JKBOSE Class 10 Science Sample Paper

SCIENCE

(Physics, Chemistry and Life Science)

Time: 3 Hours *Maximum Marks: 84*

Section - A

(PHYSICS)

(Long Answer Type Questions)

Q.1. What are Spherical Mirrors? Explain, how a concave mirror is different from a convex mirror? (6)

Or

Explain the laws of Refraction of Light.

Define Reflection.Explain the laws of reflection with the help of suitable diagram.

* What is Lens formula?Give its sign conventions and assumptions.
* What is Refraction? What are the Laws of Refraction?
* Define magnification of a Spherical mirror. What will be the magnification in case of a plane mirror?
* Define reflection of light. What are the properties of images formed by a plane mirror?
* With the help of a ray diagram find the position, nature and size of image formed by a convex lens when an object is placed.
  (a) Beyond 2f
  (b) Between optical centre and principal focus
* Draw the ray diagram and find the nature, size and position of image formed by convex mirror when the object is placed.
  (a) at infinity
  (b) Between infinity and pole of the mirror.
* A convex lens forms a real and inverted image of a needle at a distance of 50 cm from it. Where is the needle placed so that size of the image is equal to size of object? Also find power of lens.
* What are the factors on which the resistance of a conductor depends?

  Derive the relation $R = \rho \frac{l}{A}$. Give the unit of resistivity.

* (a) Describe the Joule's law of heating and derive the relation $H = I^2RT$
  (b) An electric iron of resistance of 2 Ω (ohm) takes a current of 5 A. Calculate the heat developed in 30 seconds.

* Derive an Expression for the equivalent resistance if three resistance connected in series and parallel?
* Explain in brief Electric potential and potential difference.
* State new cartesion sign conventions of lenses. What is the difference between lens formula and mirror formula?
* What are sign conventions used in a sperical mirrors? What is the mirror formula?
* What is a spherical mirror? An object is placed at a distances of 10 cm from a convex mirror of focal length 15 cm. Find the position. size and nature of the image.
* Give the nature, size and position of the image formed in case of a concave mirror for different positions of the object.
* What is electric Power? Derive its expression and derive its unit.
* With the help of diagrams explain the converging action of convex lens and diverging action of concave lens.
* What is electric energy? Derive its expressions and define its unit.

(Short Answer Type Questions)

Q.2. What do you understand by Resistances in Series? (4)

Or

What is meant by Potential Difference? How is it measured?

* Explain refraction through a glass slab. Also define refractive index?

Define and explain magnification in case of Spherical mirror.

* What is lens formula? Give its sign conventions.

What is power of a lens? Give its S.I. unit.

* Why do stars twinkle?
* What are the defects of an eye? Explain Hypermetropia.
* What is Power? Give commercial unit of power.
* Why sun looks reddish at sun rise and sun set?
* Explain the dispersion of light through a glass prism. Draw the diagram.
* Draw the well labelled diagram of human eye.
* Write the function of iris, pupil crystalline lens and retina in case of human eye.
* Define scattering of light. Explain Tyndall effect, give an example.
* Explain the refractive index of a substance. What is the refractive index of water?
* Define Myopia. How is it corrected?
* Write down the uses of spherical mirror.
* Explain what is meant by linear magnification produced by lenses.
* What is power of lens? A person needs a lens of power 5.5 dioptres for correcting his distant vision. What is the focal length of the lens required for correcting his distant vision?
* Give the mirror formula and discuss its Magnification.
* Give two uses of each convex mirror and concave mirror.

Q.3. Discuss the working of Human Eye as a System of refraction of light. (4)

Or

Explain the phenomenon of Dispersion of Light by a Glass Prism.

* Define hypermetropia. How is it corrected?
* Explain Atmospheric refraction.
* Define principal axis, principal focus, focal length and pole of mirror.
* Why is the tungsten used for the filament of electric lamps and alloys are used in electric heaters, toaster and electric lamps?
* Why does the sun appears reddish early in the morning and at evening?
* Describe the process of refraction through a glass prism.
* What are the uses of concave mirrors?
* What is dispersion of light? What it is its cause?
* Discuss power of accommodation.
* What is presbyopia and how it is corrected?

Q.4. What is Oersted Experiment? What is effect of a Bar magnet on a compass needle?

Or

What is an Electric Motor? Give its principle. (4)

* Define Ohm's law and Show graphically $V \propto I$.
* What is meant by electric power? Give its units.
* An electric refrigerator rated 400 W operated 8 hours/day. What is the cost of energy to operate it for 30 days at the rate of Rs. 3.00 per kWh?
* Verify the Ohm's law and state the nature of graph formed between V and I (Potential difference and Current).
* What precautions should be taken to avoid the overloading and short circuiting of domestic electric circuits?
* Draw the well labelled diagram of electric motor and write its working.
* We wish to obtain an erect image of an object, using a concave mirror of focal length 15th cm. What should be the range of distance of the object from the mirror? Draw the ray diagram and find size, position and nature of image.
* An object 5 cm high is held 25 cm away from a converging lens of focal length 10 cm. Find the position, size and nature of image formed.
* Find the power of a concave lens of focal length 2 m. What is one dioptre?
* Explain electric power and electric energy.
* What are the practical applications of heating effect of an electric current?
* Explain resistance in series and parallel.
* Give the properties of magnetic lines of force.
* Describe the Principle,working of an electric motor.
* What are the disadvantages of nuclear energy?

* Define Principal focus and focal length of a cancave mirror.
* Define Conductors and Insulators.
* Discuss the resistances when connected in parallel.
* What is Electric Power? Give its units.
* Draw a simple diagram of the human eye and label clearly the cornea, iris, pupil, cilliary muscles etc.

(Very Short Answer Type Questions)

Q.5. Define Nuclear Energy. (2)

Q.6. A convex lens is of focal length 2 meters. What is the power of lens? (2)

Q.7. What is the use of Rear view mirror in vehicles? (2)

* State Flemings Left hand rule.
* What is meant by conventional sources of energy. Give two examples.
* Name two gases which are filled in electric bulb. Why such gases are filled in an electric bulb?
* What do you mean by Solenoid?
* What is Bio-energy?
* A bird sitting on an 11000 V wire is safe but a man on earth touching 220 V. wire may die. why so?
* Write two suggestions to reduce energy consumption.
* Explain the right-hand thumb rule to find the direction of magnetic field produced by current carrying conductor.
* Name two safety measures commonly used in electric circuits.
* Why are we looking at alternate sources of energy?
* Name two safety measures commonly used in electric circuits and appliances.
* State Fleming's right-hand rule and find its application.

Name four renewal sources of energy.

* Name some devices in which electric motors are used.
* Write down two properties of magnetic lines of force.
* State Nuclear fission and Nuclear fusion.
* What is an electric current? Define the unit of electric current.

On what factors the force experienced by a current carrying conductor placed in a uniform magnetic field depend?

How does an electric short circuit occur?

Give two practical applications of heating effect of Electric current.

* Give two uses of an Electric Motor.
* Define Electromagnetic Induction.
* List two uses of convex lens.
* Why do not two magnetic field lines intersect each other?

What is meant by conventional source of energy? Write the names of two conventional sources of energy.

(Multiple Choice Questions)

Q.8. Choose the correct/most appropriate answer from the four alternatives given below against and write it in your answer-book:

(i) The stars appear to us slightly above than their actual position because of:

(a) Dispersion of light (b) Refraction of light

(c) Absence of Atmosphere (d) Defraction of light (1)

Ans. (b) Refraction of light

(ii) Wave Energy is a type of:

(a) Geothermal energy

(b) Nuclear energy

(c) Conventional source of energy

(d) Non-conventional energy source. (1)

Ans. (d) Non-conventional energy source

(iii) The Ohm's law can be expressed as:

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

(c) $I = \frac{V}{R}$ (d) $VR = 1$ (1)

Ans. (a) $\frac{V}{I} = R$

(iv) The arrangement of a cell, plug, key, bulb and an ammeter is called:

(a) Electrical Current (b) Electric Generator

(c) Electric Circuit (d) Voltmeter (1)

Ans. (c) Electric Circuit

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(i) We can see the Sun, even after it has actually set for about:

(a) 0.3 minutes (b) 30 seconds

(c) 2 minutes (d) 50 seconds

Ans. (c) 2 minutes

(ii) Which of the following is associated with gravitational pull of Moon?

(a) Tidal energy (b) Solar energy

(c) Ocean Thermal Energy (d) Wind Energy

Ans. (a) Tidal energy

(iii) Voltmeter is used to measure the:

(a) Power (b) Charge

(c) Current (d) Potential difference

Ans. (d) Potential difference

(iv) In the equation V = IR, the 'I' is an expression of:

(a) Charge
(b) Current
(c) Potenital difference
(d) Resistance

Ans. (b) Current

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(i) The sun is visible to us, before the actual sunrise by:

(a) 15 minutes
(b) 12 minutes
(c) 5 minutes
(d) 2 minutes

Ans. (d) 2 minutes

(ii) The generation of steam in 'HOT SPOTS' of earth produces:

(a) Tidal energy
(b) Geothermal Energy
(c) Nuclear Energy
(d) Wave Energy

Ans. (b) Geothermal Energy

(iii) The instrument used to measure current is:

(a) DP switch
(b) Rheostat
(c) Ammeter
(d) Voltmeter

Ans. (c) Ammeter

According to Ohm's law:

(a) $I \propto V$ (Temperature constant)
(b) $I \propto \frac{1}{V}$
(c) $R \propto V$ (Temperature constant)
(d) R = VI (Temperature constant)

Ans. (a) $I \propto V$ (Temperature constant)

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(i) Most sensitive part of retina is called:

(a) yellow spot
(b) black spot
(c) corned
(d) blue spot

Ans. (a) yellow spot

(ii) L.P.G. is mostly:

(a) hydrogen
(b) oxygen
(c) butane
(d) methane

Ans. (c) butane

(iii) S.I. Unit of electric resistance is :-

(a) ampere
(b) Ohm
(c) Volt
(d) Watt

Ans. (b) Ohm

(iv) The pessage of current in an electrolyte is due to the movement of :-

(a) Electrons
(b) ions
(c) atom
(d) All of these

Ans. (b) ions

(i) Amount of light entering our eye depends upon.

(a) Size of pupil
(b) Size of Iris.
(c) Size of Cornea
(d) Size of Vitreous humor

Ans. (a) Size of pupil

(ii) Non-renewable source of energy other than fossil fuel is:-

(a) Uranium
(b) Petroleum
(c) Coal
(d) All of the above

Ans. (a) Uranium

(iii) S.I. unit of electric energy is:

(a) kWh
(b) J
(c) JS
(d) NC^{-1}

Ans. (a) kWh

(iv) The device used for producing electric current is called:

(a) Generator
(b) Motor
(c) Galvanometer
(d) Ammeter

Ans. (a) Generator

Sun is the huge source o

(i) Solar Energy
(ii) Kinetic Energy
(iii) Potential Energy
(iv) None of these

Ans. (i)

* Most sensitive part of retina is called:

(i) Back spot
(ii) Cornea
(iii) Yellow spot
(iv) Blue spot

Ans. (iii)

* The mirror used by a dentist is:

(i) Plane
(ii) Convex
(iii) Concave
(iv) None of these

Ans. (iii)

* Refractive Index of diamond is:

(i) 1.5
(ii) 1.33
(iii) 1.8
(iv) 2.42

Ans. (iv)

* Eye lens is a

(i) Double convex lens
(ii) Double concave lens
(iii) Plano convex lens
(iv) Plano concave lens

Ans. (ii)

* Which type of energy is freely available in nature?

(i) LPG
(ii) Sunlight
(iii) Water gas
(iv) Wind energy

Ans. (ii)

* Solar energy is converted in Electrical energy by:-

(i) Solar water heater
(ii) Solar furnace
(iii) Solar cooker
(iv) Solar cell

Ans. (iv)

* Which is a non-renewable source of energy?

(i) Solar energy
(ii) Wind energy
(iii) Natural Gas
(iv) Energy from flowing water

Ans. (iii)

* L.P.G. is mostly liquified:

(i) Hydrogen
(ii) Oxygen
(iii) Butane
(iv) Methane

Ans. (iii) Butane

* A good source of energy would be one which would be:

(i) easily accessible
(ii) easily to store and transport
(iii) commercial
(iv) all of these

Ans. (iv) all of these

* The human eye forms the image of an object at its:

(i) Cornea
(ii) Tris
(iii) Pupil
(iv) Retina

Ans. (iv) Rtina

* Where should an object be placed in front a convex lens to get real image of the size of the object?

(a) At Principal focus of the lens
(b) At twice the focal length
(c) At infinity
(d) Between optical centre and principal focuss.

Ans. (b) At twice the focal length.

* A Spherical mirrol and a thin Spherical lens have each a focal lenth of −15 cm. The mirror and lens are likely to be:

(a) Both Concave
(b) Both convex
(c) Both concave-convex
(d) Name of These

Ans. (a) Both Concave

The kind of mirror best suited for use ina solar cooker is:

(a) Concave mirror (b) Convex mirror

(c) Plane mirror (d) All of these

Ans. (a) concave mirror:

Which of the following materials cannot be used to make a lens?

(a) What (b) Glass

(c) Plastic (d) Clay

Ans. (d) Clay

* The least distance of distinct vision for a young adult in the normal vision is:

(a) 25 cm (b) 2.5 cm

(c) 2.5 cm (d) 2.5 cm

Ans. (c) 25 cm

Which of the following is not ultimately derived from the Suns energy?

(a) Geothermal energy (b) Wind energy

(c) Nuclear energy (d) Biomass

Ans. (a) Geothermal energy.

The twinking of stass is due to atmospheric:-

(a) Reflection of light. (b) Dispersion of light

(c) Interference of light (d) Refraction of light

Ans. (d) Refraction of Light.

* In an electric motor the direction of current in a coil changes once in each.

(a) two rotation (c) One Rotation

(b) half Rotation (d) One fourth Rotation.

Ans. (b) Half Rotation.

Section-B
(CHEMISTRY)
(Long Answer Type Questions)

Q.9. What are Unsaturated Hydrocabons? Discuss briefly the types of unsaturated hydrocarbons. (6)

Or

What is a Homologous series? Describe briefly the various homologous groups of organic compounds.

* Define allotropy. Give structure and properties of diamond.

* How does Soaps differ from detergents? Explain the mechanism of cleansing action of Soaps.

* Why carbon form covalent bond with carbon atoms or atoms of other elements?

e

* Write the chemical properties of carbon compound i.e. combustion. oxidation addition and substitutions reactions.
* How can Ethanol and Ethanoic acid be differentiated on the basis of their physical and chemical properties?
* Explain the mechanism of the cleaning action of soaps.
* Discuss the versatile nature of carbon in reference to catenation. tetravalency and strong bond formation with other elements.
* What are homologous series? Give four characteristics of homologous series.
* How do metals react with air. water. acids and salts? Give equations of the reactions.
* Define electrolytic refining. How copper is refined by electrolysis? Draw the diagram of electrolysis bath.
* How would you distinguish between Soaps and Detergents?
* Write down the structure of the following compounds.
  (a) Ethanoic acid
  (b) Propanona
  (c) Hexanal.
* Write the physical and chemical properties of Ethanoic Acid.
* Write down the physical and chemical properties of Ethanol?
* How would you distinguish between an alcohol and a carboxylic acid?
* What is a detergent? Name one detergent. Why have detergents replaced soap as a washing agent?
* Give the structural isomers of pentane.
* Explain substitution reactions and addition reactions with an example each.

(Short Answer Type Questions)

Q.10. Describe briefly any two types of chemical reactions with an example of each. (4)

Or

What is Rancidity? How can it be prevented?

* What is Corrosion? Give Methods of its Prevention.
* Define refining of metals.Explain electrolytic refining of metals.
* What is the difference between displacement reaction and double displacement reaction? Write the equation for these reactions.
* Give a brief discussion of the Mendeleev's classificaiton of Elements.
* What is Atomic radius ? How do the atomic radii of the elements change in a group?
* Differentiate between metal and non- metal on the basis of their chemical properties.
* What is meant by the concentration of the ores? Describe the methods for the concentration of ore.

Q.11. What are Acids? Give an idea of organic and mineral acids. (4)

Or

What is the importance of pH in everyday life?

* Define decomposition reaction. Give two examples of reactions in which heat and sunlight is involved.

Translate the following statement into chemical equations and balance them:
Solution of barium chloride and sodium sulphate react to give insoluble barium sulphate and sodium chloride.
Sodiumhydroxide react with hydrochloric acid in water give sodium chloride solution and water.

* What are skeletal and balanced chemical equations? Give examples.
* What are redox reactions? Give two examples.
* Why does the colour of copper sulphate solution changes when iron nails dipped in it? Mention the new colour formed.
* Translate the following statement into chemical equations and balance them:
Hydrogen sulphide gas burns in air to give water and sulphur dioxide.
Barium chloride reacts with Aluminium sulphate to give Aluminium chloride and barium sulphate.

Q.12. Explain the properties of ionic compounds. (4)

Or

What are the various methods of refining of metals?

* Explain Oxidation and reduction with two examples in each case.
* What do you understand by combustion reaction? Explain with two examples.
* Define atomic radius. How it vary down a group and along a period from left to right?
* How could the modern periodic table removed the various anomalies of Mendeleeve's periodic table?
* Describe the achievement of Mendeleev's periodic table.
* Why do the element present in a group show similar chemical properties?
* Distinguish between Mendeleev's period table and modern periodic table.
* How the metallic character of an element is defined? How it vary down a group and along a period from left to right?
* With the help of an example discuss decomposition reaction.
* Explain the effect of oxidation in your daily life.
* Give properties of ionic compounds. Explain.
* With the help of an example explain the formation of ionic compound.
* Give four reactions of metals with water.

(Very Short Answer Type Questions)

Q.13. Distinguish between a 'Group' and a 'Period' of modern periodic table. (2)

Q14. Define Rusting. (2)

Q.15. What are Dobereiner's Triads? (2)

Give names and formulae of two strong acids and two weak acids.

* Give two Chemical properties of ethanol.
* Show the formation of Na_2O and MgO by the transfer of electrons.
* What is Homologous Series?
* Give two uses of baking soda.
* Define pH and give its importance in daily use.
* Write the two uses of esters.
* Write action of acids and bases on litmus papers.
* Write an equation of reaction for reaction between plaster of paris and water.
* How pH change affects our digestive system?
* While diluting an acid, why acid should be added to water, not water to the acid?
* Where do compounds of carbon find application?
* What is the industrial application of hydrogenation?
* Which metals do not corode?
* What are the uses of washing soda?
* Explain why soaps are not effective cleansing agent in Hard water.
* Give the example of amphoteric oxides.
* What are the uses of Plaster of Paris?
* Give the reactions of aluminium oxide with: (i) HCI (ii) NaOH
* Give the formula of Ethanol and Ethanoic acid.
* Give two physical properties of metal and Non-metal each.
* Define Allotropy.
* State Modern Periodic Law.
* What do you mean by enrichment of ore?
* Define Allotropy. Name allotropes of carbon.
* What do you mean by malleablity and Ductility of metals?
* Why detergents are preferred over soap?
* What are the two properties of carbon which leads to the large number of carbon Compounds we see around us?
* State two ways to prevent the Rusting of iron.
* Name two metals which will displace Hydrogen from dil. acids and two metals which will not?

(Multiple Choice Questions)

Q.16. Choose the correct/most appropriate answer out of the following four alternatives given against each item and write it in your answer-book:

(i) The combustion of unsaturated hydrocarbons gives a:

(a) Clean flame (b) Yellow flame

(c) White flame (d) Pink flame (1)

Ans. (c) White flame

(ii) The ionic end of a soap molecule is:

(a) Hydrophilic (b) Hydrophobic

(c) Oil dissolving (d) All of these (1)

Ans. (a) Hydrophilic

(iii) Which of the following is a balanced chemical equation?

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

(c) $Mg + 2O_2 \rightarrow 2MgO$ (d) $2Mg + O_2 \rightarrow 2MgO$ (1)

Ans. (d) $2Mg + O_2 \rightarrow 2MgO$

(iv) Common salt (NaCl) is:

(a) Acidic (b) Basic

(c) Slightly Alkaline (d) Neutral (1)

Ans. (a) Acidic

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(i) The reaction in which chlorine in presence of Sunlight replaces Hydrogen atoms of a Hydrocarbon is:

(a) Addition reaction (b) Combustion

(c) Hydrogenation (d) Substitution reaction

Ans. (d) Substitution reaction

(ii) The Hydrocarbon part of soap is:

(a) Insoluble in water (b) Insoluble in oil

(c) Insoulble in greese (d) None of these

Ans. (a) Insoluble in water

(iii) Salts include:

(a) NaCl (b) CaCl

(c) Na_2CO_3 (d) All the above

Ans. (d) All the above

(iv) Which of the following is a balanced chemical equation?

(a) $H_2 + N_2 \rightarrow NH_3$ (b) $H_2 + N_2 \rightarrow 2NH_3$

(c) $3H_2 + N_2 \rightarrow 2NH_3$ (d) $2H_2 + N_2 \rightarrow 2NH_3$

Ans. (c) $3H_2 + N_2 \rightarrow 2NH_3$

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(i) The preparation of "Vanasapti Ghee" is an example of:
(a) Coombution
(b) Addition Reaction
(c) Substitution Reaction
(d) Oxidation
Ans. (b) Addition Reaction

(ii) The soap molecules forms:
(a) Dirt molecule
(b) Oil froplets
(c) Micelles
(d) All of these
Ans. (c) Micelles

(iii) Salts are:
(a) Mostly liquids
(b) Gases in form
(c) Insoluble in water
(d) Ionic compounds
Ans. (c) Insoluble in water

(iv) Which of the following is a balanced chemical equation?
(a) $H_2 + Cl_2 \rightarrow 2HCl$
(b) $H_2 + Cl_2 \rightarrow 2HCl$
(c) $H_2 - Cl_2 \rightarrow HCl_2$
(d) $2H_2 + N_2 \rightarrow 2HCl_2$
Ans. (b) $H_2 + Cl_2 \rightarrow 2HCl$

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(i) Oxidation is a process in which a substance
(a) gains electrons
(b) Gains oxygen
(c) Loss of electrons
(d) None of above
Ans. (b) Gains oxygen

(ii) pH of an acid is :-
(a) >7
(b) < 7
(c) 7
(d) 14
Ans. (a) >7

(iii) Which of the following type of medicines is used for treating indigestion:-
(a) Antibiotic
(b) Analgesic
(c) Anta-acid
(d) Anticeptic
Ans. (c) Anta-acid

(iv) The formula of POP is:-
(a) $CaSO_4$
(b) $CaSO_4.2H_2O$
(c) $Ca\ SO_4.½\ H_2O$
(d) $CaSO_4.H_2O$
Ans. (c) $Ca\ SO_4.½\ H_2O$

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(i) The combustion of unsaturated hydrocarbons gives a:
(a) Clean flame
(b) Yellow flame
(c) White flame
(d) Pink flame
Ans. (c)

(ii) The ionic end of a soap molecule is:

(a) Hydrophilic (b) Hydrophobic

(c) Oil dissolving (d) All of these

Ans. (a)

(iii) Which of the following is a balanced chemical equation?

(a) $Mg + O_2$ MgO (b) $Mg + O_2$ 2MgO

(c) $Mg + 2O_2$ 2MgO (d) $2Mg + O_2$ 2MgO

Ans. (d)

(iv) Common salt (NaCl) is:

(a) Acidic (b) Basic

(c) Slightly Alkaline (d) Neutral

Ans. (a)

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* A solution turns blue litmus red its pH likely to be:

(i) 1 (ii) 7

(iii) 10 (iv) 12

Ans. (i)

* Acid rain has pH:

(i) More than 5.6 (ii) Less than 5.6

(iii) 7 (iv) 14

Ans. (ii)

* Rusting is:

(i) Reduction Reaction (ii) Decomposition reaction

(iii) Oxidation reaction (iv) Combination reaction

Ans. (iii)

Phenolphthalein is a

(i) Weak acid (ii) Strong acid

(iii) Week base (iv) Strong base

Ans. (i) Weak acid

* pH of pure water is:

(i) 7

(iii) 9 (ii) 6

Ans. (i) 7 (iv) 8

The reaction in which heat energy is taken is called:

(i) Endothermic reaction

(iii) Isomerisation reaction (ii) Exothermic reaction

Ans. (i) Endothermic reaction (iv) None of

* Reaction in which heat energy evolved are known as:
(i) Exothermic reaction
(ii) Endothermic reaction
(iii) Displcement reaction
(iv) Decomposition reaction
Ans. (i)

* pH range of our body is:
(i) 7.6-7.9
(ii) 7.0-7.8
(iii) 7.2-7.5
(iv) 7.1-7.8
Ans. (ii) 7.0-7.8

* Litmus solution is extracted from:
(i) Lichen
(ii) Red-cabbage leaves
(iii) Turmeric
(iv) Petunia
Ans. (i) Lichen

* The Nettle plant leaves have a stringing hair which secrete:
(i) Methanoic acid
(ii) Butanoic acid
(iii) Citric acid
(iv) Lactic acid
Ans. (i) Methanoic acid

* Decomposition of vegetable matter into compost is an example of:
(a) Exothermic reaction
(b) Endothermic reaction
(c) Displacement reaction
(d) All of these
Ans. (a) Exothermic reaction

* Alkaline $KMnO_4$ or acidified $K_2Cr_2O_7$ Oxides alcohols to:
(a) Acids
(b) Aldehydes
(c) Ket ones
(d) None of these
Ans. (a) Acids

* When a large quantity of ethanol is consumed, It results in:
(a) Mental confusion
(b) Lack of co-ordination
(c) Drowsiness
(d) All of these
Ans. (a) All of these

* When dilute Hydrochloric and is added to iron fillings.
(a) Hydrogen gas and iron chlrrido are produced.
(b) Chlorine gas and iron hydroxide are produced.
(c) No reaction takes place.
(d) Iron salt and water are produced.
Ans. (a) Hydrogen gas and iron chloride are produced.

* Butanone is a four carbon compound with functional group.
(a) Carboxylic acid
(b) Aldehyde
(c) Ketone
(d) Alcohol
Ans. (c) Ketone

Ethanoic acid reacts with absolute ethanol in presence of an acid catalyst to give.

(a) An ester
(b) An alcohol
(c) A ketone
(d) An aldehyde

Ans. (a) An ester

* Which of the following methods is suitable for preventing an iron frying pan from rusting?

(a) Applying grease
(b) Applying paint
(c) Applying Coating of Zinc
(d) All of these.

Ans. (c) Applying coating of Zinc.

* Which of the following is an iron ore?

(a) Cinnabar
(b) Calamine
(c) Haematite
(d) Rock Salt

Ans. (c) Haematite.

* The process of extraction of metal from its ore is called:

(a) Smelting
(b) Refining
(c) Metallurgy
(d) Calcination.

Ans. (c) Metallurgy.

* Consider the reaction:

$$KBr + AgNO_3 \longrightarrow KNO_3 + AgBr$$

This is an example of:

(a) Decompositions Reaction
(b) Double Decomposition Reaction
(c) Combination Reaction
(d) Displacement Reaction

Ans. (b) Displacement reaction.

* The acid produced naturally in our stomach is:

(a) acetic acid
(b) hydrochloric acid
(c) citric acid
(d) sulphuric acid

Ans. (b) hydrochloric acid

* Metals of high reactivity are extracted by:

(a) Heating alone
(b) Electrolysis
(c) Reduction
(d) None of these

Ans. (b) Electrolysis

* During galvanisation, iron metal is given coating of the following metal. The metal is:

(a) Cr
(b) Sn
(c) Zn
(d) Cu

Ans. (c) Zn

* The removal of oxygen from a substance is called:
(a) oxidation
(b) Reduction
(c) Corrosion
(d) Rancidity
Ans. (b) Reduction.

Section - C
(LIFE SCIENCE)
(Long Answer Type Questions)

Q.17. What is Respiration? Describe the Repiratory system of Human beings? (6)

Or

Describe how water and food materials are transported in plants.

* Describe the 'Autotrophic Nutrition' in living organisms?
* Define 'Excretion'. Describe the Excretory system of Human Beings.
* Define Respiration. Differentiate between Aerobic and Anaerobic Respiration.
* What is Transportation? How are water and minerals transported in plants?
* What is Nutrition? How do animals obtain their nutrition?
* Describe the respiratory system of human beings with a suitable labelled diagram.
* What is Nutrition? Difference between Autotrophic and Heterotrophic nutrition.
* What are different ways in which glucose is oxidised to provide energy in different organisms?

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

* Describe the respiratory organs in case of human beings.
* What are the difference between aerobic and anaerobic respiration? Name some organisms that use anaerobic mode of respiration?
* Describe the structure of nephron with a neat labeled diagram.
* What do you mean by Double Circulation? Explain its importance in human beings.
* Explain the importance of sexual mode of reproduction.
* How does binary fission differ from multiple fission?
* How does chemical co-ordination takes place in plants?
* How do Mendel's experiments show that traits may be dominant or recessive?
* What is cellular respiration? Differentiate between aerobic and anaerobic respiration.
* Describe the excretory system of human being.
* How is fat digested in our bodies? Where does this process take place?

(Short Answer Type Questions)

Q.18. Explain the various movements in plant due to growth. (4)

Or

Discuss the structure of Human Brain.

* How does chemical co-ordination take place in animals?

Or

* What is Sexual reproduction? Describe the Structure of female reproductive system.
* Explain with the help of diagrams, the various types of a sexual reproduction.
* What are Plant Hormones? Explain the role of Auxins and Cytokinins in plant growth.
* Explain two methods of artificial vegetative propagation, you have studied.
* How does fertilization take place in the flowering plants?
* How do Mendel's experiments show that traits may be dominant or recessive?
* Why are traits acquired during the life time of an individual not inherited?

Draw a neat and labelled diagram of human brain. (No description)

* What are various components of Nervous System?
* Explain the nastic movement in plants.
* What is the difference between Reflex action and walking?
* Name various hormones produced by anterior lobe of pituitary gland (at least four harmones and their function).
* What happens of the synapse between two neurons?
* How do auxins promote growth of a tendril around a support?

Q.19. Describe briefly the human male reproductive system. (4)

Or

What is vegetative propagation? What are its advantages?

* What do you understand by Evolution by stages?
* Explain the rules for "Inneritance of traits".
* What are Pollination and Fertilization?
* Draw a graphc sketch of food-chain.
* What are Fossils?
* Explain the different modes of asexual reproduction in plants.
* Explain two methods of artificial vegetative propagation you have studied.
* How does fertilization take place in the flowering plants?
* Explain the mode of sexual reproduction in plants.
* Draw a neat and labelled diagram of female reproductive system.
* What is the importance of DNA copying in reproduction?
* Write a short note on fragmentation, fission or budding.
* What would be the advantages of exploiting resources with short term aims?
* Suggest some approaches towards the conservation of forests
* What are the different methods of contraception?
* What are the advantages of sexual reproduction over asexual reproduction?

Q.20. Differentiate Acquired traits from the Inherited triats. (4)

Or

What are Analogous and Homologous organs? Give examples.

* What are variations and what is their importance?
* Name and explain various factors which give rise to new species.
* Explain Mendel's law of dominance with the help of a cross.
* Define Inheritance. What are the rules for the inheritance of traits?
* How do Mendel's experiment show that traits may be dominant or recessive?
* Why are traits acquired during life time of an individual not inherited?
* What changes can you make in your habits to become more environment friendly?
* What is the importance of conserving the wildlife?
* Write in brief about the natural resources management.
* How can you as an individual contribute or make a differences to management of coal and petroleum?
* How is sex determined in human beings?
* How analogous organs provide evidence in support of evolution?
* With neat and labeled diagram explain the structure of neuron.
* What is puberty? Name the hormones responsible for production of secondary sexual characters in human beings.

(Very Short Answer Type Questions)

Q.21. Give any two ways to manage garbage at home. (2)

Q.22. Define Food Chain. (2)

Q.23. What is 'Narmada Bachao Andolan'? (2)

* What is the importance of recycling of materials?

Define food chain?

* What do you mean by Chipko Andolan?
* Name any two endangered plant species.
* What do you understand by Food Webs?
* Explain Sustainable Management.
* Name any two renewable resources.
* Name the three biotic components of an Ecosystem.
* Define non-renewable resources and name any two non-renewable resources.
* What are Fossils?
* List four common waste disposal methods.

Name any two fossil fuels.

* What do you mean by wild-life?
* Why Should we conserve forests?
* What is role of decomposers in the ecosystem?

What will happen if we kill all the organism in the trophic level?

Q.24. Choose the correct/most appropriate answer in each of the following and write it in your answer–book:

(i) Fodder is obtained from:
(a) Bacteria and Nematodes
(b) Leaves of plants
(c) Water harvesting tanks
(d) None of these (1)
Ans. (b) Leaves of plants

(ii) When there is insufficient oxygen (Air) the combustion produces:
(a) Ozone gas
(b) Carbon dioxide
(c) Carbon monoxide
(d) Hydrogen gas (1)
Ans. (b) Carbon dioxide

(iii) Spirogyra can reproduce by:
(a) Fission
(b) Vegetative propagation
(c) Fragmentation
(d) Regeneration (1)
Ans. (c) Fragmentation

(iv) The amount of DNA in a new generation is:
(a) Double than previous
(b) Equal to the previous
(c) Half of the previous
(d) Three times than previous (1)
Ans. (c) Half of the previous

****

(i) One of the following Industires is based on forest produce:
(a) Lac
(b) Steel
(c) Oil and Petroleum
(d) None of these
Ans. (c) Oil and Petroleum

(ii) Coal in addition of carbon contains:
(a) Chlorine
(b) Cobalt
(c) Nitrogen
(d) Potassium
Ans. (c) Nitrogen

(iii) Which of the following shows regeneration?
(a) Bryophyllum
(b) Amoeba
(c) Plasmodium
(d) Hydra
Ans. (d) Hydra

(iv) Which of the following is the information source for making proteins?
(a) Variations
(b) DNA
(c) Carbohydrates
(d) Lysosomes
Ans. (b) DNA

****

(i) The Paper Industry is based on:
(a) Coal mines
(b) Wind animals
(c) Forest Produce
(d) Dams
Ans. (c) Forest Produce

(ii) Burning of petroleum produces:
(a) Oxides of Sulphur
(b) Chlorides of Sodium
(c) Sulphates of Copper
(d) Oxides of Iron
Ans. (a) Oxides of Sulphur

(iii) Multiple Fission is a means of Reproduction in:
(a) Planaria
(b) Plasmodium
(c) Hydra
(d) Rhizopus
Ans. (b) Plasmodium

(iv) The germs cells are specialized for:
(a) Fighting Infections
(b) Vegetative Propagation
(c) Asexual Reproduction
(d) Sexual Reproduction
Ans. (d) Sexual Reproduction

****

(i) Fodder is obtained from:
(a) Bacteria and Nematodes
(b) Leaves of plants
(c) Water harvesting tanks
(d) None of these
Ans. (b)

(ii) When there is insufficient oxygen (Air) the combustion produces:
(a) Ozone gas
(b) Carbon dioxide
(c) Carbon monoxide
(d) Hydrogen gas
Ans. (b)

(iii) Spirogyra can reproduce by:
(a) Fission
(b) Vegetative propagation
(c) Fragmentation
(d) Regeneration
Ans. (c)

(iv) The amount of DNA in a new generation is:
(a) Double than previous
(b) Equal to the previous
(c) Half of the previous
(d) Three times than previous
Ans. (c)

****

i. A 'Pond' is an example of a natural
(a) Trophic level
(b) Ecosystem
(c) Food Web
(d) None of the above
Ans. (b) Ecosystem

ii. In a Food-Chain, the grass eating animals are
(a) Consumers
(b) Producers
(c) Decomposers
(d) None of the above
Ans. (a) Consumers

iii. Narmada Bachao Andolan' was started against the raising of height of

(a) Tawa Dam
(b) Bakra Dam
(c) Indira Gandhi Canal
(d) Sardar Sarovar Dam

Ans. (d) Sardar Sarovar Dam

iv. Which of the following are used for water harvesting in Himachal Pradesh:

(a) Kulhs
(b) Pynes
(c) Bundhis
(d) Bandharas

Ans. (a) Kulhs

****

(i) "Crop-field" is an example of:-

(a) Natural ecosystem
(b) Artificial ecosystem
(c) Food chain
(d) All the above

Ans. (b) Artificial ecosystem.

(ii) Which of the following are ' decomposers'?

(a) green plants
(b) nerbirores
(c) secondary consumers
(d) micro-organisms

Ans. (d) micro-organisms

(iii) 'Chipko Anoloion' was started to end the exploitation of:

(a) Water resocerces
(b) Industrial Projects
(c) forest resources
(d) petroleum Projects

Ans. (c) forest resources

(iv) In Jammu region, which of the following are used for water harvesting.

(a) Ponds
(b) Eris
(c) Kattas
(d) Nadis

Ans. (a) Ponds

****

* Which of the following is an example of a man-made ecosystem.

(a) Garden
(b) Forest
(c) Lake
(d) Desert

Ans. (a) Forest.

* Green Plants are

(a) Green Plants are
(b) Decomposers
(a) Primary Consumers
(c) Producers.

Ans. (c) Producers.

* The Indira Gandhi Canal' has been helpful in bringing greenery in:-

(a) Jammu and Kashmir
(b) Tamil Nadu
(c) Kerala
(d) Rajasthan

Ans. (d) Rajasthan

* In Maharashtra, the following are used for water harvesting.
(a) Surangams (b) Tals
(c) Ahars (d) Khadins
Ans. (b) Tals

* Anther contains:
(a) Sepals (b) Ovules
(c) Carpel (d) Pollen grains
Ans. (d)

* The term ecosystem was introduced by:
(a) Milles (b) Haldane
(c) Tansley (d) Darwin
Ans. (c)

* Regeneration occurs in:
(a) Planaria (b) Spirogyra
(c) Hydra (d) All of these
Ans. (d)

* Natures cleaners are:
(a) Producers (b) Consumers
(c) Decompsers (d) Carnivores
Ans. (c)

* Layering is used for vegetative propagation of:
(a) Rose (b) Jasmine
(c) Mango (d) None of these
Ans. (b) Jasmine

* In a food chain, there is:
(a) Bidirectional flow of energy (b) Zig-zag flow of energy
(c) Multidirectional flow in energy (d) Unidirectional flow of energy
Ans. (d) Unidirectional flow of energy

* Which of the following is not a part of female reproductive system in human beings?
(a) ovary (b) uterus
(c) vas deferens (d) fallopian tube
Ans. (c) vas deferens

* Which of the following contains biodegradable items?
(a) Grass, flowers and leather (b) Grass, wood and plastic
(c) Fruit peels, cake and lime juice (d) Cake, wood and grass
Ans. (a), (c) and (d)