na	Rb	Cs	Li
Atomic radius(pm)	231	186	244	262	151

12) Complete the following chart.

Shell	n	$2n^2$	Electron holding capacity
K	___	2×1^2	2
L	2		8
____	3	2×3^2	18
N	4	2×4^2	_____

13)Find the period in which these elements can be placed.

$_4Be$, $_{17}Cl$, $_2He$, $_{13}Al$

14)Electronic configuration of element A is 2,8,1. Answer the following questions based on this information.

a)What is the atomic number of element A?

b)Find the group to which this element belongs.

15)Classify the following elements into Metals and Nonmetals.

S,Mg,Al,P,N,Na.

16)Explain the factors affecting the rate of chemical reaction with example.

17)What are reactants and products?Explain with the help of examples.

18)Explain the following reaction with their balanced chemical equation .

a)Ammonia gas reacts with hydrogen chloride.

b)hydrogen sulphide reacts with sulphur dioxide.

19)Classify the following reactions into Exothermic and Endothermic reactions.

a)Magnesium ribbon when burned in air, it forms magnesium oxide.

b)$HCl + NaOH \rightarrow NaCl + H_2O$ + Heat

c)$2KClO_3(s) \xrightarrow{\triangle} 2KCl(s) + 3O_2$

d)$CaO + H2O \rightarrow Ca(OH)_2$ + Heat

e)$CaCO_3(s) \xrightarrow{\triangle} CaO(s) + CO_2$

20)Distinguish between Direct current and alternating current.

21)How does the short circuit form?What is its effect?

22)Write Fleming's Right hand rule and Left hand rule.

23)What is an electric motor?In which appliances do we use it?

24)Name any two appliances which works on the phenomenon of magnetic effect of electric current.

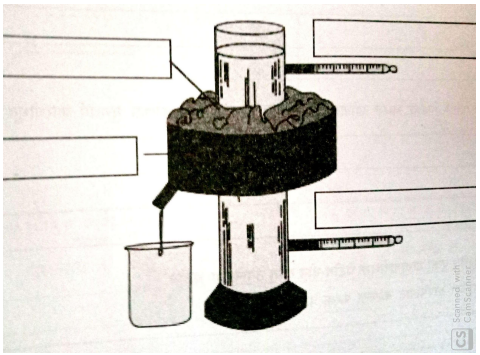
25)Name any two appliances which works on the phenomenon of heating effect of electric current.

26)Explain the Right hand thumb rule with the help of diagram.

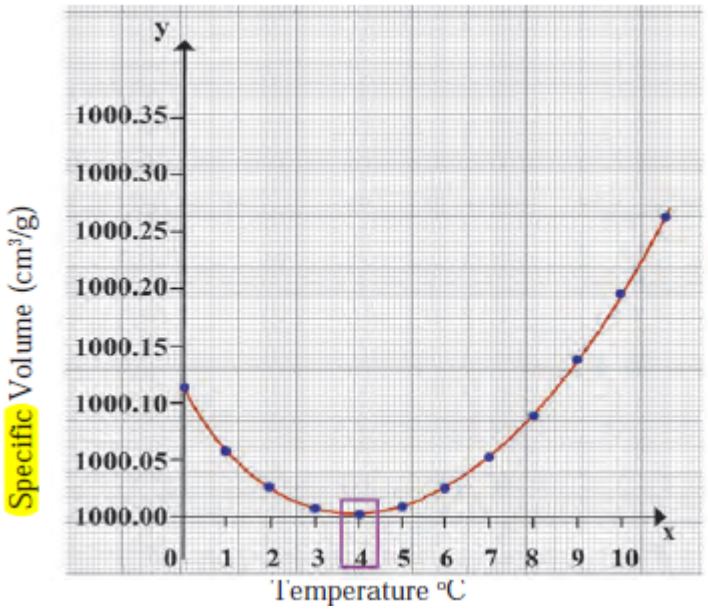
27)Explain the importance of fuse wire.(Uses)

28)Draw a neat and labelled diagram of Hope's apparatus.

29)Name the following diagam appropriately.



30)Observe the following diagram and write the answers to the questions given below.



a)Which process does the graph represent?

b)What is the range of temperature responsible for the behaviour?

31)How much heat will be required to raise the temperature of 5kg of water from 20℃to100℃?

32)Find the amount of heat needed to raise the temperature of a silver container of mass 100g by 10℃.(c=0.056cal/g℃)

33)If water of mass 60g and temperature 60℃is mixed with water of mass 60g and temperature 40℃,what will be the maximum temperature of the mixture?

34)Find the amount of needed to raise the temperature of a piece of iron of mass 500gby 20℃.(c=0.110cal/g.℃)

35) If the absolute refractive index of water is 1.36,find the speed of light in water.(Speed of light in vacuum=3×10^8 m/s.

36)If the absolute refractive index of glass and water are 3/2 and 4/3 respectively,what is the refractive index of glass with respect to water?

37)Solve the following example.

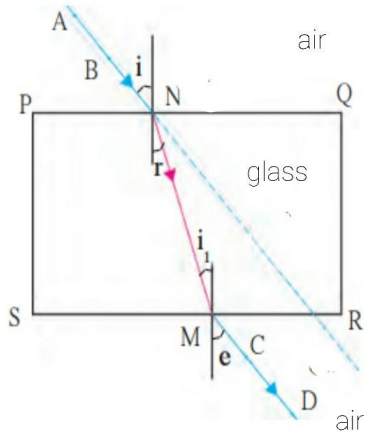
Speed in first medium v1=3×10^8 m/s

Speed in second medium=2×10^8 m/s

Then ${}_2n_1$ = ?

38)Draw a neat and labelled diagram for:Dispersion of light.

39)Observe the given figure and name the following.



Ray AB	
Ray NM	
Ray MD	
∠ r	

40)What is refraction of light? Explain with the help of example.

41)What is meant by dispersion of light?

42)State the laws of refraction of light.

43)If the speed of light in a medium is 1.5×10^{8} m/s, what is the absolute refractive index of the medium?

44) When a copper coin is dipped in the solution of silver nitrate ,it shows a lusture on its surface.explain this process with the help of chemical equation.

45)Electronic configuration of metal A is 2,8,1.Electronic configuration of Metal B is 2,8,8,2.Which of the above metals is more reactive?Explain with reason.

46)Classify the following metals based on their reactivity.

Cu,Zn,Ca,Mg,Fe,Na,Li,Hg

More reactive	Moderately reactive	Less reactive

47)Write the molecular formulas of the following compounds.

a)Cryolite

b)Fluorspar

c)Sodium aluminate

d)Copper pyrite

e)Stanic oxide

f)Ferrous tungstate

48)Explain the concept of Roasting and Calcination.

49)a)What is an alloy?

b)Give two examples of alloy.

50)Explain Bayer's process.

51)Differentiate between Calcination and Roasting.
52)Draw a neat and labelled diagram for Froth Floatation Process.
53)Explain the reactions of nonmetals with water with the help of examples.
54)Explain the characteristics of Ionic compounds.
55)What are amphoteric oxides?Explain with the examples.
56)Explain the Catenation power.
57)Explain the characteristics of covalent bond.
58)Explain the term Structural isomerism with example.
59)Explain the following terms with example.
a) Oxidising agent b)Reduction
60)Explain the concept of heteroatoms with the help of examples.
61)Explain the following reactions with examples.
a)Addition reaction b)Substitution reaction c)Esterification d) Saponification
63)What are catalysts?Give a chemical reaction in which a catalyst is used.
64)Write the characteristics of Ethanol.
65)What are vinegar and gasohol?What are their uses?
66)Write the uses of ethanol.
67)Write the characteristics of ethanoic acid.
68)What is meant by space debris? Suggest the ways to manage space debris.
69)Bring out the contribution of India's space missions.
70)What is Medium Earth Orbit?
71)Calculate the critical velocity of the satellite to be located at 35780Km above the surface of earth.

Question 2 b)II. Distinguish between:

1)Universal gravitational constant - Gravitational acceleration of the earth
2) Group - Period
3)s-block - p- block
4)Group17 - group 18
5)Mendeleev's periodic table - Modern periodic table
6)Concave lens - Convex lens
7)Farsightedness- Nearsightedness
8)Myopia - Presbyopia
9)Metals -Nonmetals (physical characteristics)
10)Roasting - Calcination
11)Froth floatation - Leaching
12)Saturated hydrocarbons - Unsaturated hydrocarbons
13)Open chain hydrocarbons -closed chain hydrocarbons
14)Alkane- Alkene
15)High Earth orbit - Medium Earth orbit.

Que 2B) III.write short notes. (2m each)

1) Escape Velocity
2) Free Fall
3) Anomalous behaviour
4) Specific capacity
5) dew point temperature
6) r e g e l a t i o n
7) catenation power
8) characteristics of carbon
9) functional group carbon compounds
10) Homologous series
11) aromatic hydrocarbons
12) moon missions

Que 2B) IV. Explain the following reactions with the balanced equations.(2 marks each).

1) sodium burns in air
2) reaction of aluminium with oxygen
3) magnesium reacts with dil hcl
4) aluminium reacts with dil hydrochloric acid
5)reaction of Zink with dil hydrochloric acid
6)sulphur burns in air
7))chlorine dissolved in water
8)sodium aluminate reacts with water
9)ferrous dissolved in aqueous solution copper sulphate.
10)Ferric oxide is reacted with aluminium.
11)electrolysis of alumina is done.
12)dry aluminium hydroxide is ignited in at1000°c
13)zinc oxide is heated strongly in excess of air
14)zinc carbonate is heated strongly in limited supply of air
15)zinc oxide is treated with carbon

Que 2 B) V. Explain concept with example / explain with the help of balanced equation. (Each 2 m)

1) ionic bond and ionic compounds
2) ganauge
3) Ores
4) Roasting and calcination
5) corrosion

5) Minerals

Que.2 B) VI. Draw a neat labelled diagram. (2m each.)

1)Magnetic separation method

2) Froth flotation

3) Electrolysis reduction of alumina

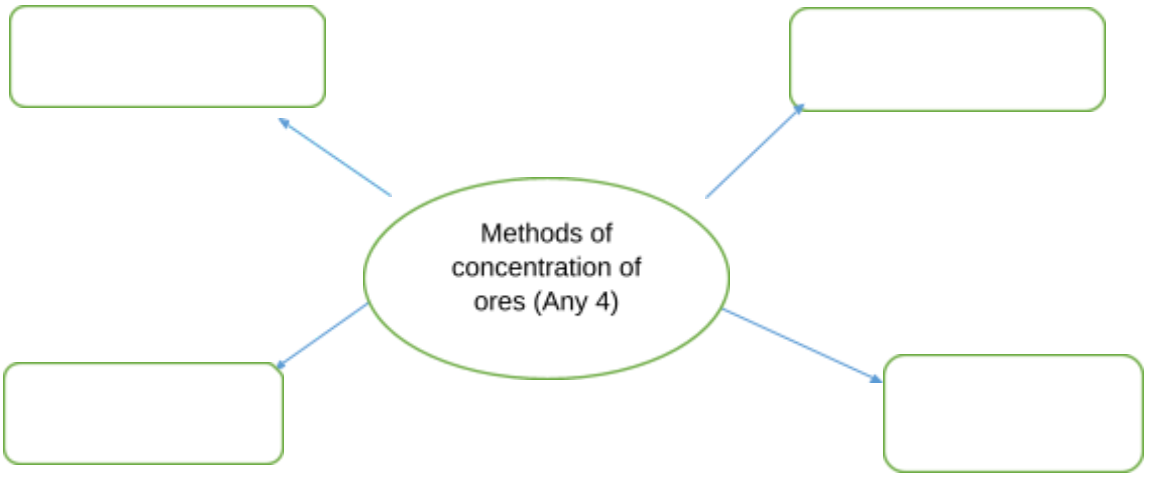
4) Hydraulic separation method

5) electrolysis

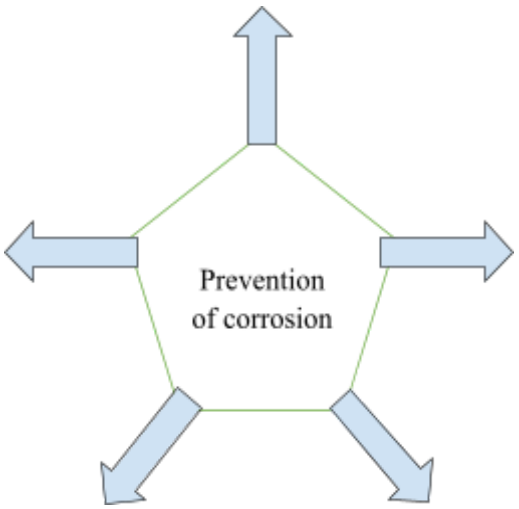
6) anodizing

Que 2 B) VII. Complete flow chart given below (2m.each)

1)



2)



3)

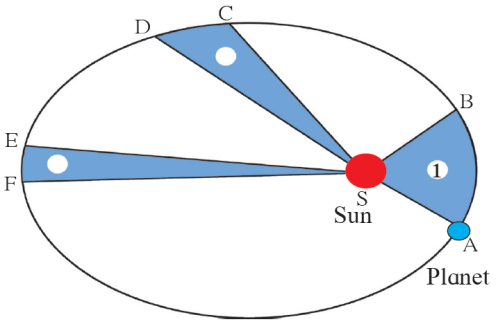
Symbol : ---------- Valency : ----------



Atomic Number: ---------- Electronic configuration :--------

Q.3.rd:Answer the Following.(3m.each)

1) Observe the given figure and answer these following questions.



1.4 The orbit of a planet moving around the Sun.

a) What is the conclusion about the orbit of a planet.

b) What is the relation between velocity of planet and distance from sun.

c) ASB, CSD and ESF relation between areas explain.

2) Write the Kepler's law.

3) State Newton's universal law of gravitation. Express it with the mathematical form of force of gravitation?

4) An object takes 5 s to reach the ground from a height of 5 m on a planet. What is the value of g on the planet?

5) The radius of planet A is half the radius of planet B. If the mass of A is MA, what must be the mass of B so that the value of g on B is half that of its value on A?

6) The mass and weight of an object on earth are 5 kg and 49 N respectively. What will be their values on the moon? Assume that the acceleration due to gravity on the moon is 1/6th of that on the earth.

7) An object thrown vertically upwards reaches a height of 500 m. What was its initial velocity? How long will the object take to come back to the earth? Assume g = 10

8) A ball falls off a table and reaches the ground in 1 s. Assuming g = 10 m/s^2, calculate its speed on reaching the ground and the height of the table?

9) The masses of the earth and moon are 6×10^{24} kg and 7.4×10^{22} kg, respectively. The distance between them is 3.84×10^5 km. Calculate the gravitational force of attraction between the two? (Use G = 6.7×10^{-11} N m^2/kg^2)

10) The mass of the earth is 6×10^{24} kg. The distance between the earth and the Sun is 1.5×10^{11} m. If the gravitational force between the two is 3.5×10^{22} N, what is the mass of the Sun? Use G = 6.7×10^{-11} N m^2kg^{-2}.

11) A tennis ball is thrown up and reaches a height of 4.05 m before coming down. What was its initial velocity? How much total time will it take to come down? Assume g = 10 m/s^2 ?

a) State mendeleev's periodic law. On which basis mendeleev organised periodic law ?

b) State limitations of Dobereiner's law of triads ?

c) Describe the merits of the mendeleev's periodic table?

d) What are the demerits of mendeleev's periodic table?

e) Write name of elements, symbol, atomic number, electronic configuration of second period in modern periodic tables?

f) 10, 20, 7 write information about the given atomic number in the table.

Atomic Number	Electronic configuration	Groups	Periods	Elements
10				
20				
7				

12) An x element with atomic number 11 and Y element with atomic number 13 belong s to the third period in the modern periodic table with this information given in the answers of the below question.

a) Which elements are more metallic characters from these two elements?

b) what is the valency of X व Y elements?

c) atoms size of Y element is smaller than atoms size of X element? explain?

13) Identify periods of elements and block of elements from given electronic configuration.?

a) 2, 8, 2 b) 2, 8, 7 c) 2, 1

14) Position of A, B & C three elements is given in the table from the modern periodic table. Answer the following questions?

Periods	Group 2	Group 17
2	------	A
3	B	-------
4	-------	C

a) what is A element metal or nonmetals?

b) which is the outermost orbit of element B ?

C) identify C element and it's physical state?

15) 3,1,2 electrons are in valence shell of X , Y , Z elements from this in which groups it belongs and write it's valency

16) Match the columns.

	Reactants		Products	Types of chemical reaction
b)	MgH_2	→	$Mg + H_2$	Endothermic
c)	$2H_2S + SO_2$	→	$3S + 2H_2O$	Oxidation
d)	$CaO + H_2O$	→	$Ca(OH)_2$ + heat	Exothermic

Redox

17) Write three steps of writing chemical equations with example?

18) Identify the following reactions the reactants undergo oxidation and reduction.and write it?

a) $2Ag_2O \rightarrow 4Ag + O_2$

b) $2Mg + O_2 \rightarrow 2MgO$

c) $NiO + H_2 \rightarrow Ni + H_2O$

19) Answer the following questions

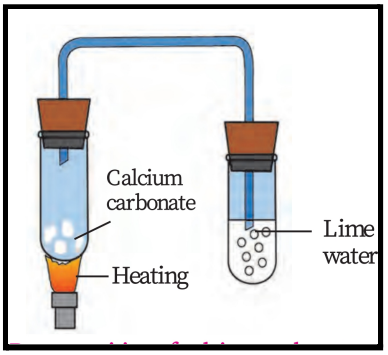
a) What is corrosion?

b) what is Electrolysis?

c)which changes occur during chemical changes?

d) what is called The reaction which involves oxidation and reductions simultaneously ? explain with one example?

20) Explain the reaction given in figure?



21) Name any three appliances based on the heating effect of electric current.

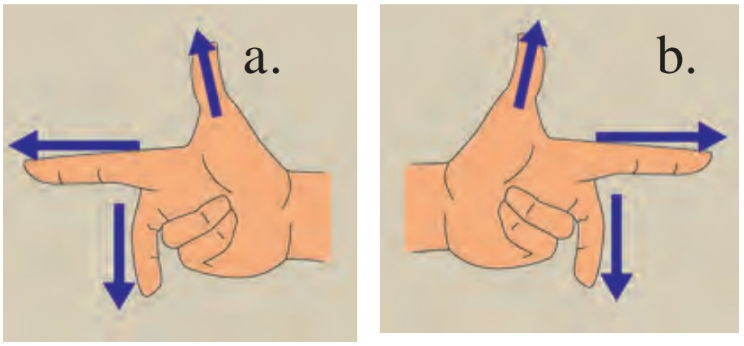
22) Name any three appliances based on the magnetic effect of electric current Write laws:-

अ)Fleming right hand rule

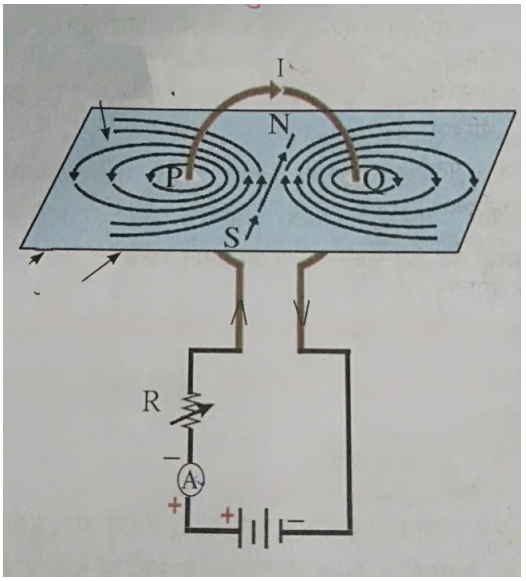
आ) Fleming left hand rule

इ) Right hand thumb rule

23) An electrical iron 1100 wt is operated for 2hours daily what will be the electrical expenses for that in the month of April(the electrical charges 5 rs.per unit of energy)
24) What is overloading?when does it occur?What does it cause?How can overloading be avoided?
25) Explain the construction and working of electric motors in short.
26) Write a short note on the galvanometer.
27) What is the use of earthing wire?
28) Explain the application of heating effect of electric current in an electric bulb with diagram.
29) Draw a neat labelled diagram to show the magnetic effect of electric current.
30) Name the following diagrams and explain the concept behind them.



31) Identify the given figure, write the labels of it.



32) Who will spend more electrical energy? 500 W TV Set in 30 mins, or 600 W heater in 20 mins?
33) Which principle is used to measure the specific heat capacity of a substance?

34) decide the unit for specific heat capacity.
35) In cold regions in winter, the rocks crack due to anomalous expansion of water Explain term.

36) Explain how heat capacity of a solid can be determined by the method of mixture.

37) What is meant by latent heat? How will the state of matter transform if latent heat is given off?

38) What is the role of anomalous behaviour of water in preserving aquatic life in regions of cold climate?

39) How can you relate the formation of water droplets on the outer surface of a bottle taken out of the refrigerator with formation of dew?

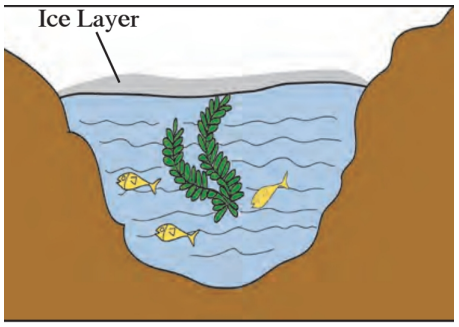
40) 'Geeta observed white trail at the back of aeroplane in a clear sky to answer the question from this incident given below.

i)what will be the effect of relative humidity of the air surrounding the plane?

ii)i)what will be the effect of relative humidity of the air surrounding the plane is low?

iii) when the air is dry and humid?

41) Observe the given picture & answer the following questions.



a) which property do you understand in this picture?

b) what is the temperature of the water at the surface?

c) what is the temperature below the layer of ice on the surface?

42) read this activity and Answer the following questions.

1) Take three spheres of iron, copper and lead.

lead of equal mass.

2)Put all the three spheres in boiling water in the beaker for some time.

3) Take the three spheres out of the water.

4)All the spheres will be at temperature 100°c

C. Put them immediately on the thick slab of wax

5)Note, the depth that each of the sphere goes into the wax

Que:

a)which property is determined from this activity?

b) give name to that property.

c) explain the term Principal of heat exchange with the help of this activity .

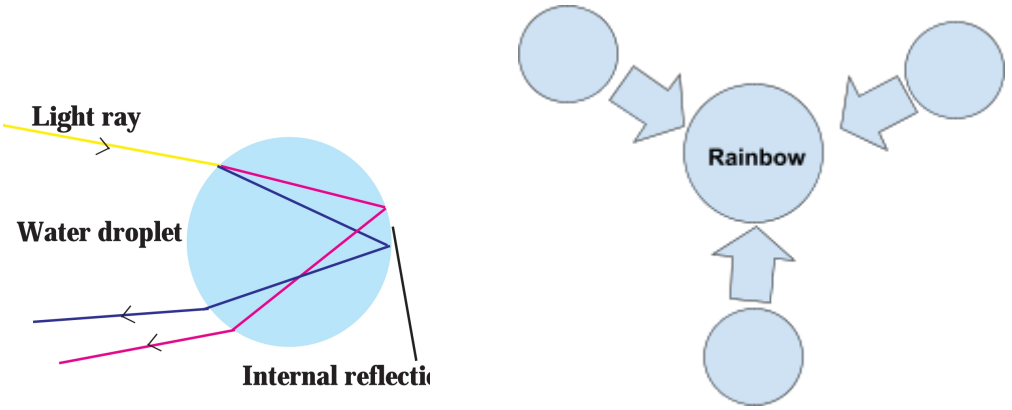
43) The cold object the hot object enclosed in a one box of heat resistant material

a) what changes will occur in the two objects when temperature flows from those objects ?

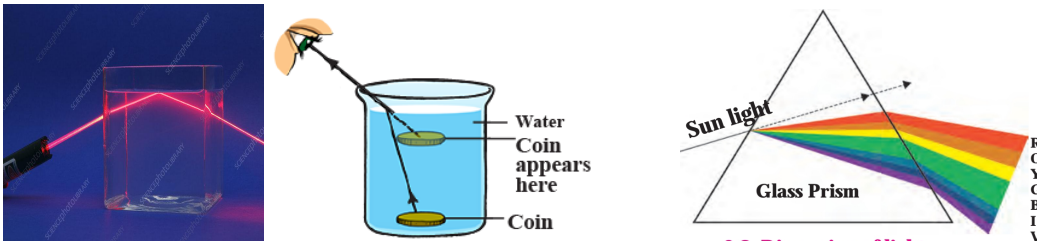
b)which principle can show that the energy exchange takes place between two objects only?

44) Rainbow is a beautiful natural phenomenon. It is the combined effect of a natural three processes together produced by light.write it into the circle.

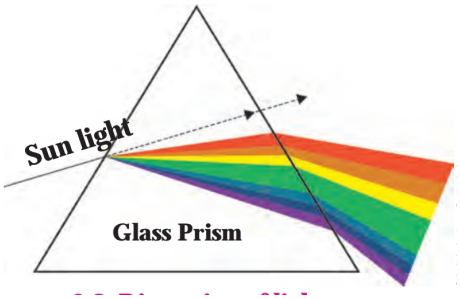
45)



46) Observe the given figure and write appropriate phenomenon of light in the box.



47) Observe the given figure and answer the following questions.



a. Which colour light rays bends most?

b. Which colour light rays bends least.

c. What is the wavelength of violet light rays?

48) Find the power of a convex lense of focal length of + 25 c.m

49) If a convex lense focal length is 20 c.m at what is the power of the lens?

50) If each two concave lense of focal length 30 c.m are kept in contact with each other what will be the power of combination.

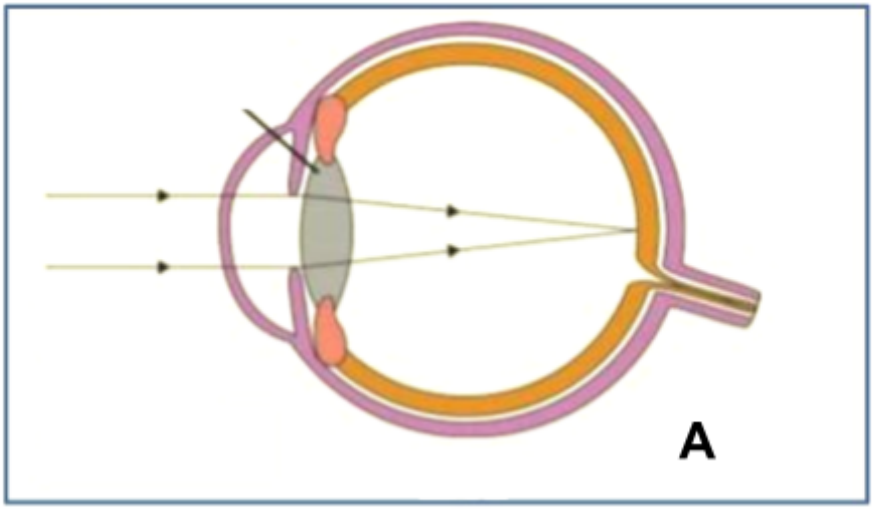
51) An object is placed at a distance of 10 c.m a convex lens of focal length 12 c.m found at what distance object placed from the lens . position and nature of image

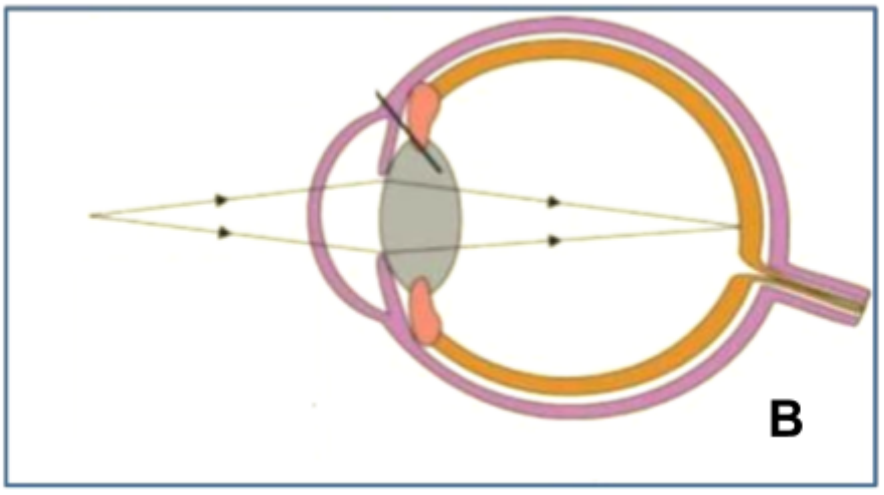
52) 5 cm high object is placed at a distance of 20 cm from a converging lens of focal length of 10 cm. Determine the position, size and type of the image.

53) An object is placed vertically at a distance of 20 cm from a convex lens. If the height of the object is 5 cm and the focal length of the lens is 10 cm, what will be the position, size and nature of the image?how much bigger as compared to the object?

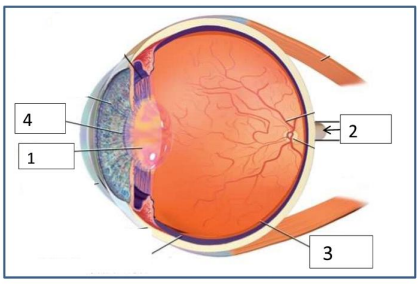
54) Two convex lenses of focal length 30 c.m and 10 c.m each are kept in contact with each other .Find the power of their combination.

55) In the following figure the change in the shape of the lens while seeing distant and nearby objects complete the figure by correctly labelled diagram .

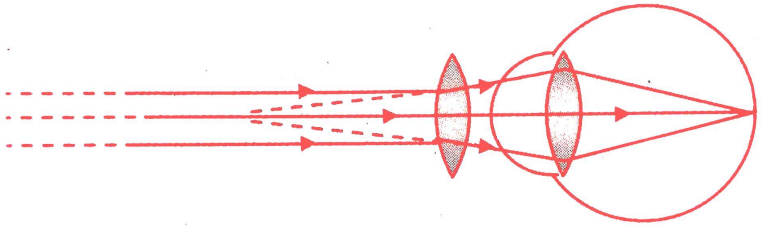




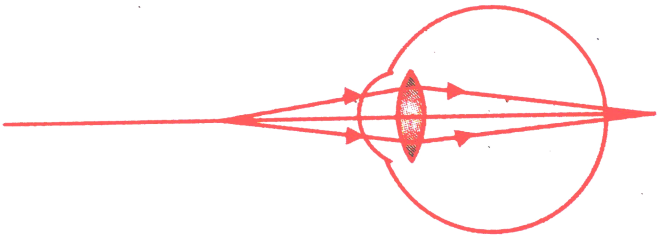
56) Write the function of the human eye and label parts of the figure given below.



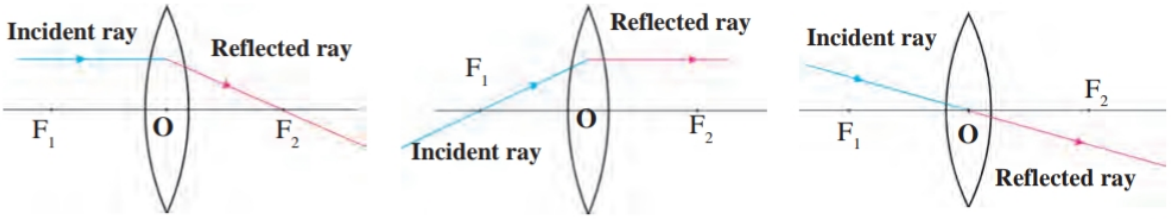
57) Observe the given below figure, correct it and explain and write about what is your concept about this figure.



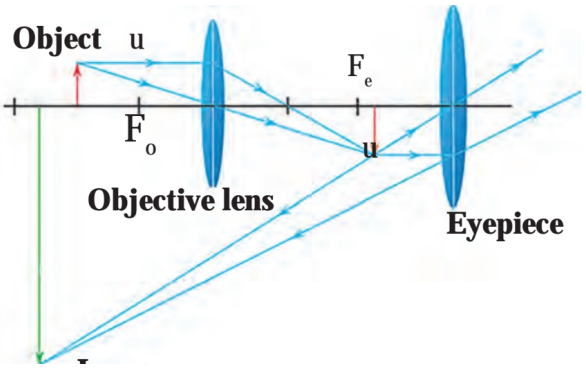
58) Given below isDigram showing a defect of vision.name the defect of vision and draw an accurate labelled diagram to correct this defect.



59) Write laws in given figure.



60) Observe the given figure and answer the following questions.

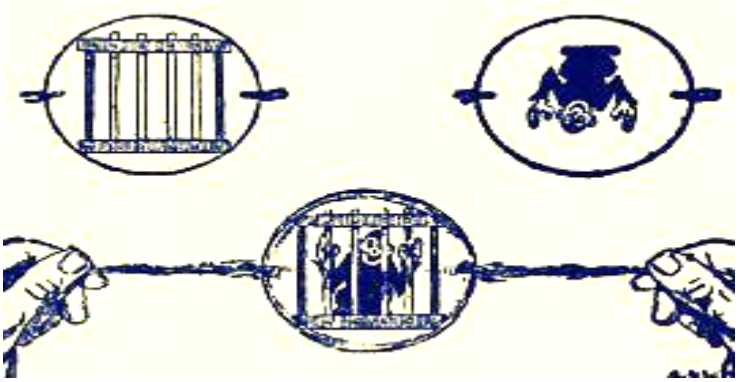


a) Where are the above types of lens construction used ?

b) What type of image is formed by an objective lens?

e) What happens instead of placing at Fo if the object is placed in between O and FO ?

61) Identify and Explain concepts given in this Diagram ?



62) Complete paragraph by choosing the right options given below.

(minimum, near point, 25 cm, farthest, farthest distance)

The …… distance of an object from a normal eye, at which it is clearly visible without stress on the eye, is called the minimum distance of distinct vision. The position of the object at this distance is called the …… of the eye, for a normal human eye, the near point is at ……. The ……. distance of an object from a human eye, at which it is clearly visible without stress on the eye is called …….. of distinct vision. The position of the object at this distance is called the …….. of the eye.

63) Choose the correct option from the bracket and complete the stanza.

(colour blind, actual, conical , light sensitive, rodlike, colours)

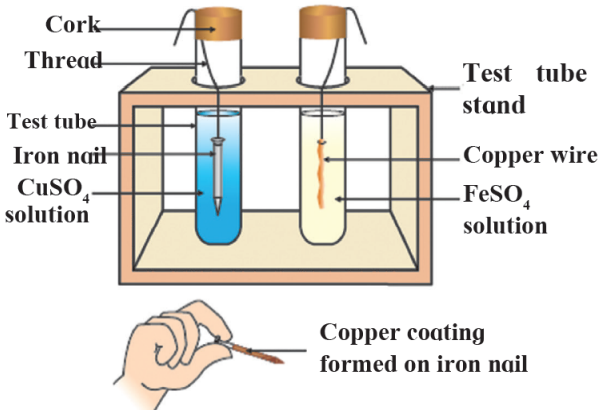
The retina in our eyes is made up of many --------- cells. These cells are shaped like a rod and like a cone.The ------- cells respond to the intensity of light and give information about the brightness or dimness of the object to the brain.The ---------- cells respond to the colour and give information about the colour of the object to the brain.Brain processes all the information received and we see the ------ image of the object.Rod like cells respond to the faint light also but ------ cells do not.Some people lack conical cells responding to certain colours. These persons can not recognize those colours or can not distinguish between different ---------.These persons are said to be --------.

A) What is corrosion ?

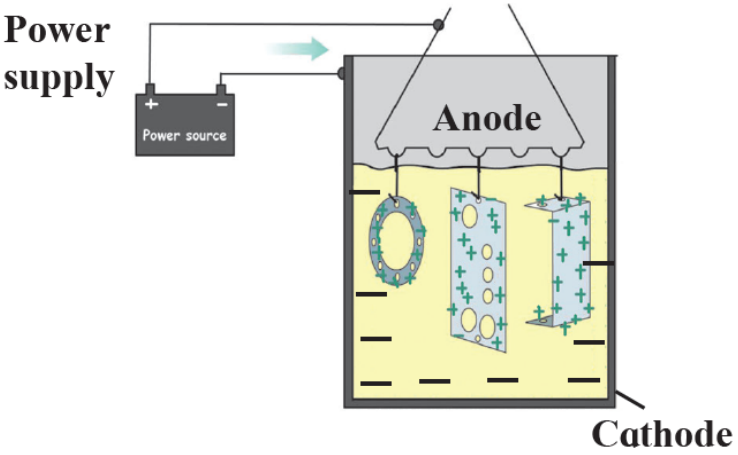
B) Write the chemical name of Corrosion.

C) Write a molecular formula for corrosion.

64) Observe the following diagram and identify the type of reaction and write observation .



65) Observe the following diagram and give answers.



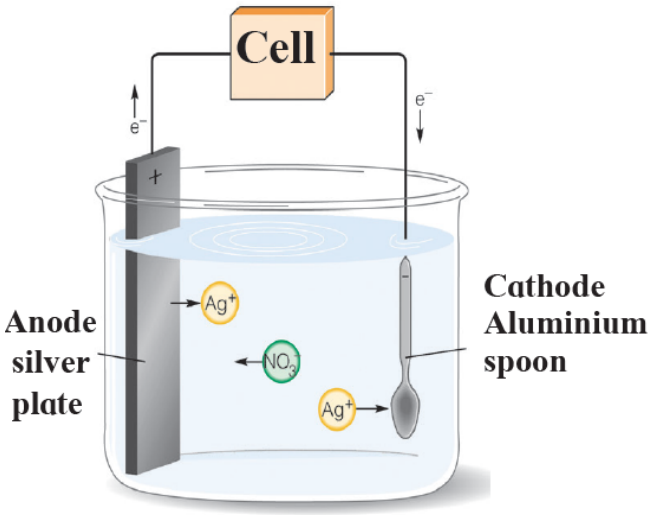
A) Name the method of prevention of corrosion.

B) For prevention of which metal this method is used?

C) What is used as Anode in this method?

66) Explain the Hydraulic separation method with a neat labelled diagram.

67) Observe the following diagram and write answers.

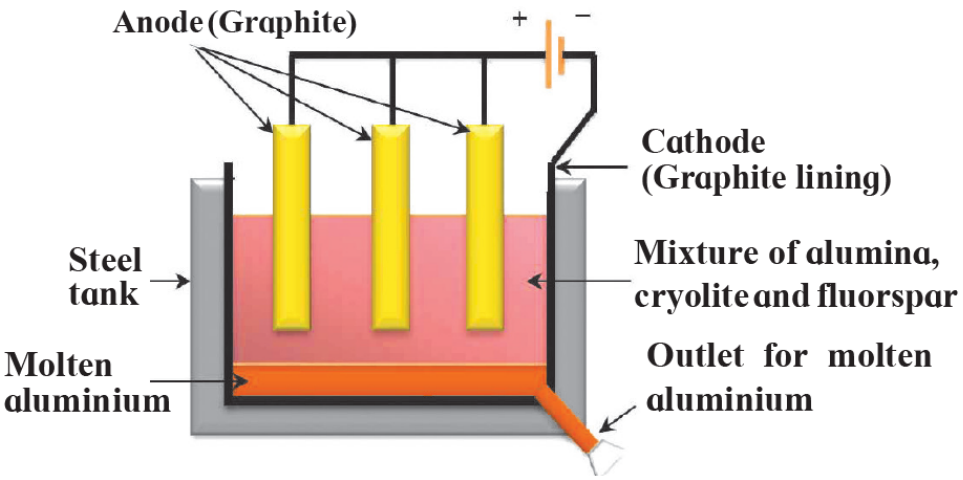


A) Name the method :----------

B) Explain the method .

C) Give two examples of this method.

68) Observe the following diagram and write answers.

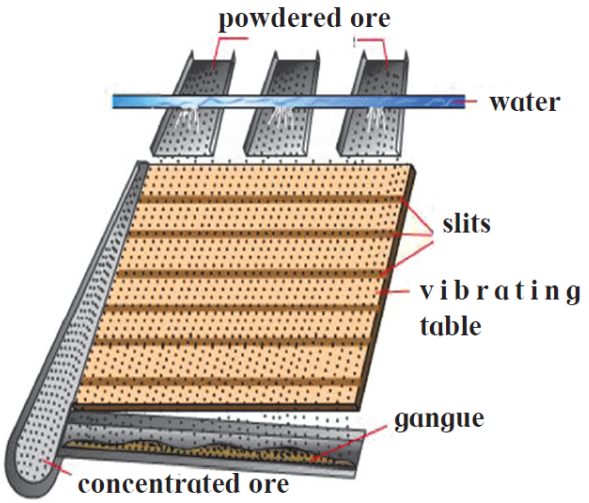


A) Name the method :----------

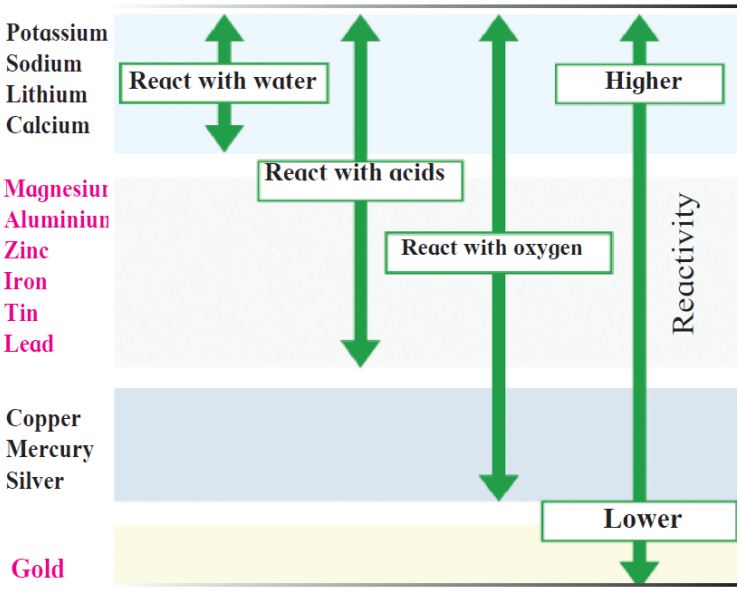
B) Write Anode reaction and Cathode reaction .

C) Why fluorspar and cryolite are added in the mixture ?

69) Identify the following method of concentration of ores and explain briefly .



70) Observe the following diagram and write answers.



A) Write the name of two metals which react with water.

B) Write the name of two moderately reactive metals .

C) Which is highly reactive and less reactive metal?

71) Explain the Froth floatation method with a neat labelled diagram.

72) Read the following passage and answer the questions.

According to the reactivity series Zinc is more reactive than Iron, Iron is more reactive than silver. During study of this a student deeped the iron nails in silver nitrate solution.

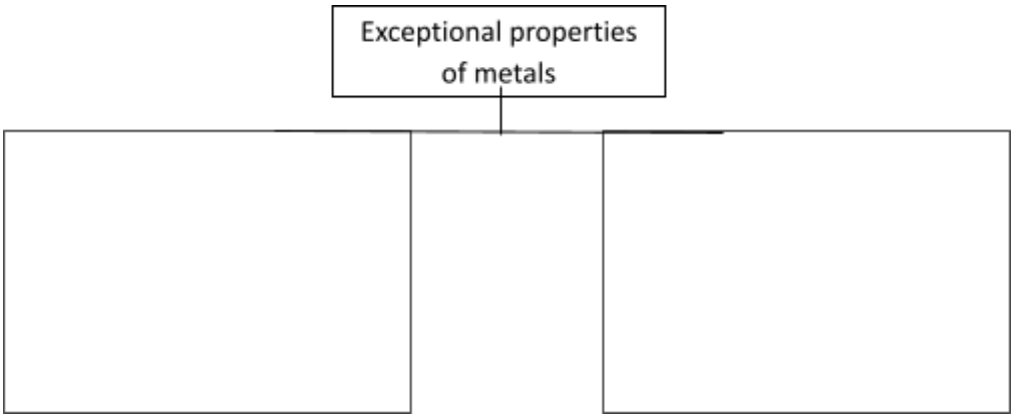
A. What is reactivity ?

B. What will happen when iron nails are dipped in silver nitrate solution ?

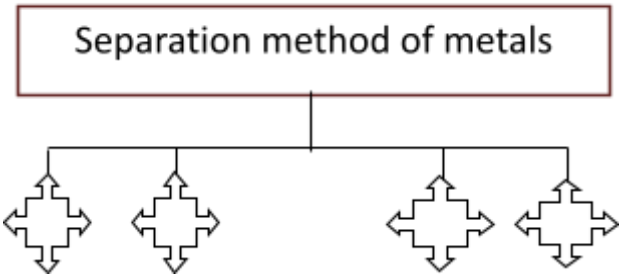
C. Which type of reaction happens when iron metal reacts with silver nitrate solution ?

D. What will happen if a Zinc rod is used other than Iron nail ?

73) Complete the following flowchart.



74) Complete the following flowchart.



75) Complete the following flowchart.



76) Homologous series of Alkanes.

Name	Molecular formula	Condensed Structural formula	Number of carbon atoms	Number of $-CH_2-$ units	Boiling point ^0C
Methane	CH_4	CH_4	1	1	- 162
Ethane	C_2H_6	CH_3-CH_3	2	2	- 88.5
Propane	C_3H_8	$CH_3-CH_2-CH_3$	3	3	- 42
Butane	C_4H_{10}	$CH_3-CH_2-CH_2-CH_3$	...	...	0
Pentane	C_5H_{12}	$CH_3-CH_2-CH_2-CH_2-CH_3$	...	...	36
Hexane	C_6H_{14}	$CH_3-CH_2-CH_2-CH_2-CH_2-CH_3$	...	...	69

77) Homologous series of Alcohols

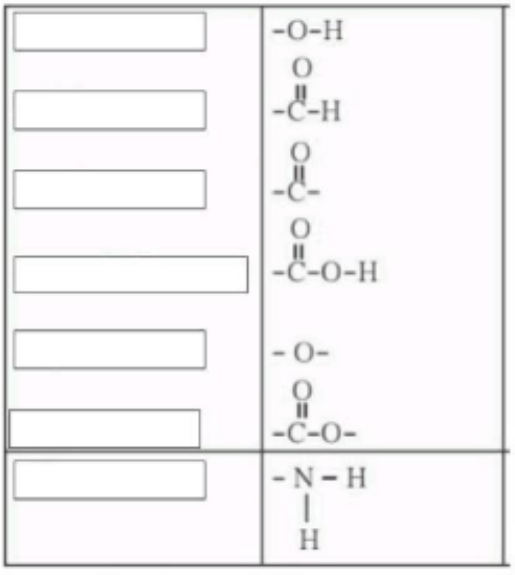
Name	Molecular formula	Condensed Structural formula	Number of carbon atoms	Number of $-CH_2-$ units	Boiling point ^0C
Methanol	CH_4O	CH_3-OH	1	1	63
Ethanol	C_2H_6O	CH_3-CH_2-OH	2	2	78
Propanol	C_3H_8O	$CH_3-CH_2-CH_2-OH$	...	...	97
Butanol	$C_4H_{10}O$	$CH_3-CH_2-CH_2-CH_2-OH$	...	...	118

78) Homologous series of Alkenes

Name	Molecular formula	Condensed Structural formula	Number of carbon atoms	Number of $-CH_2-$ units	Boiling point ^0C
Ethene	C_2H_4	$CH_2= CH_2$	2	0	- 102
Propene	C_3H_6	$CH_3-CH=CH_2$	3	1	- 48
1-Butene	C_4H_8	$CH_3-CH_2-CH=CH_2$	...	...	- 6.5
1-Pentene	C_5H_{10}	$CH_3-CH_2-CH_2-CH=CH_2$	...	...	30

79) Complete the given chart with writing the correct functional group of carbon compounds.

(Ester, Aldehyde, Ketone, Carboxylic acid, Alcohol,Ether)



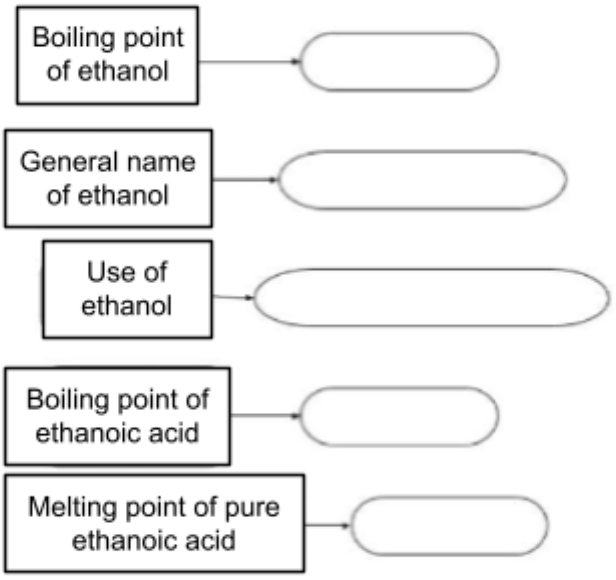
80) Complete the following table with writing correct structural formula and molecular formula.

Straight chain of carbon atoms	Structural formula	Molecular formula	Name
C – C	……	……	Ethane
C – C – C – C	……	……	Butane
C – C – C – C– C– C– C	……	C_7H_{16}	……
C – C – C – C– C– C– C – C	……	C_8H_{18}	……

81) Complete the following table with writing IUPAC name of carbon compound.

Sr. No.	Common name	Structural formula	IUPAC Name
1	ethylene	$CH_2=CH_2$	
2	acetylene	$HC\equiv CH$	
3	acetic acid	CH_3-COOH	
4	methyl alcohol	CH_3-OH	
5	ethyl alcohol	CH_3-CH_2-OH	
6	acetaldehyde	CH_3-CHO	
7	acetone	CH_3-CO-CH_3	
8	ethyl methyl ketone	CH_3-CO-CH_2- CH_3	
9	ethyl amine	CH_3-CH_2-NH_2	
10	n-propyl chloride	CH_3- CH-CH_2-Cl	

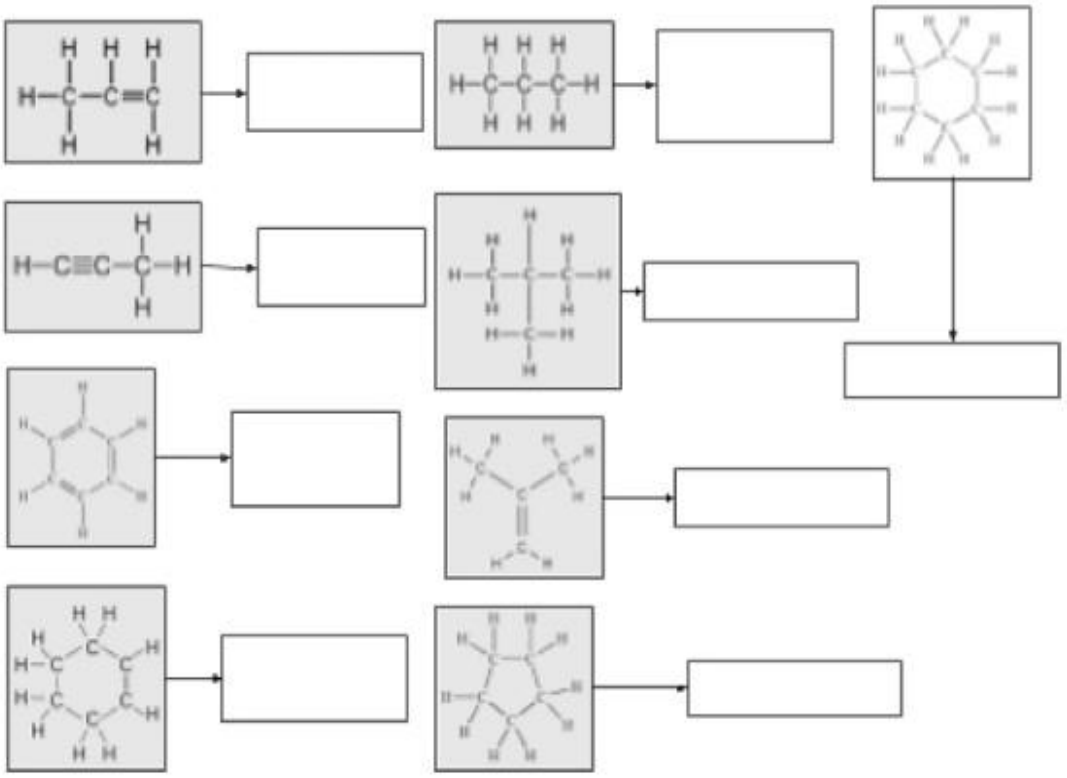
82) Complete the following activity.



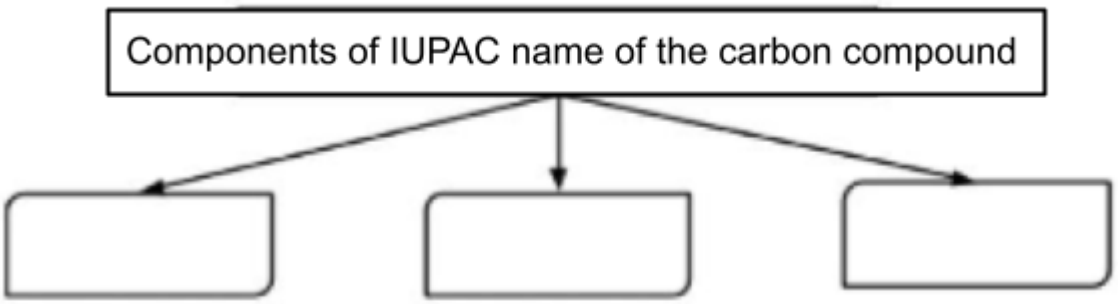
83) Complete the following activity.

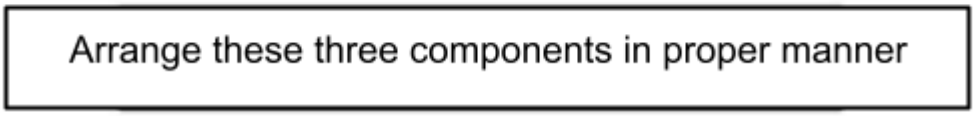
Write the names of the hydrocarbons for the following structural formula.

(isobutylene, cyclohexane, propene, cyclohexene, cyclopentane, benzene, propyne, isobutane, propene)



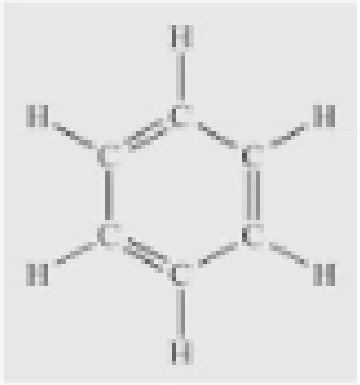
84) Complete the following activity.







85) Observe the structural formula and answer the following questions.



1. Write the name of the given hydrocarbon.
2. The given hydrocarbon included in which type of hydrocarbon?
3. What kind of compounds with the above characteristic structure are called?

86) Complete the following chart by using examples given in brackets.

(isobutylene, cyclohexane, propene, cyclohexene, cyclopentane, benzene, propyne, isobutane, propene)

Straight Chain Hydrocarbons	Branched chain Hydrocarbons	Cyclic Hydrocarbon

87) Write the properties of Ionic compounds.

88) Observe the figure and write the answers.



A) Name the outer orbit.

B) Which satellites revolve in low earth orbits ?

C) Which various orbits are given in the figure?

D) Give an example of a launch vehicle based on Newton's third law.

89) Explain why spacecraft take longer to reach the moon than light?

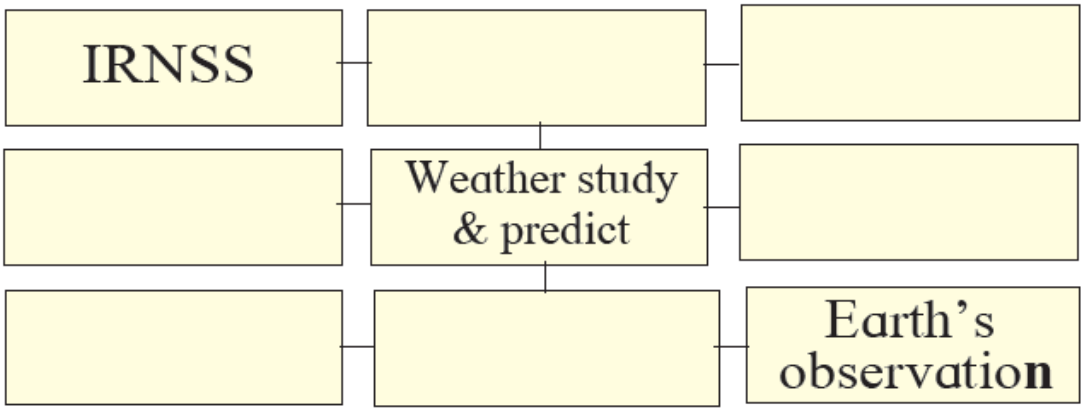
90) Write functions of Military satellite and Navigational satellite.

91) What is meant by Artificial satellite ? How are they classified depending on their functions?

92) If the mass of a planet is eight times the mass of the earth and its radius is twice the radius of the earth, What will be the escape velocity for that planet?

93) Explain : Escape velocity on the moon is less than escape velocity on the earth.

94) Complete the following chart.



Question no. 4 : Answer the following questions. (5 Marks each)

1) Read the given passage carefully and answer the questions.

We know that the gravitational force of the earth is applied to all objects.This force was used even when you were holding a stone in your hand. But the force you were pushing in the opposite direction with your hand was balancing it so that the stone was stable.When you let go of the hand ,only gravitational force is applied to the stone, so the stone falls under its influence. When an object is moving only under the influence of gravitational motion, that motion is called free fall,that is the stone falls. In free fall,the initial velocity is zero and it is increased due to gravitational acceleration over time.At the time of free fall on the earth , the friction of the air opposes the motion of the object. So in the true sense free fall cannot happen in the air. It can happen only in vacuum.

A) Complete the following statement by choosing the right option.

The stone held in the hand is stable because on it ....

a) two unbalanced forces are exerted.

b) only the gravitational force of the earth is exerted.

c) gravitational force of the earth is not exerted.

d) two balanced forces are exerted.

B)Why does free fall not happen on the earth?

C)Why does the velocity of the object increase during the free fall?

D)Which type of force exerts on the object during free fall?

E) Why does free fall happen only in vacuum?

2) Note the relationship between the entries in all the three columns in the table and rewrite the table.

Column-1 (Location)	Column-2 Height from the earth's surface (km)	Column-3 g (m/s^2)
Earth's surface(average)	8.8	0.225
Mount Everest	36.6	9.81
The highest height ever reached by man made balloon	400	9.8
Orbit of spacecraft	35700	9.77
Orbit of communication satellite	0	8.7

3) Observe the given chart and answer the questions given below.

Element	A	B	C	D
Electronic configuration	2, 1	2, 8	2, 8, 1	2, 8, 8

A) Which elements are in the same row ? 1 mark

B) Which elements have the same column? 1 mark

C)Which elements are in the 18th column? 1 mark

D)Which element is more reactive in A and C ? 1 mark

A) Which of the following elements A and B is found in its compound? 1 mark

4) XY Compound formed by X (Atomic number 11) and Y (Atomic number 17) then answer the questions given below.

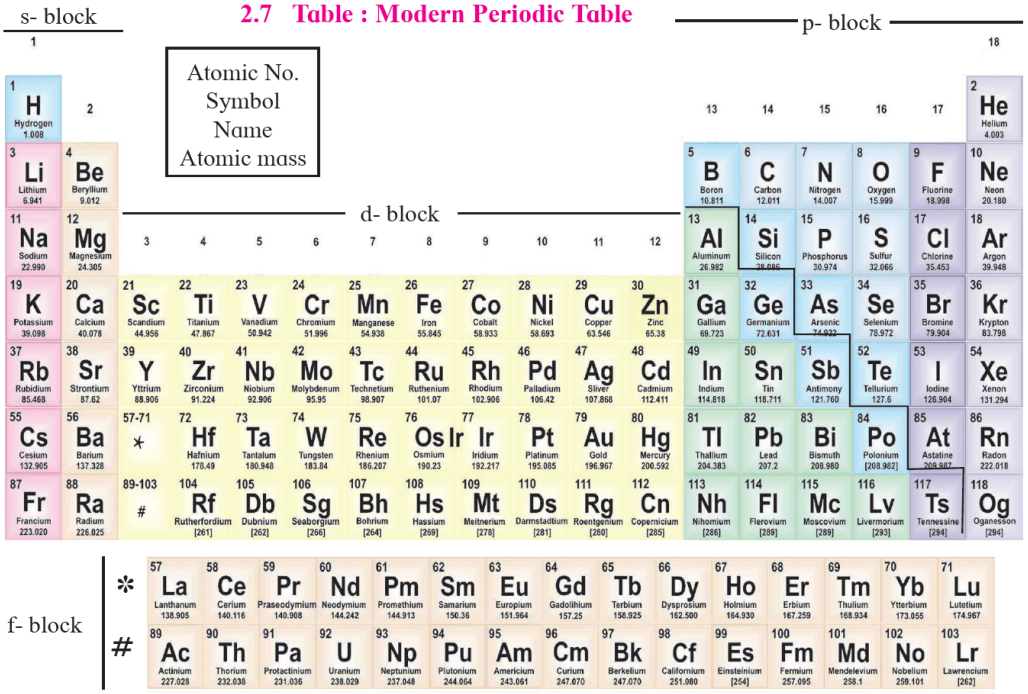
A)Determine the position of the element X and Y in the modern periodic table. 1 mark

B) Which type of elements X and Y are metals, nonmetals or metalloids? 1 mark

C)From which block the elements X and Y are? 1 mark

D) Determine the electronic configuration and valency of these elements. 2 marks

5) Observe the periodic table given below and write the answers of the questions.



A)Write the name and valencies of the elements in 3rd row . 2 marks

B)Classify the elements in this row in metal, nonmetal and metalloids.1 mark

C)Which block does nonmetals belong to? 1 mark

D)Write name of any two metalloid elements. 1 mark

6) Make a chart which shows the name of the element, valency, atomic number,electronic configuration in the 2nd row of the modern periodic table.and arrange these elements in ascending order of atomic mass.

7) What physical and chemical properties of elements did mendeleev consider in compiling the periodic table ?What challenges did mendeleev face in following periodic law?

8) Explain structure of modern periodic table in short.

9) The electronic configuration of an element is 2,8,2 then write the answers of the questions given below.

A. What is the atomic number of this element?

B. Which column does this element belong to?

C. Which row does this element belong to?

D. The chemical properties of this element will be similar to which of the following elements?

(Atomic numbers are given in the bracket)

N (7), Be (4) , Ar (18), Cl (17)

10) Balance the given chemical reaction as per the instructions below.

$NaOH + H_2SO_4 \rightarrow Na_2SO_4 + H_2O$

A) Write names of reactants and products of chemical reaction.

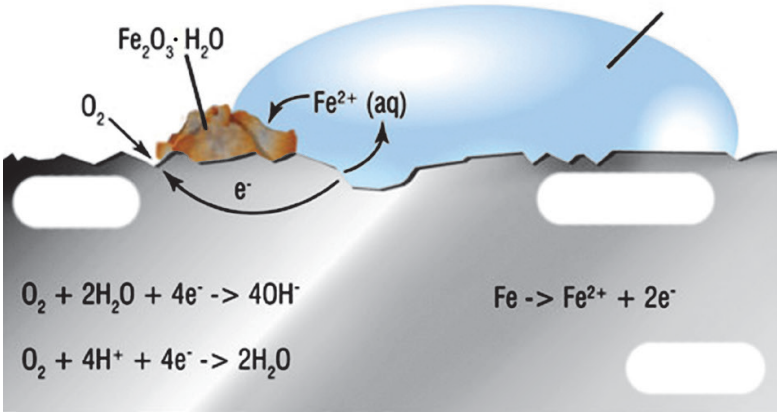
B) Make a list of the elements in the chemical equation.

C) write the number of atoms of reactants and products.

D) Balance the equation with proper coefficient and rewrite the equation.

E) Oxidation means losing electrons then what is reduction?

11) Observe the following figure and write the answer of the question.



A) Which process is shown in the figure?

B) Explain the chemical reaction shown in the figure.

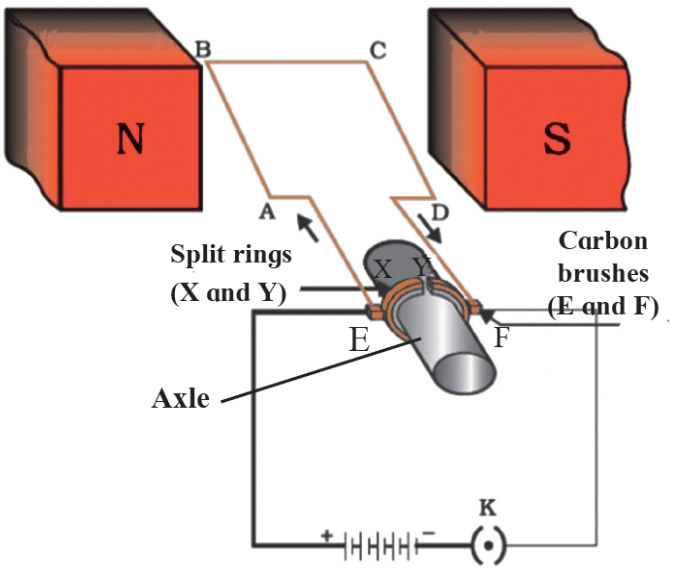
C) Write the reactions on anode and cathode.

12) Draw a diagram of an electric motor and explain the structure and function of it.

13) Explain the structure and function by drawing a diagram of an electric generator.

14) Explain the magnetic field created by a current around a conductor from the figure.

15) Observe the figure and write the answers to the questions asked.

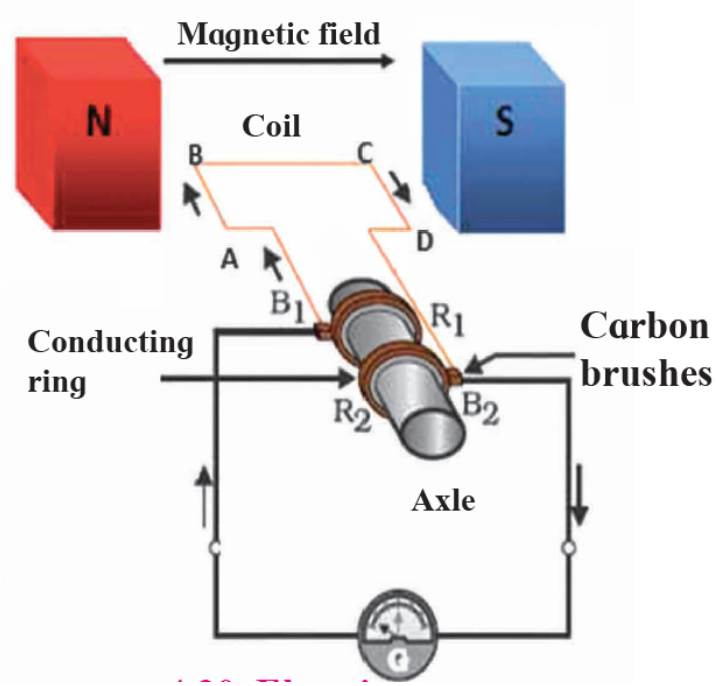


A) The structure shown in the figure is of which device?

B) Explain the principle on which this device works .

C) Write any three uses of this device.

16) Observe the figure and write the answers to the questions asked.



A) The structure shown in the figure is of which device?

B) Explain the principle on which this device works .

C)Write any three uses of this device.

17) Read the passage and answer the questions based on it.

If heat is exchanged between a hot and cold object , the temperature of the cold object goes on increasing due to gain of energy and the temperature of the hot object goes on decreasing due to loss of energy.The change in temperature continues till the temperatures of both the objects attain the same value.In this process, the cold object gains heat energy and the hot object loses heat energy. If the system of both the objects is isolated from the environment by keeping it inside a heat resistant box then no energy can flow from inside the box or come into the box. In this situation we get the following principle .

Heat energy lost by the hot object = Heat energy gained by the cold object. This is called the 'Principle of heat exchange'.

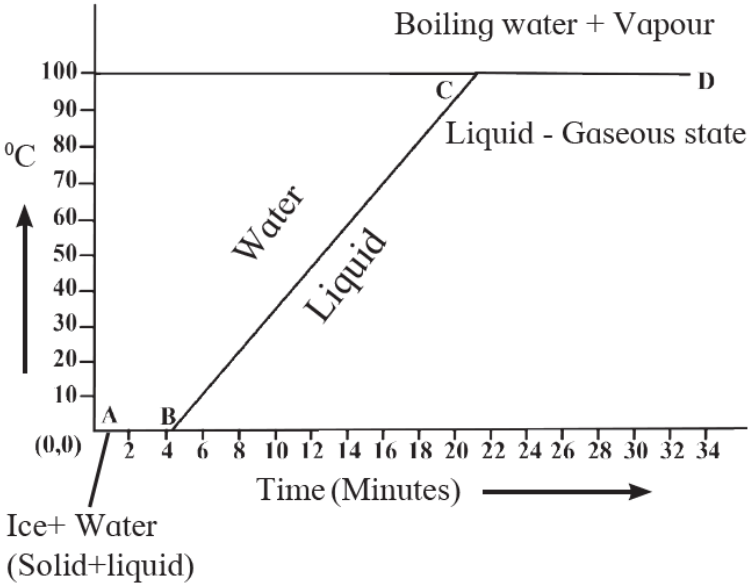
A) Where does heat transfer take place?

B) In such a situation which principle of heat do you perceive?

C) How can this principle explain in short?

D) measuring the property of which substance this principle is used ?

18) Explain the following temperature-time graph.



19) Explain with a ray diagram the position, size,and the nature of the various images formed by convex lenses.

A) An object is at infinity.

B) An object beyond 2F1.

C) An object at 2F1 .

D) An object is in between F1 and 2 F2

E) An object is at focus F1

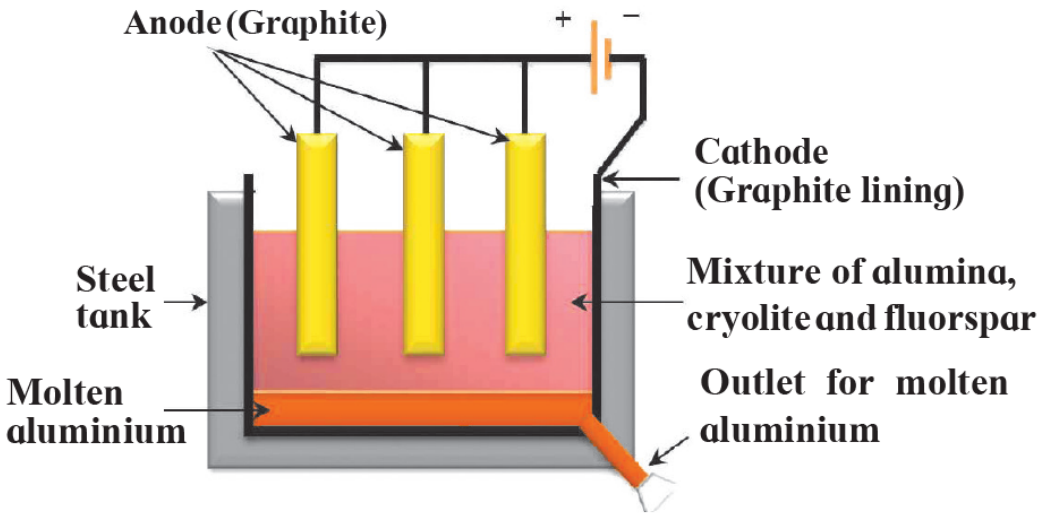
F) An object is in between F1 and O

20) Explain in brief types of extraction of highly reactive, moderately reactive and less reactive metals according to their reactivity.

21) Explain Bayer's process of concentration of bauxite with chemical equation.

22) Explain in brief electrolytic reduction of alumina with a neat labelled diagram.

23) Observe the figure and answer the following.



A) Write the name of the method.

B) What is used as anode and cathode in this method?

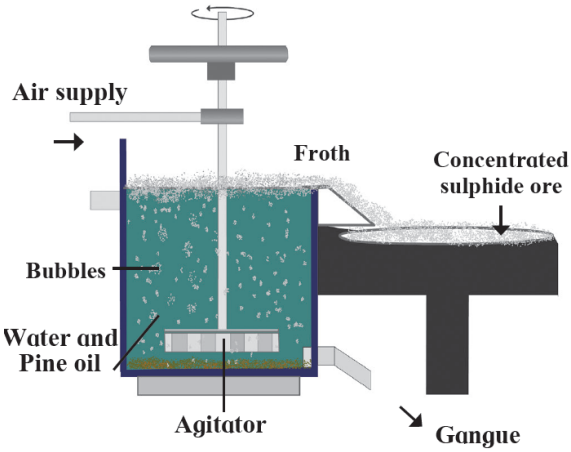
C) Write molecular formula and use of cryolite.

D) Write anode reaction.

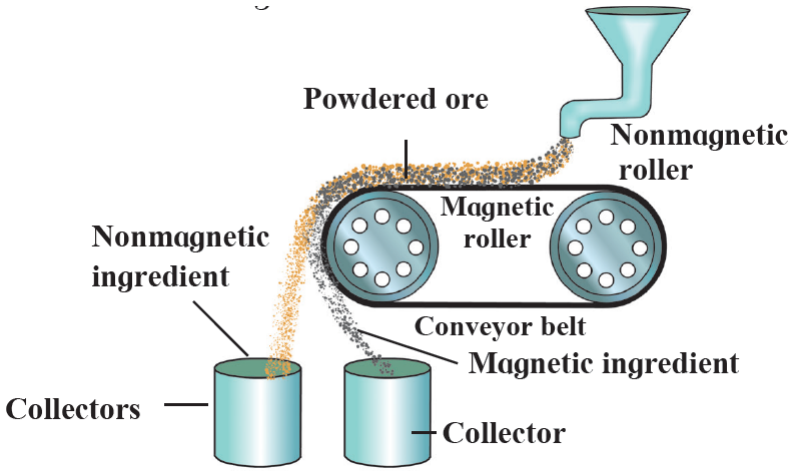
E) Write cathode reaction.

24) Observe the figure and name and explain in brief the following methods

A)



B)



25) Answer the questions on the following passage.

The minerals from which the metal can be separated economically are called ores.Ores contain many types of impurities such as soil, sand and rocky substances along with the metal compounds. These impurities are called gangue. Metals can be extracted from their ores by means of various methods of separation. The process of extraction of metal in pure state from the ores is also a part of metallurgy.

Ores are taken out from the mines and the gangue is usually separated from the ore at the site itself by various methods.Then the ores are carried out to the place where metals are produced. Here metals are extracted in pure form. Then metals are further purified by different methods of purification.this entire process is called metallurgy.

Most metals being reactive do not occur in nature in free state but are found in combined state as their salts such as oxides,carbonates, sulphides and nitrates.however, the most unreactive metals that are not affected by air,water and other natural factors like silver,gold,platinum,generally occur in free state. The compounds of metals that occur in nature along with the impurities are called minerals.

A) What are metals?

B) Which processes are involved in the branch of metallurgy? What is metallurgy?

C) Which metals are found in free state?

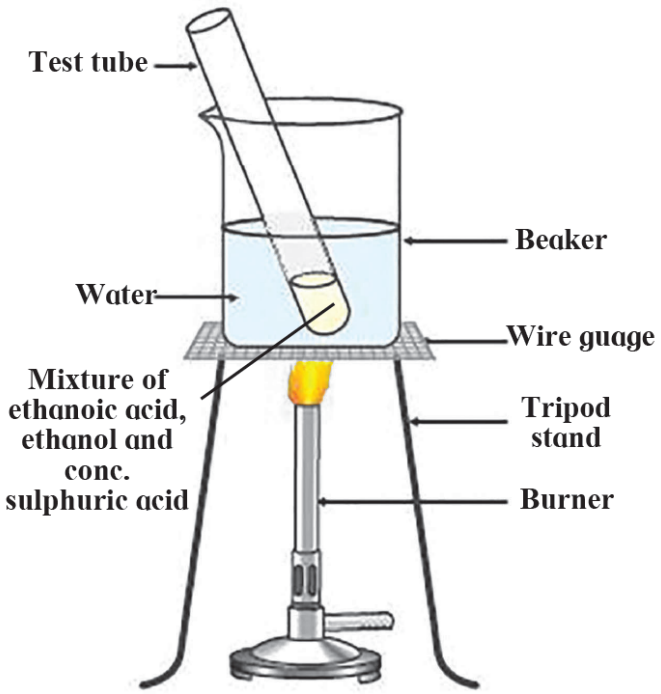
D) In what form are metals found in composite?

A) What is soil impurity?

26) Explain the difference between a bayer's process and a hall's process by explaining the bayer's process?

27) What is corrosion? Give solutions by giving examples of corrosion?

28) Observe the figure and write the answers to the following questions.



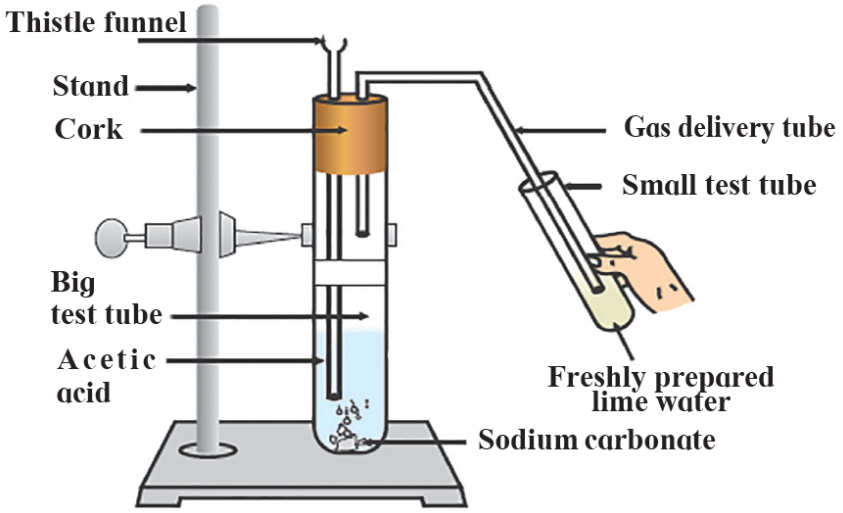
A) Write the name of the reaction shown in the following figure.

B) Write the above chemical reaction in the form of a balanced equation.

C) Write the name of the product produced in the above reaction, write a use.

D) Write the name of the catalyst used in the above reaction.

29) Write the answers to the questions by observing the following figure.



A) Write the chemical reaction shown in the figure above in the form of a balanced equation.

B) Write the name of the gas coming out of the large test tube in the above chemical reaction.

C) Why do small bubbles of lime appear in the small test tube?

D) What is the change in color of lime net?

30) Write the names of India's satellite series and launchers?

31) What is a satellite launcher? Explain the external layout of a satellite launcher made by ISRO (I.S.R.O.) with diagrams.

32) Read the following paragraphs and write the answers.

Mars is the second closest celestial object to Earth after the Moon. It was sent to Mars by many nations. But since the campaign was difficult, almost half of the campaigns were not successful. But we have done something that we should be proud of. Launched by ISRO in November 2013 at a very low cost, the Mars rover was launched into Mars orbit in September 2014 and gained important information about the surface and atmosphere of Mars.

A) After the moon, which is the closest celestial object to the earth?

B) When did ISRO launch Mars spacecraft?

C) What important information did ISRO's Mars rover get?

D) Explain that specific velocity does not depend on the mass of the satellite?

33) Explain the need and importance of space missions.

****

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Question Bank

Standard :- 10th

Subject :- Science and Technology Part 2

सूचना

१. फक्त विद्यार्थ्यांना प्रश्नप्रकारांचा सराव करून देण्यासाठीच

२. सदर प्रश्नसंचातील प्रश्न बोर्डाच्या प्रश्नपत्रिकेत येतीलच असे नाही याची नोंद घ्यावी.

Question Bank

Science and Technology Part 2

Q 1 A) Choose the correct option.

1) Transfer of information from molecules of DNA to mRNA is called _____ process.
   A. translocation B. translation C. transcription. D. differentiation
2) Similarities in initial stages indicate the _____ evidence.
   A. Connecting links B. Anatomical C. Embryological. D. Palaeontological
3) _____ is a vestigial organ in human beings.
   A. Wisdom teeth B. Ear muscles C. Body hairs D. All the above
4) Protein located in bones is _____.
   A. myosin B. melanin C. haemoglobin D. ossein
5) Which of the following vitamins is necessary for synthesis of NADH2 ?
   A. Vitamin B3 B. Vitamin C C. Vitamin B2 D. Vitamin K
6) _____ cells divide by mitosis.
   A. Somatic. B. Gametes C. Stem. D. Both A and C
7) The first step of karyokinesis is _____.
   A. anaphase B. telophase C. metaphase. D. prophase.
8) _____ is not a part of mitosis.
   A. Anaphase B. Diplatin C. Prophase D. Cytokinesis
9) We get _____ energy from lipids.
   A. 4 cal / gm. B. 9 cal/ gm C. 9 kcal/ gm. D. 4 kcal/gm.
10) In Humans there are ___ pairs of chromosomes.
   A. 22. B. 23 C. 44 D. 46
11) Which of the following is not a type of asexual reproduction in multicellular organisms?
   A. fragmentation B. regeneration C. Budding D. binary fission
12) Find the odd one out:
   A. Stigma B. Anther C. Style D. Ovary
13) At the time of birth , there are _____oocytes in the ovary of a female foetus.
   A. 1 to 2 million B. 2 to 3 million C. 2 to 4 million D. none of these
14) _____ modern remedial technique is used if there is a problem in implantation of embryo in the uterus.
   A. Surrogacy. B. Sperm bank C. In vitro fertilization. D. none of these.
15) Implantation of the embryo occurs in _____.
   A. uterus. B. overy C. oviduct. D. vagina

16) In humans,sperm production occurs in the organ _____.

A. testes. B. scrotum C. prostate gland. D. ovaries.

17) Pregnant mother supplies nourishment to her foetus through _____.

A. uterus. B. placenta C. ovary D. oviduct.

18) _____ twins are formed from a single embryo.

A. Dizygotic B. Monozygotic C. Multiple zygote. D. Zygote

19) Pollen grains are formed by _____ division in locules of anthers.

A. meiosis B. mitosis C. amitosis. D binary.

20) Asexual reproduction occurs by _____ cell division.

A. mitotic B. meiotic C. fertilization. D. double fertilization.

21) This method of asexual reproduction is seen in paramecium.

A. transverse binary fission. B. longitudinal binary fission

C. simple binary fission. D. regeneration

22) In meiosis, the number of chromosomes becomes _____.

A. multiple times. B. triple C. half. D.double

23) Generally, every month, _____ ovum is released in the abdominal cavity alternately from each ovary.

A. 1 B. 2 C. 3 D. 4

24) _____ is present in unisexual flower.

A. Both androecium and gynoecium B. Only androccium

C. Only gynoecium D. Androecium or gynoecium

25) _____ is a chemical factor of abiotic components.

A. Air. B.water. C.Nutrients D.sunlight

26) _____ is an organic compound of abiotic components.

A. Proteins. B. Iron. C. Sodium. D. Oxygen

27) _____ is a rare species.

A. Lesser florican B. Tiger C. Giant squirrel. D. Musk deer

28) _____ is an indeterminate species.

A. Red panda. B. Lion C. Lion tailed monkey D. Giant squirrel

29) Occurrence of diversity among the organisms of the same species is called _____ diversity.

A.species. B.genetic C.ecosystem. D.animal

30) In modern civilization,-------- has become a primary need.

A.food. B.cloth C.shelter. D.energy

31) Most electric power plants are based on the principle of _____.

A.electro induction. B. magnetic induction.

C. electro- magnetic induction D. electromagnet.

32) Principle of Electromagnetic induction was invented by the scientist _____.

A. Ohm. B. Michael Faraday C. Joule. D. Newton

33) In the power plant based on nuclear energy _____ is used to rotate the generator.

A. Steam turbine. B.air turbine C.water turbine D.none of these.

34) When a neutron is bombarded on an atom of uranium _____ neutrons generated in this process.

A. 1. B. 2. C. 3. D. 4.

35) Kinetic energy in flowing water drives _____ to generate electricity.

A. watermill. B. windmill C. turbines. D. generator.

36) Wind turbines with capacity are commercially available.

A. 1 KW to 7 MW. B. 1 KW to 7 KW C. 1 KW to 7000 W D. 1 W to 7 MW

37) Solar photovoltaic cells convert the solar radiation energy directly into _____ energy.

A. electrical B. potential C. kinetic. D. heat.

38) A silicon solar cell of dimension 1 sq.cm. generates current of about _____.

A. 50 mA B. 30 mA C. 50 A D. 30 A

39) A silicon solar cell of dimension 1 sq.cm. generates _____ potential difference .

A. 0.1 V. B.0.5 V. C. 0.1 mV. D. 0.5 mV.

40) In nuclear power plants, neutrons are bombarded on atoms of _____.

A. uranium-236. B. barium C. krypton. D. premium-235.

41) My body is soft and slimy,hence I am referred as _____ .

A. mollusca B. echinodermata C. annelida D. arthropoda

42) Which of the following is a hermaphrodite animal?

A. doliolum B. scorpion C. centipede D. cockroach

43) Which of the following animals can regenerate it's broken body parts ?

A. Frog B. Starfish C. Sparrow D. Pigeon

44) Which of the following is a warm blooded (homeothers) animal?

A. Bat B. Tortoise C. Wall lizard D. Crocodile

45) My body is _____ shaped to minimize water resistance.

A. pointed B. spindle C. cartilaginous D. flat

46) _____ animal is called a friend of farmers.

A. Rabbit B. Cat C. Leech D. Earthworm

47) Which of the following animals has a hard calcareous shell?

A. nereis B. shark C. bivalve. D. herdmania

48) _____ acid is used in Production of vitamins .

A. Citric B. Gluconic C. Lactic D. Itaconic

49) Nowadays ,--------- are used for treatment of diarrhoea and treatment of poultry also.

A. yoghurt B. probiotics C.vinegar D. cheese

50) Yoghurt is a milk product produced with the help of ---------.

A. lactobacilli B. azotobacter C. corynebacterium. D. streptococcus.

51) ------ is a powerful antibiotic against treatment of tuberculosis.

A. Penicillin. B. Rifamycin C. Streptomycin. D. Bacitracin.

52) ------- is used in the commercial bakery industry.

A. Compressed yeast. B. Algae C. Bacteria D. Microbes

53) ------- is a substance obtained by microbial processing that roles as artificial sweetener.

A. Nycin B. Lysine C. Xanthenes D. Xylitol

54) At the earliest stage of development, the organism is in the form of a mass of a cell, which are almost alike, those cells are called _____.

A. Stem cells B.RBC C. WBC D. None of these

55) Which of the following is an important requirement in organ transplantation?

A. Blood group of recipient B. Diseases of donor C. Age of donor D. all above.

56) Availability of _____ is an important requirement in organ transplantation.

A. doctor B. clinic D. donor D. ambulance.

57) The disease related with the synthesis of insulin is _____.

A. cancer B. arthritis C. heart disease D. diabetes.

58) Transgenic raw potatoes generate the immunity against _____ disease.

A. plague B. cholera C. leprosy D. TB

59) _____ have valuable contributions in the green revolution in the USA.

A. Dr. Norman Borlaug. B. Dr. Swaminathan.

C. Dr. Wargis Currian. D. Dr. Hargovind Khurana.

60) Methods like artificial insemination and embryo transplant are mainly used for _____.

A. animal husbandry. B. wild life C. pet animals. D. infertile women.

61) _____ is the revolutionary event in biotechnology after cloning.

A. Human genome project B. DNA discovery

C. Stem cell research D. All the above

62) Biotechnology integrated the toxin which is fatal for _____, was produced in leaves and bolls of cotton.

A. bollworm B. caterpillar C. sparrow D. frog

63) Cell _____ starts from 14th day of conception.

A. growth. B. differentiation C. development D. division

64) The Government of India has encouraged _____ for improving the productivity by launching the program NKM-16.

A. aquaculture. B. poultry C. piggery D. apiculture

65) _____ are present in the umbilical cord by which the foetus is joined to the uterus of the mother.

A. stem cells B. muscle cells C. neuron cells D. bone cells

66) For the purpose of preservation stem cell samples are kept in -------.

A. liquid oxygen B. hydrogen C. liquid chlorine D. liquid nitrogen

67) Phenylketonuria arises due to genetic changes in _____ cells.

A. liver B. intestine C. pancreas D. heart

68) _____ organism is used as biofertilizers.

A. Thiobacillus B. Nostoc C. Saccharomyces D. Ischeria

69) Alcohol consumption mainly affects the _____ system.

A. nervous B. excretory C. respiratory D. digestive

70) Laughter club is a remedy to drive away _____.

A. addictions B. stress C. lethargy D. epidemics

71) _____ helps to improve concentration in the studies.

A. hobbies B. sports C. meditation. D. eatables

72) _____influence is stronger in case of adolescents.

A. Teachers. B. Fathers C. Relatives. D. Peer group

73) Our _____ has been changed to some extent in the age of technology.

A. lifestyle B. habit C. circumstance D. passion

74) Hobbies like _____ pet animals help to create a positive mindset.

A. feeding B. transfering C. rearing D. looking

75) Continuous consumption of _____ substances causes carcinogenic especially on the mouth and lung.

A. hot B. sweet C. spicy D. tobacco like

76) Alcoholic person lacks the _____ thinking.

A. straight B. rational C universal D. spiritual

77) _____ may arise due to excessive use of mobile phones.

A. Headache B. Problem in vision C. Joint pains D. All above

78) Liquor is produced from _____.

A. alcohol B. glucose C. acid D. salt

79) Salaam Mumbai Foundation runs programs for _____ in a slum area.

A. education B. tobacco C. cyber crimes D. domestic violence

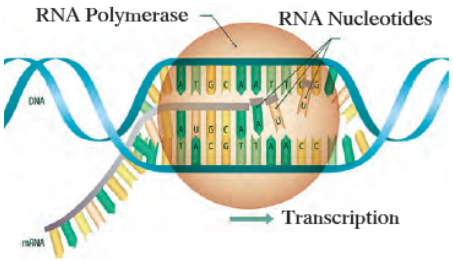
Q1 B) I. Find an odd one out.

1) Transcription, Translation, Translocation, Mutation
2) Leaf venation, Size of seeds, Leaf petiole, Leaf shape
3) Position of eyes, structure of bones of hand, structure of nostrils, structure of ear pinna
4) Human hand, flipper of whale, cat's foreleg, wings of birds
5) Carrot, Raddish, Potato, Sweet potato
6) Budding, Regeneration, Binary fission, Fragmentation
7) Vas efferens, Prostate gland, Epididymis, Vas deferens
8) Prostate glands, Bartholin glands, Cowper's gland, Seminal vesicle
9) Stigma, Style, Pollens, Ovary
10) Hibiscus, Papaya, Sun-flower, Rose, Mango
11) Conservation, Pollution, Prevention, Control
12) Hydroelectric energy, Solar energy, Atomic energy, Wind Energy
13) Silicon, Uranium, Petrol, Coal
14) Solar Photovoltaic cell, Electricity generation using wind energy, Hydroelectric power plant , Solar thermal power plant
15) Water, Wind, Natural gas, Fossil fuel
16) Edible oil, LPG, CNG, Crude oil
17) Coal, Natural gas, Plutonium, Crude oil
18) Tortoise, Crow, Lizard, Snake
19) Peacock, Parrot, Kangaroo, Duck
20) Human, Dolphin, Bat, Lizard
21) Cockroach, Butterfly, spider, honey bee
22) Star fish, Sea-urchin, Neris, Sea-cucumber
23) Tube -feet, Setae, Parapodia, Sucker
24) Penicillin, Neomycin, Isomerase, Rifamycin
25) Hydrolases, Lyases, Pepsin, Ligases
26) Bacteria, Viruses, Fungi, Plants
27) Khoa, Yoghurt, Butter, Cheese
28) *Lactobacillus, Acidophilus , Lactobacillus casei, Clostridium*

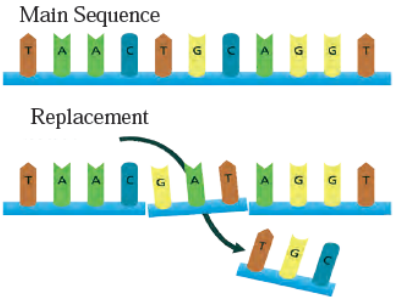
29) Frog, Earthworm, Pink bollworm, Insectivorous birds
30) DDT, Urea, Malathion, Choloropyriphos
31) Diabetes, Anemia, Leukemia, Thalassemia
32) Drying, Salting, Soaking with sugar, Cooking
33) D.D.T. Malathion, Chloropyriphos, Humus
34) Green revolution, Industrial revolution, Blue revolution, White revolution
35) Sodium, Aluminium, Phosphorus, Potassium
36) Cheese, Curd, Ice-cream, Buttermilk
37) *Pteris vitata*, Rice, Indian Mustard, Sun-flower
38) Transport facilities, Social security, Counselling, Toilets
39) Tobacco, Laughter club, Alcohol consumption, Drugs

Q.1 B) II. Name the following.

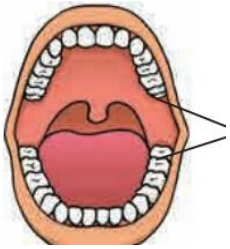
1) I am a connecting link between reptiles and mammals.Who am I ?
2) Who is the pioneer of modern genetics ?
3) Which process is shown in the following diagram ?



4) In which book Darwin had published this theory of Natural selection ?
5) Which process is shown in the diagram given below?



6) Name the parts shown in the diagram.



7) Hormones related to male reproductive system.
8) Modern technologies in reproduction.
9) Hormones secreted by the ovary of the female reproductive system.
10) The Electric Power Stations based on Thermal Energy.
11) Nuclear power plants in India
12) Major hydroelectric power plants in India
13) Forms of energy.
14) A machine/An engine required to rotate the generator.
15) Name any two natural gases.
16) Type of power generation station at Chandrapur
17) An enzyme obtained from fungi to produce vegetarian cheese.
18) Biodegradable plastic used for storing the garbage.
19) A clean (smokeless) fuel.
20) Vinegar means 4% _____
21) Microbes used along with artificial nitrogenase in organic farming.
22) Study of structure, types and organelles of cells.
23) Donation of organs such as eyes, heart after death.
24) Use of non genetic biotechnological techniques.
25) Genetically modified crops.
26) Bacterias that can be used as manure.
27) The number of different types of cells in the human body that are formed from embryonic cells.
28) Organs that can be used for organ transplantation.
29) Cells that are present in the initial development stage of zygote, that is formed by the union of male and female gametes.
30) Medicinal plant used in making medicine on cough.
31) Diseases endangering social health.
32) Factors disturbing /affecting the social health
33) Name the type of disaster.

Disaster	Type
Tsunami, volcanic eruption, earthquake	_____
cyclone, snow storms, droughts, floods	_____
Forest fire, weed, fungal disease spreading	_____
Communicable virus, bacteria, bite of poisonous animal	_____
Poisonous gases, atomic test, unplanned action, accident	_____

Question 1 B) III. Relate the following.

1) Appendix : vestigial organ : : Peripatus : -------
2) Theory of evolution : Darwin : : ----------: Lamarck
3) Changes in the nucleotide of gene : Mutation : : Changes in the place of ribosome : ----------
4) Amoeba : fission :: Hydra : ----------
5) Calyx : Sepals :: Corolla : ----------
6) Bisexual : Hibiscus :: Unisexual : ----------
7) Follicle stimulating hormone : Development of oocyte :: Luteinizing hormone : ----------
8) Accessory whorls : Calyx and corolla :: essential whorls: ----------
9) Earthquake : Natural factor : : Industrialization :: _____
10) Hydroelectric power station : Water stored in dams :: Atomic power station :_____
11) Stove : Thermal energy :: Sewing machine : _____
12) Power available from solar cells : DC :: power require to run domestic equipments : _____
13) Thermal power generation : Air pollution :: Atomic power generation : _____
14) Tapeworm: Phylum Platyhelminthes :: Intestinal worms _____
15) Mammals : Breathing through lungs :: Pisces : _____
16) Flat worms : Bisexual :: Round worms _____
17) Porifera : Asymmetrical :: Cnidaria _____
18) Arthropoda : Largest phylum :: Mollusca: _____
19) Lactobacillus :Yoghurt : : Baker's yeast: _____
20) *Saccharomyces cerevisiae* : Ethanol : : *Aspergillus oryzae* : _____
21) Lactic acid: To impart acidity : : Beta carotene: _____
22) Gaseous fuel : Coal gas : : _____: Coal
23) White revolution :Increase in Milk production : : Blue revolution : _____
24) White revolution : Milk production : : Blue revolution : _____
25) Apiculture : Honey bees : : Cultivation of medicinal plants : _____
26) Substances leading to addiction : Drugs : : Substances leading to cancer : _____
27) Control on tobacco consumption : TATA trust : : Empowering children in slum area : _____

Q 1 B) IV.Write the function of

1. Generator 2. Turbine 3. Condenser

Q 1 B) V. Write whether true or false.

1. The decaying process of c-14 occurs continuously in dead organisms only.
2. Prokaryotic cells divide through mitosis or meiosis.
3. Pollen tube reaches the embryo sac via style.
4. Sometimes twins are genetically different.
5. Pollen grains from another are transferred on the stigma.
6. Environment is a broad concept.
7. The power produced from solar cells is a DC.
8. Electrical energy is generated
9. While producing hydroelectric energy , there is no pollution.
10. In a windmill, the rotating blades drive the turbine and the turbine in turn drives the generator to generate electricity.
11. In nuclear power plants, the chain reaction can not be controlled.
12. The disposal of nuclear waste safely is a big challenge before scientists.
13. Efficiency of power generation plants based on energy of natural gas is higher than that of the power generation plant based on coal.
14. In a hydroelectric power plant, the potential energy in water stored in a dam is converted into kinetic energy.
15. In nuclear power plants turbines working on solar panels are used.
16. The potential difference available from a solar cell depends on its area.
17. Tentacles are used for capturing the prey.
18. Petromyzon is an endoparasite.
19. Locomotion of starfish takes place through pseudopodia.
20. Classification of animals makes it easy to study the vast variety of animals.
21. Shelf life of yogurt can be increased by pasteurization.
22. Vinegar is used to bring sweetness in food products.
23. Methane gas is produced by microbial oxidation of industrial waste.
24. Spinosad is a biopesticide.
25. Sulphuric acid is a source of energy for some species of bacteria like Acidophilum.
26. Microbes have the natural ability of decomposing the man made chemicals.
27. Antibiotics cannot be obtained from a variety of bacteria and fungi.
28. Non-genetic technology involves mutations in cell genes.
29. Earlier insulin was being collected from the pancreas of horses.
30. Various essential elements like N, P, K are made available to crop by earthworms and fungi.

31. We don't have any tradition of curing disease with the help of natural resources.
32. Malaria is caused due to genetic disorder taking place in liver cells.
33. Pseudomonas bacteria can separate the hydrocarbon and oil pollutants from soil and water.
34. A gene isolated from the bacterium Bacillus thuringiensis and is integrated with the genome of cotton.
35. High class of varieties of crops have been developed through the techniques of organ transplantation.
36. Genetically modified crops have low resistance for disease.
37. Vaccines produced with the help of biotechnology do not remain active for a longer duration.
38. Children who watch cartoon films may imitate the characters of those films.
39. Tobacco chewing does not cause a carcinogenic effect on mouth and lungs.
40. Stress increases due to more laughing.

Q 1 B) VI. Match the following.

1.

column A	column B
1) Morphological evidences	1) Tail-bone or wisdom teeth
2) Paleontological evidences	2) Leaf venation
	3) Fossils

2.

column A	column B
1) Polluting energy	a) smoke particles
2) Environment friendly energy	b) thermal energy
	c) wind energy

3.

column 'A'	column'B'
1) sunlight	a) Wind energy
2) Natural gas	b) Environment friendly energy
	c) Fossil fuel
	d)Atomic radiation

4.

A	B
1. Aspartame -	a.anaerobic respiration
2. Fermentation	b.microbial restrictor
3. Niacin-	c. Vanillin
4. Escence -	d. Sweetener

7.

A	B
Baker's yeast -	Probiotics
Sauerkraut-	Bread
Liasages	Antibiotics
Penicillin -	Microbial enzyme

8.

Living organism	**substance that absorbs**
1) Pseudomonas	A)Radiations
2) Pteris vitata	B) Hydrocarbons
	C) arsenicArsenic
	D)Uranium

9.

Living organism	**substance that absorbs**
1) indian mustard	A)radiations
2) Deinococcus radiodurans	B) selenium
	C) arsenic
	D) uranium

Q.1-B) VII. Define.

1) Translation
2) Translocation
3) Mutation
4) Fragmentation
5) Vegitative propagation
6) Fertilization
7) Regeneration
8) inflorescence
9) Electromagnetic induction
10) Nuclear fission
11) Vaccine
12) Biotechnology
13) Stem cell
14) Cloning
15) DNA fingerprint
16) Genetic treatment
17) Divercity
18) Social health
19) First aid

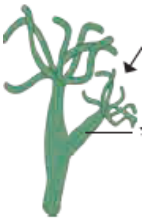
Question 1 B) VIII. Answer in one sentence.

1) What is gamete formation ?
2) Write the types of twins.
3) Write any two- Sexually transmitted diseases.
4) What determines whether the two organisms of a species will be exactly similar or not?.
5) How are the sperms formed ?
6) How is the semen produced ?
7) Which are the components of pollination ?

8) Which parts are converted into Seed and fruit respectively after fertilization ?

9) What does germination mean ?

10) Write the name of the type of reproduction in the following figure.



11) How can plants and animals save themselves from extinction?

12) Name the three types of asexual reproduction in unicellular organisms.

13) Write the functions of-.

I) ovary ii) sepals iii) penis iv) Seminal vesicle

14) What does ecosystem mean?

15) What is indicated by this symbol ?



16) Write any two man made man made factors affecting the environment.

17) The animal in figure ,belongs to which endangered species?



18) Write the advantages of the Hydroelectric Power project.

19) Write the problems associated with hydroelectric power projects.

20) Write the merits of atomic energy.

21) Write the demerits of an atomic energy plant .

22) Draw the flowchart showing generation of electrical energy.

23) Which substance is used as fuel in nuclear power plants?

24) Energy from fossil fuels and nuclear plants are not eco friendly sources, why ?

25) Solar promoters are important, why ?

26) In fuels coal and natural gas which one is eco friendly ? why?
27) State the importance of inverters.
28) Why are control pods used in nuclear reactors ?
29) What is green energy ? Which energy source can be called a green energy source?
30) Explain: Fossil energy is not an example of green energy.
31) Which animal has three pairs of legs ?
32) In how many parts is the body of Hemichordates divided ?
33) Write any one cold blooded animal you know.
34) Spongila bears numerous pores on their body .What are those pores called?
35) What are the animals having vertebral columns in their body called as ?
36) The body of the animal in which phylum is radially symmetrical and diploblastic?
37) Write the name of the animal having pseudocoelom .
38) Which animal doesn't have a neck ?
39) What is the length of a hookworm?
40) How does the animal in the figure protect itself ?



41) What are the locomotory organs of the animal given in the picture ?



42) Which fungus is used to make soya sauce by fermentation?
43) Why does the process of dirt removal occur in detergents even at low temperature ?
44) What is added to impart thickness to instant soup ?
45) Which chemical substances get mixed with the soil by adding chemical pesticides and insecticides in the agricultural industry?
46) Which microbes convert uranium to its insoluble salts ?

47) Write the names of two chronic diseases.

48) Complete the following table.

Type of disaster	Effects
A.	Injuries, emotional and mental stress, Outbreaks of epidemics, deaths of victims.
B. Environmental	.....

49) Correct the given statement and rewrite it.

An effect of disaster on economic leadership is that if local leadership is not strong enough, citizens get confused.

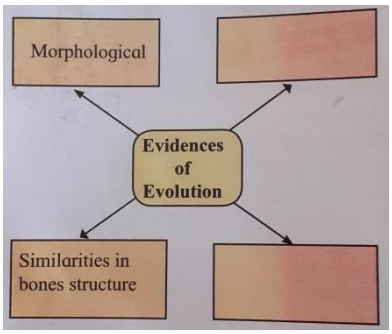
Q. 2 A) Give scientific reasons.

1) Some of the characters of parents are seen in their offspring.
2) Peripatus is said to be the connecting link between annelida and arthropoda.
3) Vertebrates have slowly originated from invertebrates.
4) Duckbill platypus shows relationship with mammals.
5) We feel tired after exercising.
6) Oxygen is necessary for complete oxidation of glucose.
7) Fibers are one of the important nutrients.
8) Cell division is one of the very important properties of cells and living organisms.
9) Some higher plants, animals and aerobic microorganisms also sometimes perform anaerobic respiration.
10) Kreb's cycle is also called a citric acid cycle.
11) Flower is a structural unit of sexual reproduction in plants.
12) Older women are more likely to give birth to children with some abnormalities .
13) Fertilization in plants is called double fertilization.
14) There is a menopause when women are 45 – 50 years old.
15) The new individual produced by sexual reproduction always has the recombined genes of both the parents.
16) Pollution is a very broad concept.
17) The role of human beings in environmental balance is important.
18) The various food chains in the ecosystem maintain the environmental balance.
19) Without the existence of nature, human existence is almost impossible.
20) The schematic of a turbine also varies according to the type of power generation.
21) It is essential to control the process of nuclear fission in a nuclear power plant.

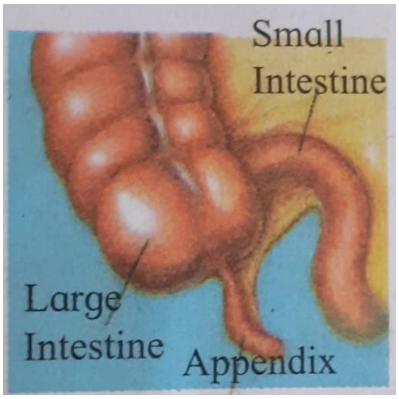
22) It is possible to produce energy from mW to MW using solar photovoltaic cells.
23) Hydropower, solar energy and wind energy are called renewable energy.
24) Energy saving is a need of the hour.
25) Earthworm is said to be a farmer's friend.
26) Body temperature of reptiles is not stable.
27) Our body irritates if it comes in contact with a jellyfish.
28) Though tortoise lives on land as well as in water, it cannot be included in class-Amphibia.
29) Probiotics have got more importance in recent times.
30) Bread and other products made using commercial yeast are nutritious.
31) Microbial enzymes are eco-friendly.
32) A biofuel is an important tool in renewable energy sources.
33) The landfill pit is lined with plastic sheets.
34) Microorganisms are used to control the effects of sea oil spills.
35) Weed control plants are beneficial for agriculture.
36) Recently made vaccines are safe.
37) Concepts of body donation and organ donation have come forward.
38) Stem cells are extremely important in regenerative therapies.
39) Sewage should not be discharged into the river without treatment.
40) Genetically modified crops are beneficial to farmers.
41) Some of the organs in the human body are precious.
42) Nowadays school children have to deal with mental stress.
43) The importance of outdoor sports is incomparable.
44) Alcoholism is always bad.

Q.2.B) Solve the following subquestions

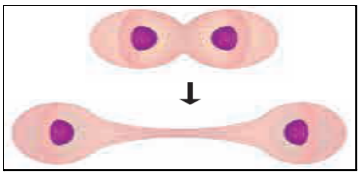
1) Write a short note : Embryological evidences
2) Complete the flowchart.



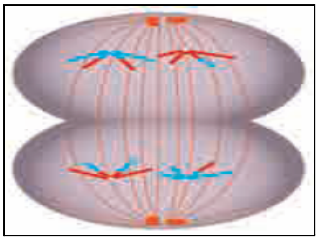
3) Write advantages of Hereditary.
4) Enlist the evidences of evolution.
5) What is inheritance of acquired characters?
6) What is species & speciation?
7) Which genetic disorders are caused by mutation?
8) Define the evidence of evolution shown in the figure.



9) What are the main energy sources of living organisms?
10) What is cellular respiration? State names of its two methods.
11) Which molecules are formed during the glycolysis process?
12) Which molecules are formed after whole oxidation of Acetyl co-enzyme A?
13) Which amino acids are obtained after digestion of proteins?
14) Explain the use of fatty acids.
15) What are vitamins? State it's two groups & six types.
16) Explain the advantages of cell division to your friend.
17) Explain the following figure.



18) State the characteristics of step of cell division shown in figure.



19) Identify the type of reproduction from the following explanation & draw a neat & labeled diagram.

A) The body of the parent organism breaks up into many fragments & each fragment starts to live as an independent new organism.

B) Give two examples of living organisms which follow this type of reproduction method.

20) Distinguish between self-pollination & cross-pollination.

21) Distinguish between Sexual & asexual reproduction.

22) Explain the process of fertilization.

23) State names of organs in male reproductive system.

24) State names of organs in the female reproductive system.

25) Explain asexual reproduction in plants.

26) What would be the effect if meiosis did not occur in nature?

27) What is reproduction? Explain the importance of the reproduction process.

28) Explain two main process in sexual reproduction

29) What are the meanings of symbols A, B, C shown in the figure with respect to environment?





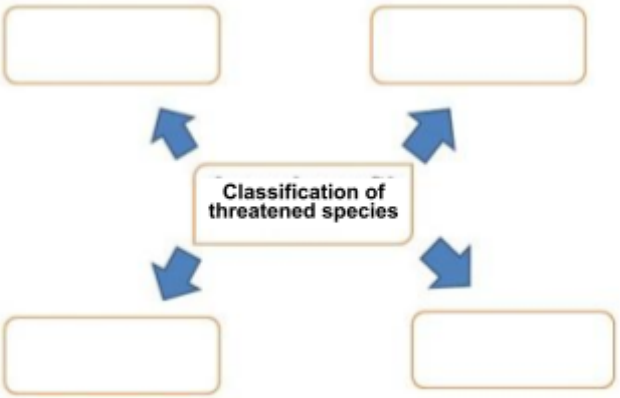


A B C

30) What is environmental pollution? Which are types of pollution?

31) Which are two components affecting the environment? State two examples of each.

32) Complete following concept chart.



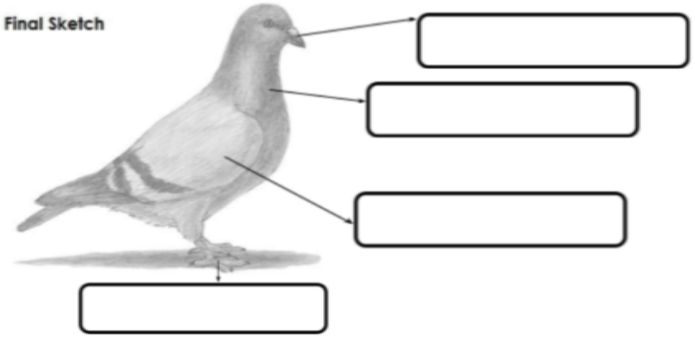
33) Complete food chain.

Grass ----->.....------> Frog ------->.....------> Eagle

34) What is the moral of the story of Jadav Molai Payeng?

35) What are vulnerable species? Give two examples.

36) Label the figure.



37) Complete the following chart.

	Type	Example
A)	Pieces	
B)	Amphibians	
C)	Mammalians	
D)	Reptilians	

38) Distinguish between Class Aves & Class Mammalians

39) Distinguish between Class Pisces & Class Amphibians

40) Distinguish between Butterfly & Bat

41) Complete the following activity.

a) Who am I, if I respire with gills?

b) Identify me, if I am warm blooded?

c) Who am I, if I have mammary glands?

42) Answer the following

a) Name the phylum in which earthworm & starfish belongs to.

b) How does locomotion occur in earthworm & starfish?

c) To which phylum I belong to, if I have a sting to prick?

43) We are Crocodile & Alligator.

a) To which phylum we belong to?

b) In which three sections our body is divided?

c) We can't breathe in water, why?

44) Answer the following.

a) In which phylum, the animals have setae or parapodia for locomotion?

b) Which phylum has the characteristic phenomenon 'jointed appendages'?

c) In which class, animals have soft legs?

45) Answer the following

a) According to the course of animal evolution, which phylum is at the lowest level?

b) Through which hole the animals in this phylum give out water from their body?

c) Through which hole the animals in this phylum take water in their body?

46) Answer the following

a) To which phylum we belong to, if we are marine aquatic animals?

b) What is the use of cnidoblast for us?

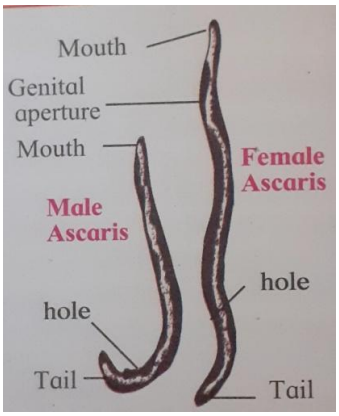
c) How do we destroy the harmful insects?

47) Give advantages of classification of animals.

48) Draw a neat & labeled diagram.

a) Hydra b) Liver Fluke c) Herdmania d) Jellyfish

49) Observe the given figure & answer the following.



a) Name the phylum.

b) Give the characteristics of this animal.

50) Observe the following figure & answer the following.



a) Due to which common characteristic the animals shown in the figure belong to the same phylum?

b) The exoskeleton of these animals is made up of which chemical?

c) Give another two examples of this phylum.

51) Answer the questions based on the given paragraph.

Lady Bug Beetle

Lady bug beetles are friends of farmers as they destroy harmful insects. It is a predatory insect, which lives on biting worm, white fly worm, white moth, flower insects and bread worms. It acts as a natural insecticide for crops like maize, *jawar*, cotton, sugarcane, cereals, vegetables, fruit trees, etc. These are attractive red or yellow or gray colored insects. Many species of this insect are found in our farms. The lifecycle of this insect follows eggs, larvae, cocoon & moth stages. The eggs are found in flutter. The larvae are gray in colour. Larvae & adults both live on sucking insects.

a) How does the lady bug beetle live?

b) Of which colour the lady bug beetles are?

c) State the stages of its lifecycle.

d) How does it help the farmers?

52) What are stem cells? State its two types.

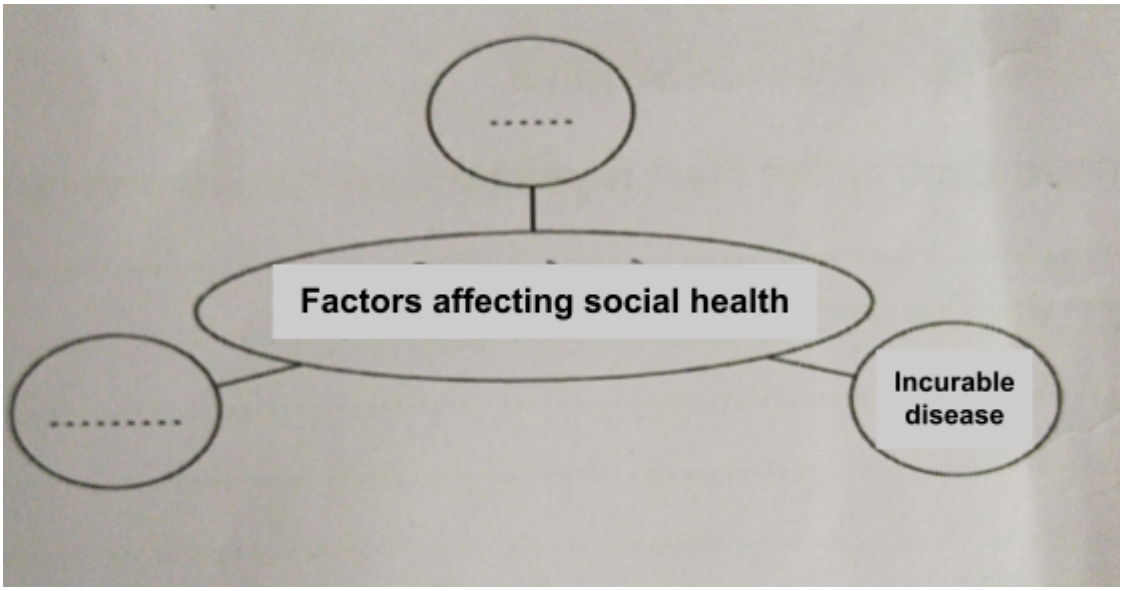
53) Why are some of the organs in the human body are most valuable?

54) What is Biotechnology? Give two examples of biotechnology.

55) What is the importance of stem cells in medical science?

56) Explain vaccination.

57) Concept the following concept chart.



58) Answer the following.

a) State the importance of good communication with others.

b) What will you do if your friend has developed the hobby of snapping selfies?

c) What will you do if the child of your neighbor is addicted to tobacco chewing?

59) State three aspects of disaster which are important in view of common citizens.

60) Write the effects of political disaster.

61) Define disaster.

62) Write a short note on **Phase of emergency**.

63) What are the seven main aspects of disaster management cycle?

64) Give two examples of Mock Drill.

65) Write four objectives of Mock Drill.

66) How would we rescue the citizens whose clothes had caught fire?

67) Enlist the necessary materials in the First-Aid kit.

68) Give an example of disaster due to unawareness.

69) Give two examples of Post-disaster management.

70) Give one example each of a huge disaster & small disaster.

71) Give one example each of long duration disaster & short duration disaster.

72) In account of disaster, which important facts are to be considered?

73) What is the transitional phase of disaster?

74) Which disastrous effects occur during earthquakes?

75) What is a catastrophic disaster? Give an example.

76) Mention the long term effects of disaster on society.

77) Which are very dangerous environmental events?

78) Which are natural disasters?

79) Explain the symbols.



80) In 2020, the whole world is facing a disaster.

a) Which type of disaster it is?

b) Write the name of the virus causing this disaster.

c) Which four rules you followed to survive from this disaster?

d) Write any four effects of this disaster you observed.

81) Observe the given photographs & answer the questions.



a) Name the disaster shown in pictures.

b) Write any two effects of this disaster.

82) Observe the given pictures & answer the questions.



A B

a) Identify the disasters shown in both pictures.

b) Write their effects.

c) Which primary precautions will you take in both situations?

Q. 2 B)II. Write short notes.

1) Sacred Grooves
2) Lake Tapping
3) Nuclear Power Plant
4) Problems due to nuclear power plant
5) Collar cells
6) Star Fish
7) Mammals
8) Probiotics
9) Microbial Enzymes
10) Bio-fuels
11) Land filling sites
12) Microbial Inoculants
13) Bio-insecticides
14) Organ & Body Donation
15) Green Revolution
16) White Revolution
17) Blue Revolution
18) Biotechnology
19) Addiction
20) Various ways for stress management
21) Budding in Hydra
22) In-vitro fertilization (IVF)
23) Reasons of infertility

Q. 2 B) III. Distinguish between following.

1) Translation & Transcription
2) Aerobic & anaerobic respiration
3) Conventional energy sources & Non-conventional energy sources
4) Thermal Power Plant & Solar thermal power plant
5) Electricity generation from solar cells & solar thermal power generation
6) Meiosis & Mitosis
7) Binary fission & Multiple fission

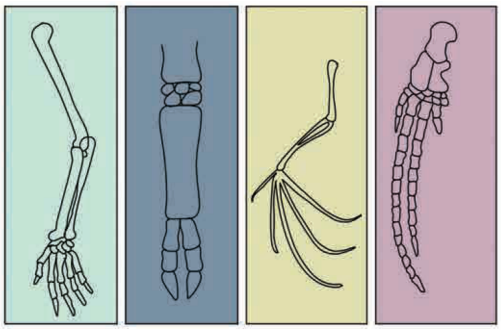
Q.3 Answer the following questions.

1) What is heredity ? explain the mechanism of hereditary changes.
2) What is carbon dating? Where is it used?
3) What are objections raised against Darwin's theory?
4) Observe the given images and answer the following questions.



   a) Which evolutionary evidence does it indicate?
   b) What does it prove?
   c) State another example of evolutionary evidence.

5) Define vestigial organs. Write names of some vestigial organs in the human body and write the names of those animals in whom the same organs are functioning.
6) Define fossils. Explain the importance of fossils as a proof of evolution with an example.
7) Explain Lamarck's Principle.
8) Which evidence of evolution is shown in the given picture? Explain the importance of this evidence.



9) Explain in brief Darwin's theory of natural selection.
10) Complete the following paragraph with the words given in brackets.

   (Cro-Magnon, brain, fire, agriculture, Cultural , homo-sapien, wise man)

   Evolution of upright man continued in the direction of developing its _____ for the period of about 1 lakh years and meanwhile it discovered the _____. Brain of a 50 thousand year old man had been sufficiently evolved to the

extent that it could be considered as a member of the class _____. Neanderthal man can be considered as the first example of _____. The _____ man evolved about 50 thousand years ago and afterwards, this evolution had been faster than the earlier. About 10 thousand years ago, wise-man started to practice the _____. It started to rear the cattle-herds and established the cities. _____ development took place.

11) Observe the following images and answer the questions.

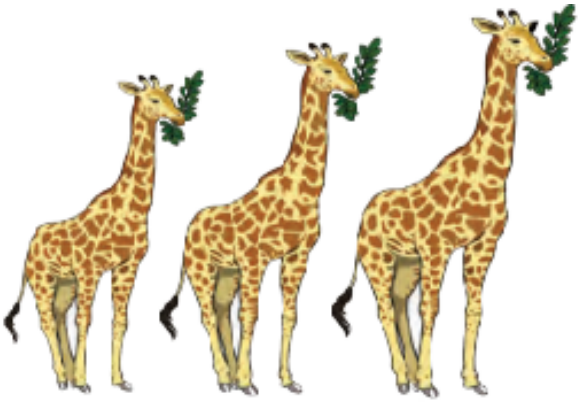


a) Which evolutionary evidences are indicated in the given picture?

b) How are they formed?

c) Which method is used to measure their age or their time?

12) Observe the picture and answer the following questions.

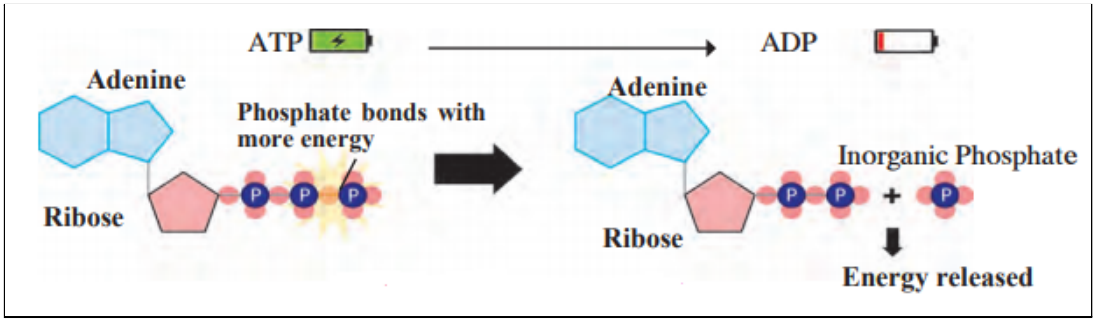


a) The given picture indicates which principle?

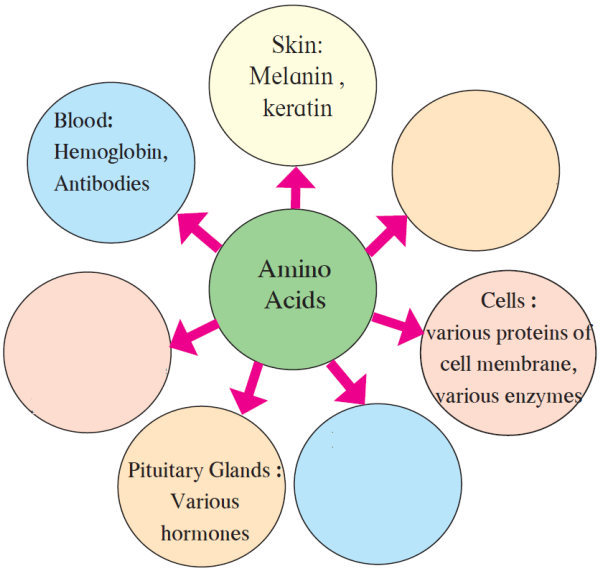
b) Explain that principle in your language.

c) What is the meaning of acquired characteristics?

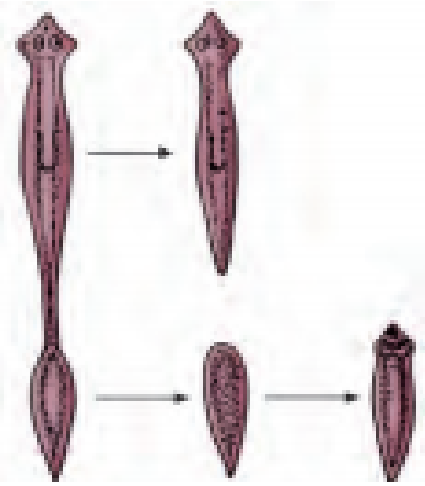
13) Identify the given reaction and explain it.



14) Explain the Steps of Glycolysis.
15) What are the main steps of Anaerobic respiration.
16) Which substances are formed after the digestion of amino acids and how are they utilized ?
17) Which hormones are formed from the fatty acids?
18) Why is water an essential nutrient?
19) Write the importance of fibers in our diet.
20) Complete the following concept map

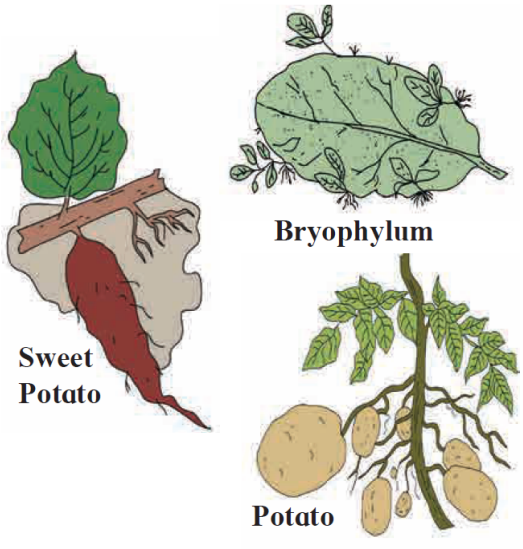


21) A married couple does not have children even after the necessary tests, so what are the solutions you would suggest?
22) Why is it necessary to maintain reproductive health ? Which precautions one should follow to maintain reproductive health?
23) Observe the given diagram and explain the method of reproduction.



24) A piece of wet bread or *bhakri* kept in a humid place for 2-3 days, then
    a) What will you observe ?
    b) State the scientific name of the living organism and write its characteristics.

25) Observe the given picture and answer the questions given below.



a) State the type of reproduction.

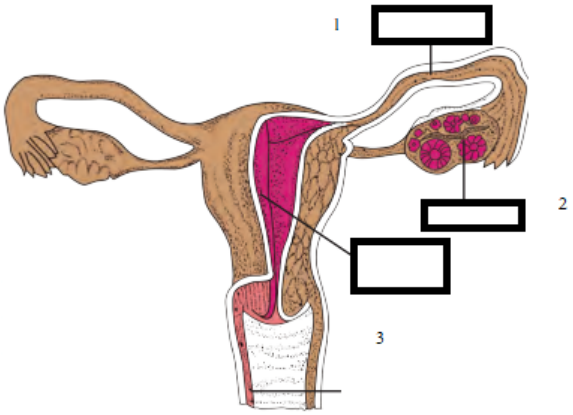
b) Identify the part of reproduction.

Sweet potato – .....

Bryophyllum – .....

Potato – .....

26) Observe the diagram and answer the following questions.



a) Label the indicated parts 1, 2 and 3 in the diagram.

b) Where the fertilization of ovum occurs?

c) Where does the embryo get implanted after fertilization?

27) a) Which type of reproduction is indicted in the following diagram?

b) Redraw the given type of reproduction in the correct sequence and explain it.



28) Complete the paragraph using the given words.

(Luteinizing hormone, endometrium of uterus, follicle stimulating hormone, estrogen, progesterone, corpus luteum) Growth of follicles present in the ovary occurs under the effect of ----- This follicle secretes estrogen. -- --- - -- -- -- grows / regenerates under the effect of estrogen. Under the effect of --- ---, fully grown up follicle bursts, ovulation occurs and -- --- -- -- is formed from the remaining part of follicle. It secrets --- --- -- -- and --- --- -- -- --. Under the effect of these hormones, glands of -- -- -- -- are activated and it becomes ready for implantation.What is the menstrual cycle? State the names of four hormones which controls menstrual cycle.

29) If newborns are produced at the age of menopause, they may be with some abnormalities. Why?

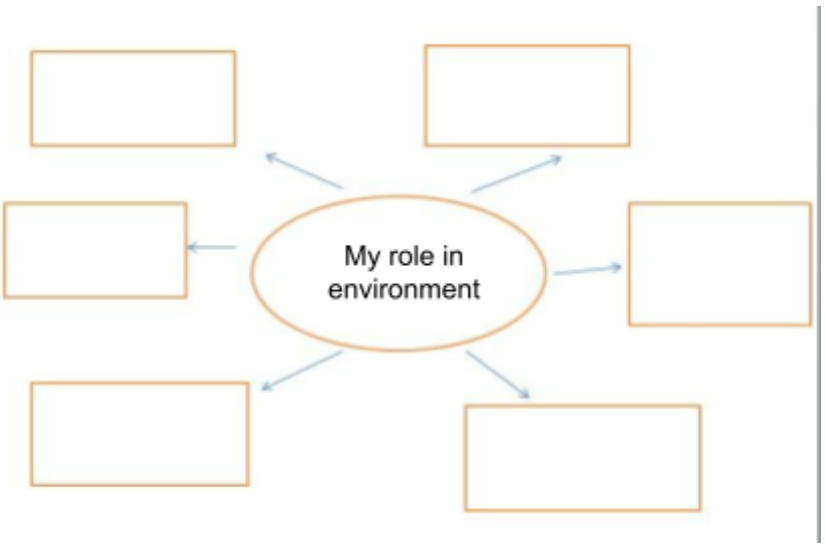
30) Complete the table.

Sex/Gender	Reasons for infertility
Female	
male	

31) Explain the given concepts with the help of examples.

a) Genetic Diversity b) Species Diversity c) Ecosystem Diversity

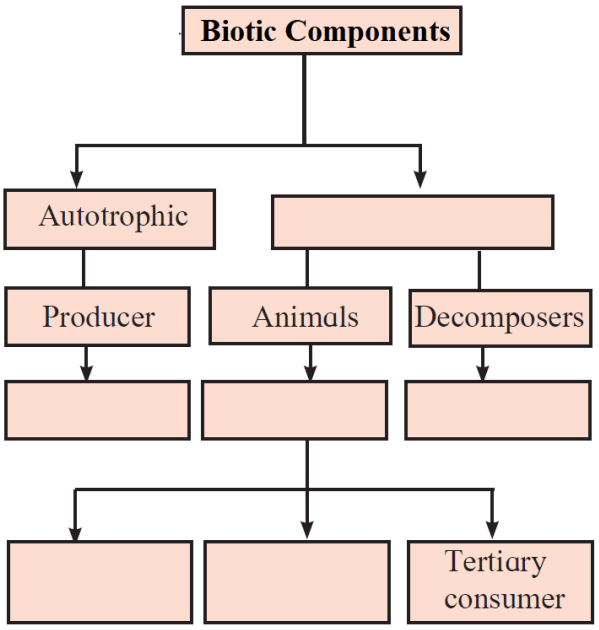
32) Complete the concept map.



33) What is the meaning of the following symbols ? Write your role accordingly.



34) Complete the concept map.



35) Why is it said that pollution control is important ?

36) a) Write the given food chain in appropriate sequence.

Grasshopper - Snake - Rice field - Eagle - Frogg

b) In which ecosystem given food chain is included ? Explain the ecosystem.

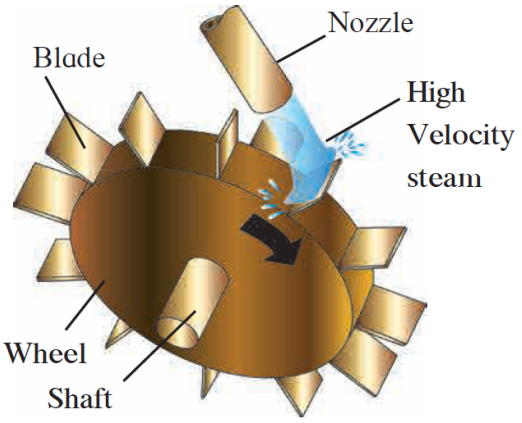
c) If the frog population declines all of a sudden what will be the effect on paddy fields?

37) Complete the table.

Endangered Heritage Places of the Country	Threatened/ endangered species of an animal	Reasons
Western ghat		
	Rhino	
	Tiger	

38) Explain the classification of threatened species of animals with an example.

39) Observe the given diagram and answer the questions given below



a) Explain the diagram.

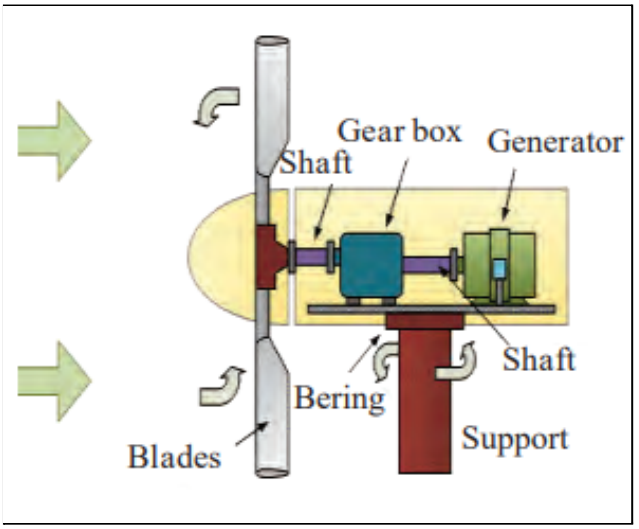
b) Answer the questions with the help of diagram.

c) What is the name of machine given in the diagram

d) Write down the function of this machine in short.

e) How does it gets/forms the motion

40) Observe the given diagram and answer the questions.



a) Which type of energy is generated?

b) This power station depends on which factors ?

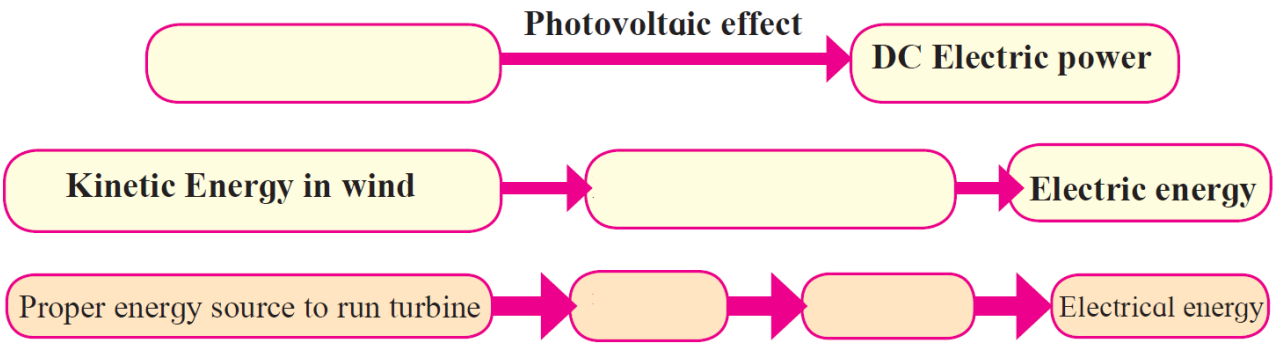
c) Is it environment friendly ?

41) Complete the table.

Advantages of hydroelectric power plant	Disadvantage of hydroelectric power plant

Limitations of solar energy	Limitations of wind energy

42) Complete the following flow charts.

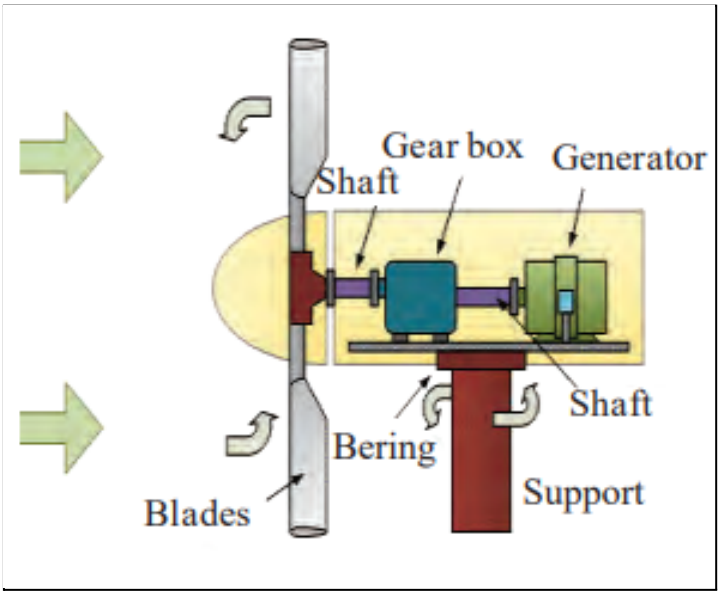


43) Draw the flowcharts for the given power stations.

a) Thermal energy based electric power plant

b) Power generation plant on energy of natural gas

44) Explain the stages in electric generation from the given schematic diagram.



45) Draw the schematic diagram of natural gas power plants and answer the following questions.

46) Where is the power plant based on natural gas in Maharashtra ?

47) Why is there less pollution by natural gas power plants?

48) Give the example of eco-friendly electric power generation plants

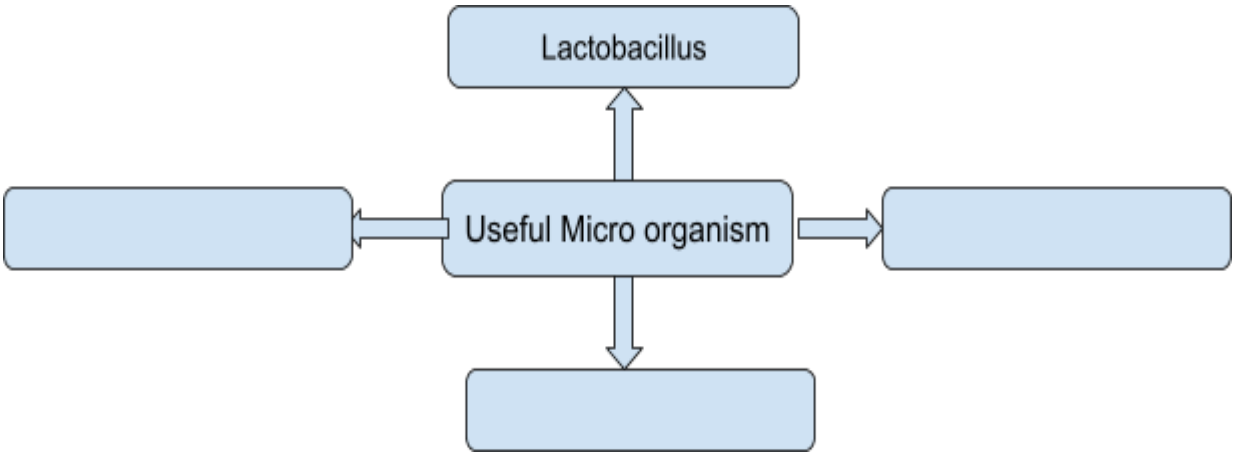
49) What is the importance/ function of a solar reflector?

50) Why are absorbing/controlling rods used in atomic reactors?

51) Complete the table.

Limitations of Solar energy	Limitation of wind energy

52) Complete the concept map.



53) In industries microbial enzymes are used over chemical enzymes.

54) How is soil pollution controlled by microbes ?

55) Why should we use bio insecticides ?

56) Explain – Importance of microbes in sewage (water) treatment in cities.

57) How are microbes useful in land filling for solid waste management?

58) Which fuels do we get from microbes ?

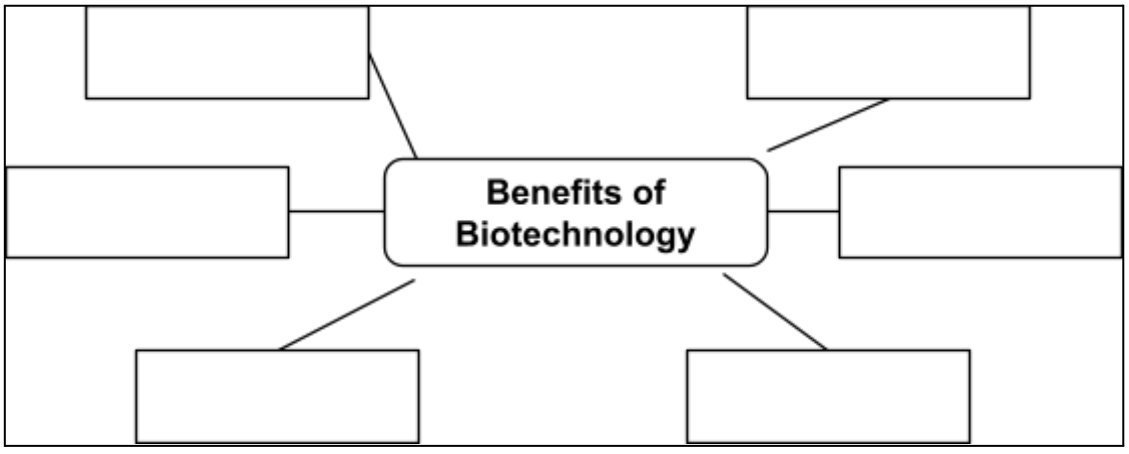
59) What is the importance of probiotics to humans ?

60) What is the use of antibiotics to human & other animals ?

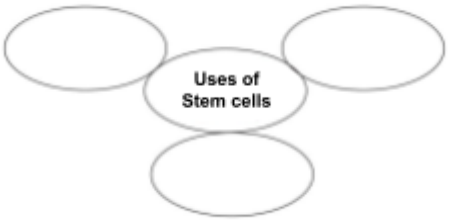
61) What are the benefits of microbial transplantation in plants?

62) Explain products mode & their uses from microbes?

63) Complete the chart.



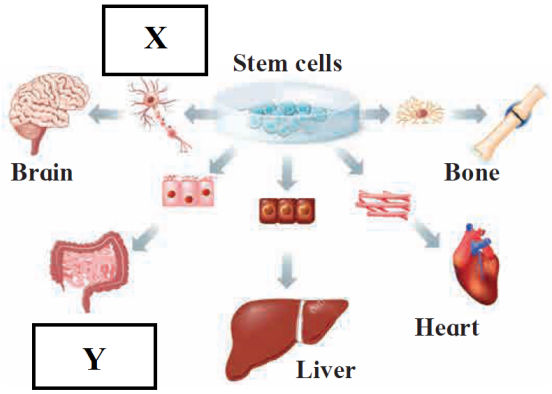
64) Write the correct answer in circles.



65) Write practical uses of biotechnology.

Sr. No.	Field	Uses
A	Crop Biotechnology	
B	Hybrid seeds	
C	GM Crops	

66) Observe the following figure and answer the questions.



a. Which property of stem cell is shown in figure?

b. Write the name of the cells or organs denoted by X and Y.

c. What is the benefit of tissue / organ culture from stem cells?

67) Complete the paragraph.

(red bone marrow, degenerated, umbilical cord, adipose, division, blastocyst)

Different tissues of the body are formed by _____ of stem cells. Stem cells are present in the _____ by which the fetus is joined to the uterus of the mother. Stem cells are also present in the _____ stage of embryonic development. Stem cells are present in _____ and _____ connective tissue of adult human beings. It has become possible to produce different types of tissues and the _____ part of any organ with the help of these stem cells.

68) What is meant by Biotechnology ? What does it include ?

69) Explain the commercial applications of biotechnology with examples.

70) How can we save the lives of many people by organ donations ?

71) What are the uses of Biotechnology ?

72) How is Biotechnology useful for human health ?

73) What is meant by cloning ? Explain its types.

74) Write uses of DNA fingerprinting ?

75) How is Biotechnology useful in the development of agriculture ?

76) What precaution should be taken while using insecticides ?

77) Why are medicinal (now) plants plaute ?

78) How is Biotechnology used in food processing ?

79) What is meant by stem cells ? Write its types ?

80) Define genetically modified crops. Give two examples.

81) Give examples of bio-fertilizers mentioning their advantages.

82) What is meant by vaccination ? What is the safest method of vaccination ?

83) Why are vaccines made by biotechnology preferred ?

84) What is organic farming? Why is there an emphasis on organic farming nowadays ?

85) What will happen, if we eat transgenic potatoes ?

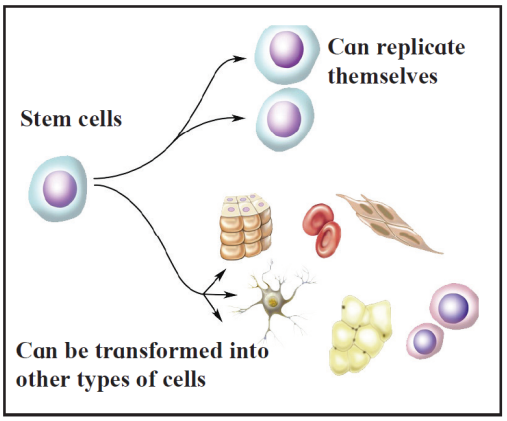
86) Write the things in day today life made by biotechnology.

87) Fill in the blanks in the following paragraphs.

(environment related, decomposition, microbial techniques, organic matter, oxidized, aquatic life)

It has become possible to solve _____ various problems with the help of biotechnology. _____ are already in use for treatment on sewage and solid waste. Sewage is rich in _____. If such sewage is released in natural water bodies like rivers, the organic matter in it gets _____ with the help of dissolved oxygen. Due to this, level of dissolved oxygen in water decreases, adversely affecting the _____.

88) Observe the given figure and answer the following questions.



a. What is shown in the figure?

b. What can the stem cells make in this figure?

c. What can these stem cells transform into?

89) Which proteins are made by genetics ?

90) Write the effect of biotechnology on agriculture & allied fields.

91) What is meant by the blue revolution ? Which products are produced by pisciculture?

92) What are the advantages of tissue culture ?

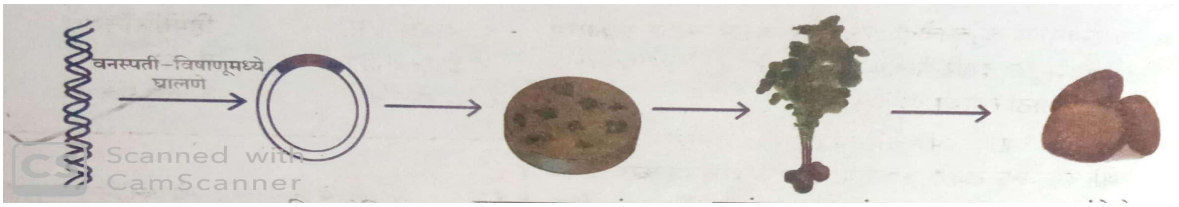
93) What is meant by edible vaccines?

94) Write down the benefits of plants grown through tissue culture.

95) Complete the following chart.

Sr. No.	Plants	Functions
1	Pteris vitata	.....
2	Pseudomonas	.....
3	.....	To absorb uranium and arsenic.
4	.....	To absorb the radiations from radioactive debris.
5	Indian mustard	.....

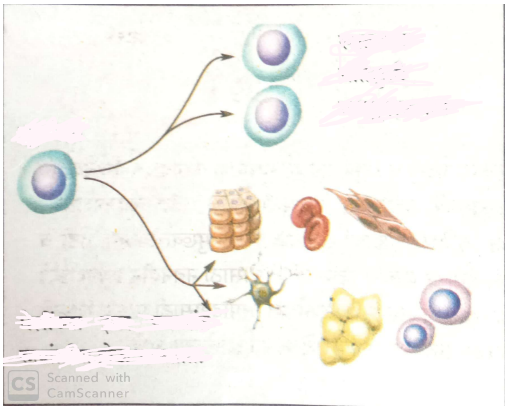
96) a) What does the following figure relate to?



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b) Briefly describe each of these steps.

97) Identify the given figure and label it.


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98) What will you do? Why?

a) Your sister has become incommunicative. She prefers to remain alone.

b) You are spending more time in internet/mobile games, phone, etc.

c) You have to use free space around your home for good purpose.

99) a) What mental disorder is shown in the given picture?



b) What social message would you give from this?

100) Complete the following.

(lungs, carcinogenic, nervous system, useful, deadly, addiction, intoxicating)

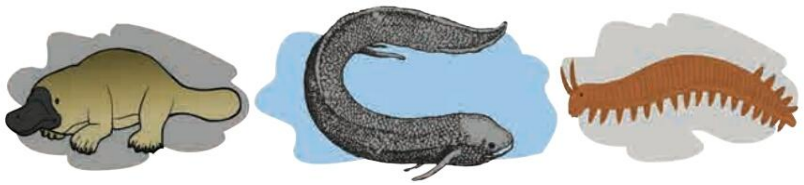
Children in their early age try upon tobacco, cigarette, gutkha, alcoholic drinks, drugs, etc. due to either peer-group pressure or symbol of high standard living or as an imitation of elders. However, it may lead to _____ to such _____ substances. Temporarily _____ drugs of plant origin and some chemicals may permanently damage the human_____, muscle system, heart, etc. Earlier, we have studied the _____ effect of tobacco containing substances on mouth and _____.

Question 4. Solve the following questions.

1) Explain any five types of evidence that support the theory of evolution.

2) Explain in short- transcription and mutation.

3) Write the answers to the questions by observing the figure below.



(a) (b) (c)

a) Write the name of the animal 'A' in the figure.

b) Write the name of the animal 'B' in the figure.

c) Write the name of the animal 'C' in the figure.

s) Which evolutionary evidence is illustrated by this figure?

E) Write the definition of that evidence for evolution.

4) Draw neat and labeled diagrams.

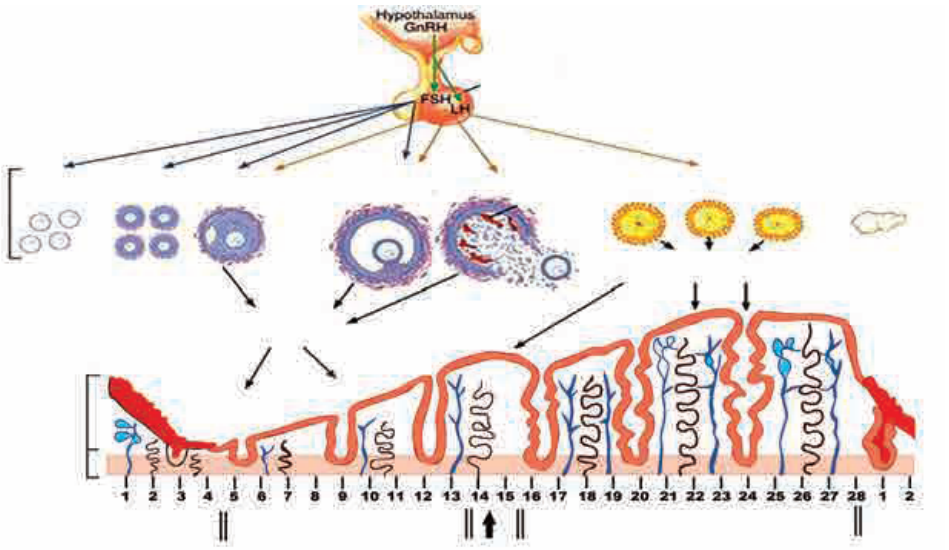
a) Double fertilization in angiosperms

b) Human male reproductive organs.

c) Spore formation

d) Human female reproductive system

5) Write the answers to the following questions by observing the figure below.



6) What does the figure above show?

7)Which organs are involved in this process?

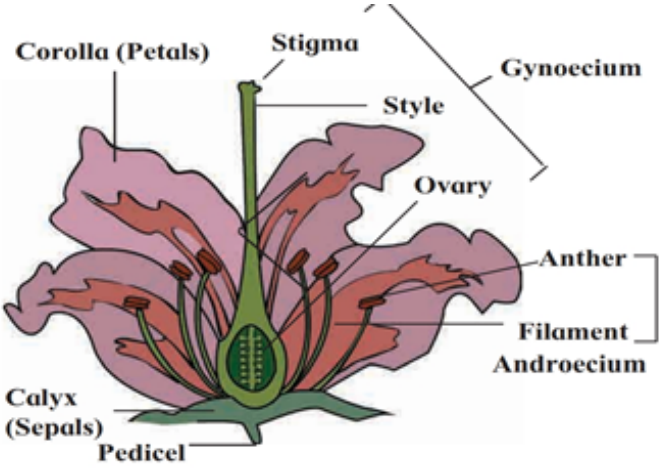
8) Which hormones are involved in this process?

9) After how many days do these changes happen again?

10) Explain your opinion about the statement that a woman's body is impure while the above process is going on.

11) Explain the sexual reproductive process in plants with a diagram.

12) Observe the figure below. Write functions of the labeled parts.



13) Read the following paragraph and write the answers to the questions based on it.

Reproduction is an important process for the survival of an organism. Asexual reproduction occurs in different ways in plants. E.g. Vegetative propagation, fragmentation, budding, spore formation etc. Gametes are formed for sexual reproduction. In the animal kingdom, various methods like budding, binary fission, and parthenogenesis are used. There is no difference between males and females in the animals in which these methods are observed. The method of regeneration also creates new organisms. But regeneration is not the real method of reproduction. Regeneration is the process of healing wounds, creating new organs. This ability has completely disappeared in the developed animals. Modern research is being done on the method of sexual reproduction, e.g. Cloning. So in the future women will be able to create their own offspring without a father.

a) How do living organisms maintain their own species continuity?

b) What are the methods of asexual reproduction in animals?

c) Why is it said that regeneration is not the real method of reproduction?

d) What are the different methods of reproduction in plants?

f) What modern breeding methods are being researched in developed animals?

14) 'Surrogacy, In Vitro Fertilization (IVF), Sperm Bank/ Semen Bank etc. modern technology will be useful to humans.' support this statement.

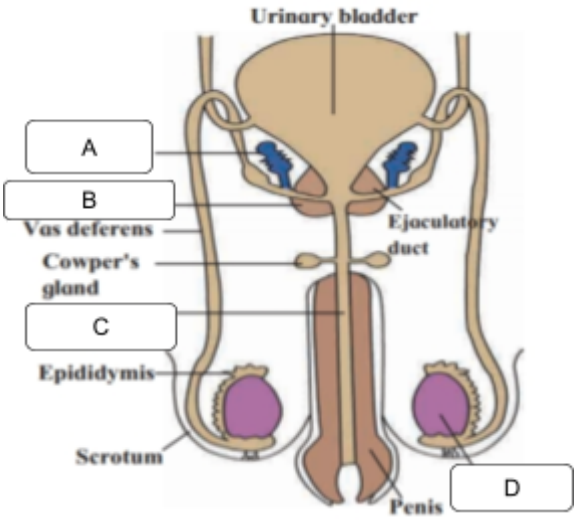
15) Write the answers to the questions by observing the figure.

a) What does the above figure show?

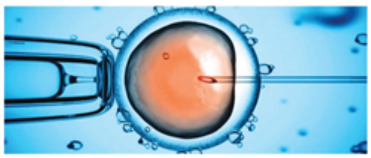
b) Write the names of parts A, B, C, D.

c) Write the function of the part 'D'.

d) How is semen formed?



16) a) What process does the next figure show?



b) Describe in short that process.

c) Who can benefit from this process?

17) i) Explain my role in the environment based on the following points (Write two actions each)

a) Control b) Conservation c) Production d) Preservation é) Awareness

ii) What initiatives will you take regarding environmental conservation? Write how.

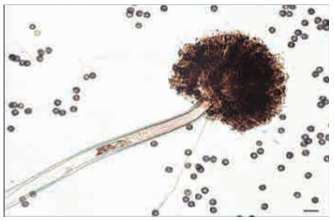
iii) What are the endangered species of animals and plants? How can they be saved?

18) Briefly explain the environmental role of microorganisms in pollution control?

19) What products do you get from microorganisms through the fermentation process? Explain with an example.

20) Explain biofuel production with the help of diagram.

21) Observe the figure and write the answers to the questions asked.

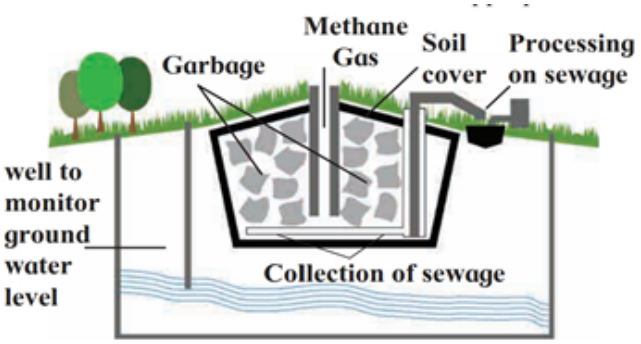


a) Write the name of the fungus in the figure above.

b) What is the source of these fungi?

c) Which organic acid obtained from this organism is used in commercial production?

22) Observe the figure and write the answers to the questions asked.



a) Name the above figure.

b) What is it used for?

c) Which gas is formed in it?

d)How is this gas formed?

e) What is done with sewage ?

23) Complete the paragraph by selecting the appropriate option in parentheses.

(energy, microbial, erosion-proof, reused, purification, environmentally Friendly)

Nowadays, instead of chemical catalysts, ……. enzymes are used in the chemical industry. These enzymes are active at low temperature, pH and pressure; due to which …….. is saved and ……. instruments are also not necessary. Enzymes carry out specific processes; hence unnecessary byproducts are not formed due to which expenses on ……. are minimised. In case of microbial enzymatic reactions, elimination and decomposition of waste material is avoided and enzymes can be …….. Hence, such enzymes are ……..

24) Read the following paragraph and write the answers to the questions asked.

Sulphuric acid is present in the acid rain and materials coming out of mines. You know that erosion of metals present in statues, bridges and buildings occurs due to it. Sulphuric acid is a source of energy for some species of bacteria like Acidophilum spp. and Acidobacillus ferrooxidans. Hence, these bacteria can control the soil pollution occurring due to acid rain.

Water soluble salts of uranium are present in the wastes produced during electroplating and in effluent released in the environment from the atomic energy plant. Geobacter convert these salts of uranium into insoluble salts and thereby prevent those salts from mixing with groundwater sources.

a) What causes metal erosion in statues, bridges and buildings?

b) Sulphuric acid is the source of energy for which bacteria?

c) What kind of pollution do these bacteria control?

d) What are the water soluble salts in nuclear power plants and in the process of electrolysis?

e) Which bacteria prevent these salts from mixing with ground water by converting them Into insoluble salts?

25) Write the answers to the questions by observing the figure.



a) What type of fuel production process is shown in the figure?

b) Write two examples each of the solid, liquid and gaseous fuels produced in this fuel production process ?

c) How do microorganisms play their role in this process?

26) Write down the names of five medicinal plants and their uses.

27) Read the following paragraph and write the answers to the questions based on them.

Vaccination gives either permanent or temporary immunity against a specific pathogen or disease. Traditionally, vaccines were prepared with the help of pathogens. Completely or partially killed pathogens were used as vaccines. However, due to this, there were chances of contracting the disease in case of some persons. Hence, as an alternative, scientists tried to artificially produce vaccines with the help of biotechnology. For this purpose, scientists produced the antigen in the laboratory with the help of genes isolated from the pathogen and used it as a vaccine. Thus, safer vaccines are being produced. Work on production of edible vaccines is in progress and presently, potatoes are being produced with the help of biotechnology.These potatoes are called transgenic potatoes. These potatoes will act against. Consumption of these raw potatoes generates immunity against pathogens. For the production of such edible vaccines, antigens are produced by isolating the desired gene from human pathogens and injecting it into plants.

a) How can people who have been vaccinated with hemophilia be infected?

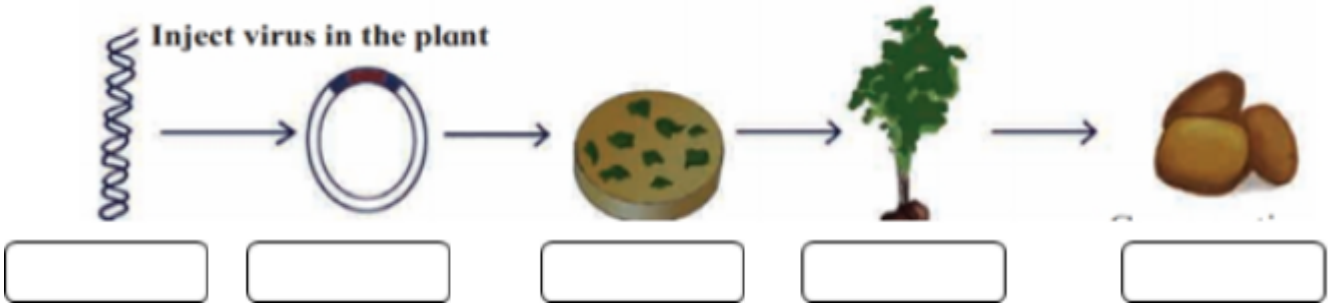
b) Why are vaccines produced with the help of biotechnology safer than conventional vaccines?

c) How does the immune system respond to vaccination?

d) What is the disadvantage of transgenic potatoes?

e) Why is vaccination more beneficial than antibiotics?

28) Write the correct statement from the statements given in the box below the figure.



a) The whole plant is formed from the pieces of leaves which contain the genes of human pathogens.

b) Consumption of raw potatoes builds immunity against those germs.

c) Isolation of desired genes from pathogens found in human beings.

d) Genetically transmitted plant-virus.

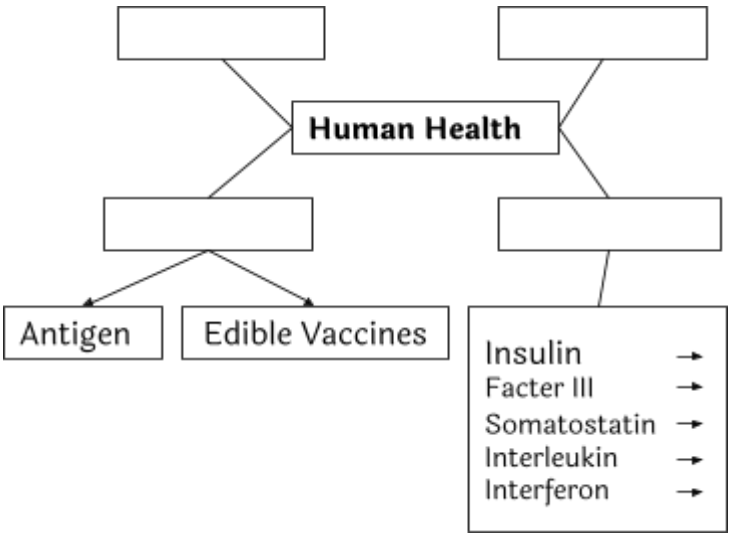
e) The virus infects pieces of potato leaves.

29) Explain the statement-The revolutionary phenomenon in biotechnology after cloning is stem cell research.

30) How can we solve many environmental problems using modern biotechnology?

31) How is biotechnology useful for human health? Explain with an example.

33) Complete the concept paper based on 'Use of Biotechnology in Human Health'.



34) Write the answers to the following questions regarding cloning.

a) What is cloning?
b) What is reproductive cloning?
c) What is therapeutic cloning?
d) Which animal was created by cloning technique?
e) Explain the advantages of cloning technique.

35)What does the next picture show? What will be the effect?



36)What does the next picture mean?



37) Observe the figure and write the answers to the questions asked.



a) What does this picture show?
b) Explain any two reasons for this problem.
c) Name any two solutions to solve this problem.

38) Write answers to the questions based on the paragraph.

Social health is the ability of a person to establish relationships with other persons. Ability to change one's own behaviour according to changing social conditions is an important characteristic of social health. A socially healthy person can also cope with a variety of social situations. Can behave appropriately and adaptable to changing circumstances. Your spouse can match such people with your co-workers and form good relationships. All of these relationships require good communication. It is important to have empathy and a sense of responsibility for each other. On the other hand, there are negative shades like jealousy, revenge, and loneliness. If there is tension in the relationship, healthy relationships will not be formed. Stress management, planning appropriate measures e.g. Regular exercise,deep breathing, and a positive attitude can improve social health.

a) What is social health?
b) What qualities are needed to build good social relationships?
c) Which vices have negative consequences?
d) What measures would you take for stress management?
e) Give two examples of negative shades.

39) What factors determine social health?

40) What are the changes in a person due to constant contact with the internet, mobile, phone?

41) Write the answers to the questions by observing the picture.



a) What is the concept shown in the picture?
b) Write its benefits.
c) What do you do when you feel stressed?

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