Note – There are five questions in this paper.
All questions are compulsory.
Draw neat and labelled diagrams wherever necessary.
Figures to the right indicate full marks of a question.

Q1A Answer the following to the point (Any two) 6

(1) Describe, with diagram the working of a Steam Engine.

(2) Describe, with diagram, the experiment of destructive distillation of a Coal.

(3) Describe the factors responsible for the occurrence of deficiency ~~disorder~~ disorders.

B. Answer the following in brief:- [Any five] [10]

(1) Describe the use of wind energy.
(2) Distinguish between petrol and Diesel.
(3) State the advantages of a biogas plant.
(4) State the four ~~seen~~ causes of energy crisis.

(5) Give four characteristic symptoms of Paper2 measures.

(6) State the characteristic of Ideal fuel.

(C) ~~Answer~~ Answer the following in one sentence [4]

(1) Which Semimetal is used in Constructing a Solar Cell.
(2) By which process is ammonia manufactured on large scale.

(3) what is biomass ?
(4) what is the unit of power in British system ?

Q 2 A Answer the following to the point [any two]
(1) Describe the conditions leading to goitre and its characteristic symptoms
(2) State the pre harvesting measures
(3) Describe different method of food preservation.

(B) Answer the following (any five) [10]
(1) Under what circumstances does an individual need extra nutrition ?
(2) Give the symptoms of ~~the~~ flurosis.
(3) Mention the biotic factors that spoil stored food grains.
(4) State the various phases of agriculture farming.
(5) Give two points of difference between deficiency diseases and Communicable diseases.
(6) Give protective measures against chemical pollutants

(C) Answer the following ~~to the point~~ in one sentence. Each [4]
(1) What are weeds ?
(2) What are enzymes chiefly made up of ?
(3) Increase of which mineral element in the blood increases blood pressure.
(4) Which mineral element is present in haemoglobin ?

Answer the following (Any two)

Q3 A (1) Describe the carbon cycle in nature. [5 6]

(2) Describe in detail, the effects of pollution due to noise.

(3) Explain biodegradation and abiotic degration, and explain its recycling.

B Answer the following (any five) [10]

(1) Give scientific explanation: It is our moral duty to provide protection to wild life.

(2) What should we done to protect natural wealth.

(3) Distinguish between colloidal solution and crystalline solution.

(4) Describe the present methods of disposing off nuclear wastes

(5) State the advantages of development of an ideal balanced ecosystem.

(6) What is biogeochemical cycle.

C Answer the following in one sentence each [4]

(1) State the unit of measuring radioactivity

(2) When did UNO organise a world meet on Environmental Conservation?

(3) What percentage nitrogen is in the atmosphere?

(4) What is Silviculture?

Answer following (Any two) [5 6]

Q4 A (1) Explain the preparation of ~~ethene~~ methane gas in laboratory.

(2) Write short note on ~~Si~~ silicon.

(3) How is pure alumina obtained from bauxite by Bayer's process.

B Answer the following (Any five) 10

(1) Distinguish between metal and nonmetal according to ~~physical properties~~ chemical property.

Q4 B (2) Distinguish between Saturated hydro Carbon and Un Saturated hydro Carbon.

(3) State your Observations with chemical equation.
~~Phosphorus~~ Phosphorus reacts with chlorine.

(4) State your observation with equation Sodium Carbonate is heated.

(5) Give four uses of Sulphur.

(6) What is ester. Give name of two esters and write their formulae.

C Answer in one sentence only. [4]
(1) Which substance is added to natural rubber to make it hard?
(2) How methanol is prepared?
(3) What is colour of Iron Sulphide.
(4) Which Compound makes the sea rock hygroscopic.

Q5 A Answer the following (Any two) [5]
(1) State the uses of artificial satellite.
(2) Explain how star is formed from protostar.
(3) Write short note on nylon fibres.

B Answer the following (Any five)
(1) Write short note on meteor.
(2) Distinguish between solid fuel rocket and liquid fuel rocket.
(3) Distinguish between mars and mercury.

Qs B (4) Explain why life is not possible on moon.

(5) Explain Concept of the violet shift.

(6) Distinguish between thermo Plastic and thermo setting Plastic.

S C Answer in one sentence only (4)

(1) what are asteriods

(2) what was the name of the first man made satellite.

(3) How much percentage of CO_2 is present on venus.

(4) Which ~~ten~~ technique is used to estimate the age of the Solar system.

Answers.

Q1A

Figure [A]

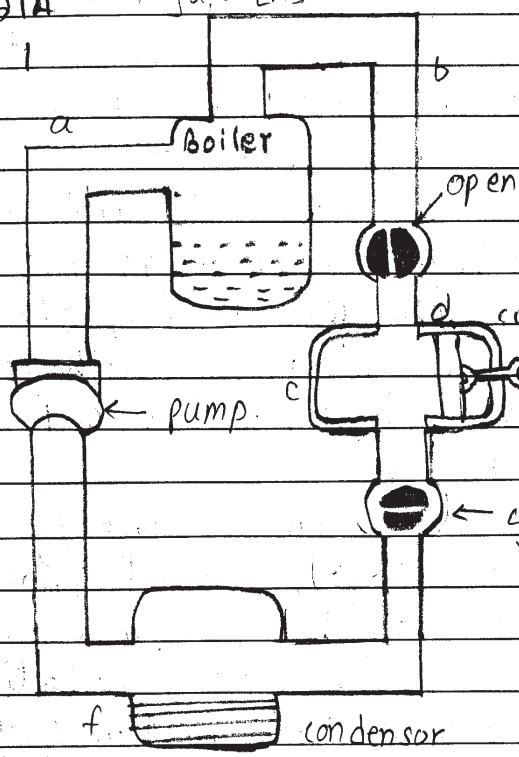
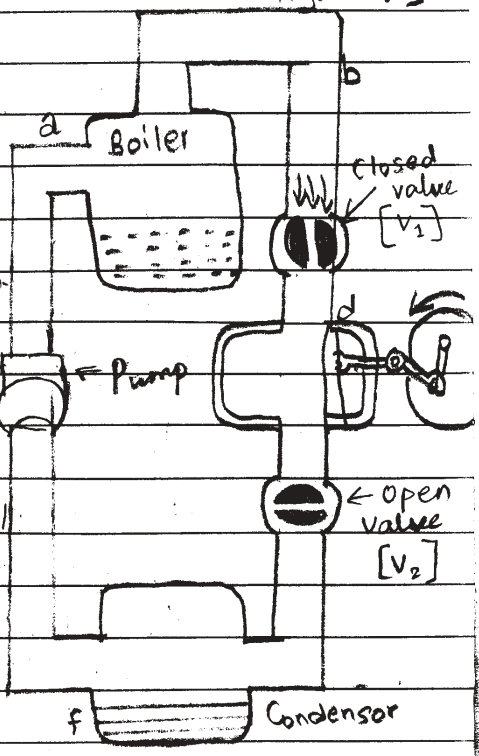


Figure [B]



Principle – Conversion of heat energy in to mechanical Energy.

Working – ① As shown in the figure water is heated in boiler [a] at high temperature and Steam with high pressure is produced.

② Steem reaches to valve (V1) through pipe [b]

③ Due to steem pressure, valve (V1) opens and steem enters the cylinder (c) with movable piston.

④ Steem at high pressure ~~exerts~~ exerts pressure on piston (d). so the piston moves to the outer side of the cylinder.

⑤ Crank Shaft (e) is connected to the piston (d) Crank Shaft (e) is Connected to a wheel. As steam exerts pressure on the piston (d) the piston moves to the outer

side (right) of the cylinder. So there is a thrust on the crankshaft due to the linear motion of the piston. Thus the linear motion of the piston is transformed into the rotational motion due to crankshaft. Thus mechanical work is obtained.

(6) When the piston reaches to the end of the cylinder, the wheel completes half rotation. So the cooled steam with low pressure in the cylinder moves out side as the valve (V2) opens.

(7) Because of the kinetic energy of the wheel and due to the property of inertia the wheel remain in the motion and completes the remaining half rotation. During half rotation the piston (d) moves to the inside of the cylinder. So the piston (d) come to its original position and one cycle of the wheel. When the piston comes to its original position valve (V1) is closed and valve (V2) is open.

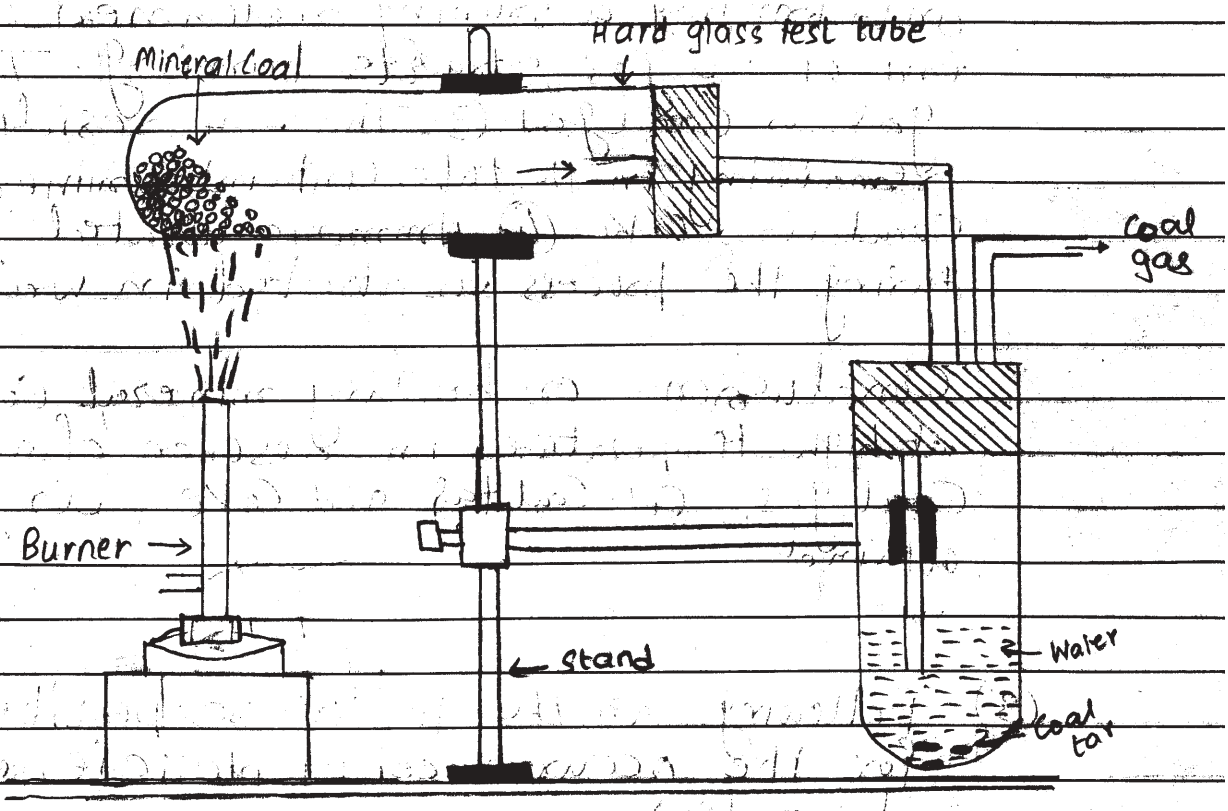
(8) On heating water in boiler (a) and producing high pressure steam. The above process is repeated and continuous work is obtained.

Uses of Steam engine – For running heavy vehicles like Railway, steamers and steam roller.

(2) Aim – To perform the destructive distillation of Coal.

Apparatus :- Hard glass test tube, Cork with one hole., testtubes, Cork with two holes, delivery tube, Stand, burner.

Substence – Mineral. Coal., water.



Procedure – (1) Arrange the Apparatus as shown in figure. (2) Take some Coal in a hard glass test tube. Close this tube airtight with one hole Cork. Fix one end of the delivery tube in the hole. Place the other end of the delivery tube in the test tube with some water in such a way that it remains immersed in water as shown in figure. (3) From the other hole of the Cork on the testtube with water pass another glass tube. [P.T.O]

(4) Heat the hard glass test tube with Coal at high temperature with a burner.

Observations :-

① Black coloured Coal tar collects at the bottom of the test tube with water.

② Gas comes out through the end of the tube inserted in the test tube with water on bringing a burning match near the end of the gas starts burning. This gas is Coal gas. ③ The residue remaining in the tube containing mineral Coal is Coke. ④ Ammonia liberated during the process is absorbed in water.

Conclusion – on heating mineral Coal at high temperature in absence of air Coal gas, Coal tar and Coke is obtained.

(3) Following are the factors responsible for the occurrence of deficiency disorders.

① Because of poverty poor people are unable to take enough and nutritive diet.

② Conventional ways of cooking are also responsible.

① On exposing fruits and vegetables for longer time the vitamin 'C' in them gets oxidised.

② On over baking or over frying in oil the nutritions in food gets destroyed.

Q1(B)(3) On washing pulses and vegetables again and again the water soluble vitamins in them are washed away. (4) On polishing rice protein and vitamin B_2 are removed. So there is a posibility of Beriberi.

(3) peeling of green vegetables is harmful because If the skin of vegetables like gourd, bitter gourd, pervel, and fruits like brinjal, beans, chikku is removed many nutritious substances are lost.

(4) Due to less breast-feeding by mother. more amount of power powder, milk or other baby food will be given to infants. This causes diseases like Merasmus in Children.

Q1B Answer the following in brief.

(1) Following are the uses of wind energy
① Boats and ships are navigates using a sail, using wind energy.
② For grinding grains.
③ Water can be drawn from well.
④ To genrate electricity.
⑤ For channelising salty water in to salined.

(2) Distinguish between petrol - Diesel.

Petrol	Diesel.
① In the fractional distillation of petroleum, Petrol is obtained in the	In the fractional distillation of petroleum diesel is obtained in the temperature range of 260°C to 340°C

	Petrol.	Diesel.
1B (2)	There are 5 to 10 Carbon atoms in its Composition.	There are 14 to 20 Carbon atoms in its Composition.
(3)	Its heat energy is 47 KJ/g.	(3) Its heat energy is 45 KJ/g.
(4)	uses — As a fuel in scooters and Car.	uses — used as a fuel in ~~bank~~ trucks and buses.

(3) ~~State the~~ Following are the advantages of Biogas plant.

(1) NO smoke is produced on burning biogas. So it is pollution free.

(2) Its caloric value is as high as 35 to 40 KJ/g.

(3) The material to be used in biogas plant is very cheaply and locally available.

(4) Natural manure is an important by product of a biogas plant.

(5) Biogas plant removes the filth of rural area.

(6) Biogas plant can be prepared for a family or for collective use.

(4) Following are the four Causes of Energy Crisis.

(1) Electrical energy is Continuously used in hotels, shops and bank

(2) Electrical energy is used on large scale to run house appliances like air conditioners, refrigerators etc.

(3) Due to increase of transport vehicles, the Consumption of fuels also increased.

(4) Due to industrial development, use of energy increased by leaps and bounds.

Q1C. (1) Silicon Semimetal is used in Constructing a solar cell.

(2) By Haber's process is ammonia manufactured on large scale.

(3) The naturally degradable substace like excrete, urine, garbage and dead leaves are known as biomass.

(4) 'Horse power' is the unit of power in British System.

Q1 B(5) Following are the Symptoms of Marasmus.
(1) The water-content in the body of the child dreases
(2) The weight of Child is decreases
(3) The skin becomes loose and wrinkled.
(4) The Child looks like a bag of skin and bones.

(6) Ans: Following are the Characteristics of Ideal fuel.
(1) The Caloric value of ideal fuel must be high.
(2) It should be quickly Combustible.
(3) It should be easily and cheaply available.
(4) Its ignition point should be proper according to its use.

Q2 A(1) Conditions responsible for Goitre -
(1) Goitre is caused due to deficiency of Iodine.
(2) The deficiency of Iodine affects the thyroid gland in the throat.
(3) Due to this the thyroid gland secrets less thyroxin. So the thyroid swells. As a result a large ugly swelling in the neck develops which is known as Goitre.
(4) Iodine is necessary for the synthesis of thyroxin.
(5) In some regions of Himalayan terrain the amount of Iodine in land and water is less, so Goitre is much seen in these regions of the Himalayas.
Symptoms of Goitre:
(1) The thyroid gland in the throat swells.

(2) A large and ugly swelling develops on the neck. So the physical and mental growth of a person is inhibited.

measures to prevent Goitre.
(1) Iodised salt should be taken in food.
(2) Fish and other iodine-rich sea food should be taken.

(2) Following are the preharvesting measures
(1) selection of proper crop
(2) Procuring seed of high quality
(3) Proper processing of seeds before sowing
(4) Maintaining the fertility of soil through proper cultivation.
(5) Deciding proper time of sowing
(6) Adopting proper method of sowing
(7) Sufficient irrigation at proper time
(8) Control of weeds and pests.

(3) Different methods of preservation of food are as follows
(1) Disinfection (2) Cooling and refrigeration
(3) Drying (4) use of Sugar and Salt
(5) use of chemicals (6) Irradiation of food

Disinfection – This method is used to preserve fruits and for packing jam, pickles, tomato sauce etc.
(1) The containers are disinfected at the time of packing. (2) The place of work is kept very clean (3) Clean cloth is used for wiping jars. (4) Eatables are filled in bottle jar. So the food does not get spoiled.

(2) Cooling and refrigeration :-
The growth of disease causing germs diseases and the action of enzymes retards at low temperature. So refrigerator or Cold-storage are used for preserving food.

(3) Drying — Removal of water from food without spoiling its taste or reducing its nutritive value is known as drying or dehydration. Unripe mangoes, amlas, grapes & walnut etc.

(4) Use of Salt and Sugar :- Amala, mangoes and lemon are kept immersed in salt water. Mango jam is preserved by the thick Syrup of sugar. As the concentration of salt solution of sugar is not allowing a growth of fungus.

(5) Use of other Chemicals — If substances are kept in an acidic medium, ~~the~~ germs do not survive in it. Benzoic acid and potassium meta bisulphite are used for this. Tomato Catchup, mango juice are preserved in this way.

(6) Radiation :— Gamma rays are used for storage of potatoes and onions. By this method they can be preserved for a long time.

[B] Answer the following —

(1) Under following circumstances one should need extra nutrition.

(1) A pregnant women requires more amino acid, calcium and iron for the development of the tissues of the embryo.

(2) A lactating mother should take Nutritious milk and vitamins for growth and immunity.

Q 2B. (2) The Following are the Symptoms of Fluorosis.

(1) Flourosis causes damage to instine, Kindney.
(2) It makes bones and teeth.
(3) In mild ~~flou~~ fluorosis there are dots on the teeth and the lustes of the teeth vanishes.
(4) There are tremours in the body.
(5) There is pain in the lower region of vertebral Columns and Gradually the back more stiff.
(6) Hunger decreases.

(3) Following are the biotic factors that Spoil the Stored food grains.

(1) Rat — Rats do much damage to grains in the field, Store houses. It drops its hair on the grains and contaminate it.
(2) Birds :— Birds Causes damage to fruits, vegetables and grains in the field. Birds excrete on the grain and drop their feathers on them.
(3) Insects - Some insects of Stored food grains are ~~Carry~~ Carriess of fungi and beteria.. These insects lay eggs in the grain. The larvae coming out from them Spread foul smell and Spoil the food grain.

(4) Following are the various phases of agriculture farming.

(1) Preparing the Soil :- The Soil can be prepared by using different types of plough ie. tilling.
(2) Levelling the Soil — Levelling of the Soil is done by using Harrows.
(3) mixing fertilizers :- Fertilizers are ~~mixed~~ mixed by using wheel barrow.
(4) Sowing — Sowing is done by sowel.
(5) Irrigation — Irrigation is done by using Spade by preparing out let for water.

Q2B (5) Deficiency diseases	Communicable diseases
(1) Disease caused by inadequate nutritive substances is known as deficiency disease.	diseases which is spread through virus or person to person. known as Communicable diseases. Eg. Small pox, Chicken pox.
(2) Eg. Kwashiorkor, Marasmus.	

(6) Following are the protective measures against chimical pollutants.

(1) The chemical industries like chemical fertilizer, colours and plastic industries should be set up away from city.

(2) The ~~waste~~ chemical like BHC, DDT should be uses as per requirement.

(3) Waste water of Chimeal factory should be purified in the factory only.

(C) (1) Unwanted plants growing with the standing crops are called weeds.

(2) Enzymes are chiefly made of Protein.

(3) ~~Sodium~~ Sodium mineral element in blood. increases blood pressure.

(4) Iron mineral element is present in the haemoglobin.

Q3A (1) Carbon cycle:- The process of Conversion of Carbondioxide of atmosphere into various carbonic compounds and then back again into carbon dioxide from those compounds is known as Carbon cycle:-

Passing of Carbon dioxide in the atmosphere.

(1) There is 0.03 % Carbon dioxide in atmosphere

(2) In sea water there is 50 % more Carbondioxide than in the atmosphere

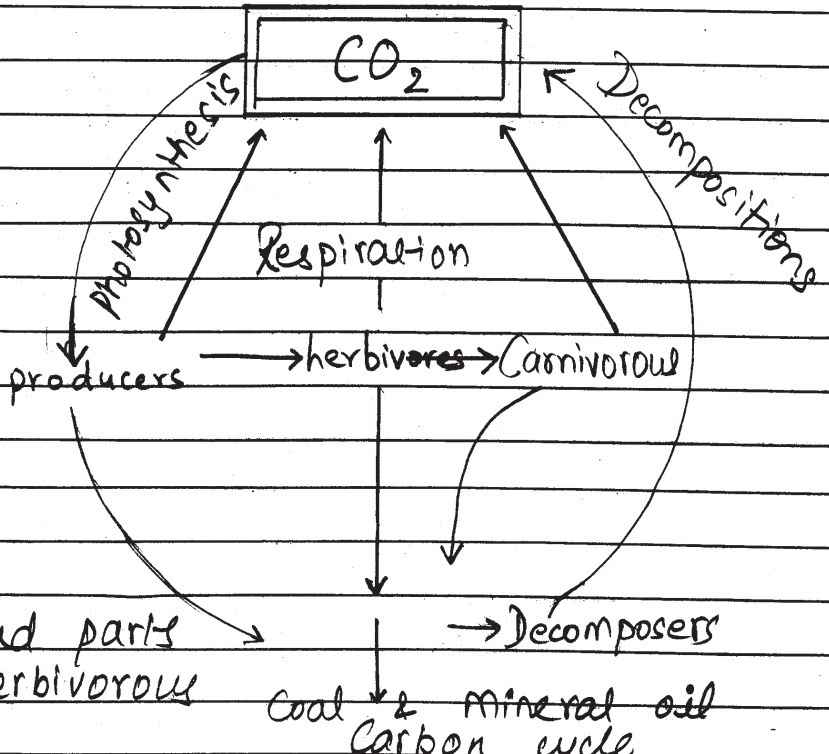
Q3 A (1) (3) On exhalation of trees, and animal Carbon dioxide is given out and it passes into the atmosphere.

(4) Due to industrial enterprises like mills, factories etc. Carbon dioxide mixes with the atmosphere.

(5) On Combustion of fuels like petrol diesel etc. in vehicles Carbondioxide is produced and it passes in to the atmosphere.

Use of the Carbon dioxide of the atmosphere

(1) Green vegetable utilises carbondioxide directly from atmosphere for photosynthesis and librates oxygen. Thus air gets 'purified.



(2) An unwanted Sound of very high intensity is Known as noise.

Effects of pollution due to noise —

(1) Noise creates very adverse effect on the brain and physical health.

(2) The duration and intensity of Sound decreases the efficiency of a man

Q.3 A(2) (3) The hearing capacity of a man is temporarily or permanently damaged due to sound.
(4) The Concentration of a man is disturbed.
(5) Noise creats nervous tension.
(6) Noise ~~causes~~ Can Cause high blood pressure or problem of heart.
(7) Noise may Cause ~~he~~ headaches or giddiness
(8) Noise may distrub the mental piece of a man.

(3) Waste matter :- There are two types of waste matter.
(1) Biodegradable Substances — Excreta, Urine, garbage, paper elec etc.
(2) Non Bio degradable — Plastic goods, Polythene bags etc.

biodegradation — The Comprehensive process of reducing the Complex substances into simples, elemental Components by naturally occurring decomposers — transformers. is known as bio-degradation.
Recycling of biodegradable substances—
(1) Compost manure should be made from biodegradable substances like excreta, Urine and garbage.
(2) Paper is remade from agricultural waste.
Non biodegradation —
In many Cases the form or structure of a substances of Component Cannot be altered by natural feeters - This is known as non biodegradation.

Answer the following.

Q3B (1) It is our moral duty to protect wild life because

(1) Due to killing of wild animal their numbers will decrease. This creates an imbalance in the living world.

(2) If wild animal like lion, tiger is destroyed. man can not recreate them.

(2) Following points should be kept in mind to protect natural wealth

(1) Control must ~~over~~ exercised on the use of natural resources.

(2) The area of forests and the number of trees must be increased by Vanmahotsava.

(3) Forest area should be reserved for Conservation of wild animal.

(4) Tiger are protected by tiger Project.

(3)

Colloidal Solution	Crystalline solution.
(1) The Solutions whose permeation through membranes of animals origin is very slow is known as colloidal Solution.	The solution whose permeation is very fast through membranes of animal origin are known as crystalline Solution.
(2) The said permeation of gum, glue and starch is very slow.	The said permeation of salt sugar etc. is very fast.

(4) Following are the advantages of the balance of an ecosystem.

(1) Because of balanced ecosystem the proportion of gases is maintained on earth.

(2) The ratio of oxygen and Carbondioxide in the atmosphere is maintained.

(3) Carbon cycle, Nitrogen Cycle and oxygen

3.B (4) go on continously and ~~so~~ regularly.

(5) ~~De~~ The present methods of disposing off nuclear wastes is as follows
At present such radioactive wastes are packed in strong and leak proof containers and are stored in specially constructed store houses of cement concrete.

(6) The cyclic flow of elements, like carbon, nitrogen oxygen etc between an ecosystem and its physical environment is called a biogeochemical cycle. The main elements enter in the producers and through them in the ecosystem

C (1) The unit of for measuring measuring radioactivity is 'Rontgen'.

(2) In 1972 UNO organised a world meet on environmental Conservation at Stockholm.

(3) The percentage of nitrogen in the atmosphere is 78%

(4) modern + Technique adopted by the forest division for rapid growth and development of trees is called Silvi - Culture. Culture.

Q4 A (1) Aim — To prepare methane gas
Apparatus — Hard glass test tube, burner, stand, delivery tube, beehive shelf gas jar. Cork with one hole.
materials — Sodium acetate, soda lime, water.
Procedure — Take a mixture of 2 gram Sodium acetate CH_3COONa and 2 gram of soda lime. Arrange the apparatus as shown in fig.

(2) Close the test tube with cork with one hole. Pass one end of the delivery tube through the hole in the cork. Place the second end in the beehive shelf kept in water.

(3) Put an inverted gas jar filled with water over the beehive shelf.

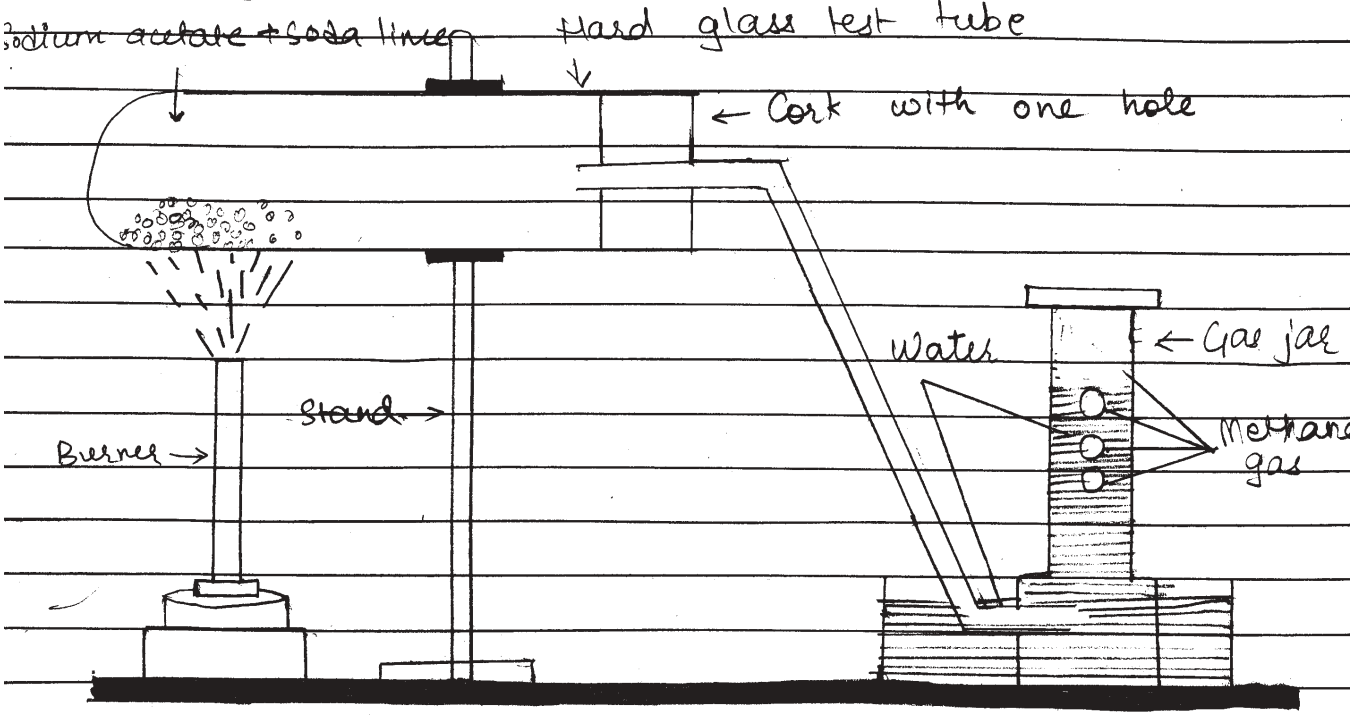
(4) Place burner below the test tube.

(5) When mixture in test tube is heated the chemical reaction takes place between Sodiumacetate and Sodalime and methane gas is libuated.

$$CH_3COONa + NaOH \xrightarrow{\Delta} CH_4 \uparrow + Na_2CO_3$$

(6) methene produced is collected by downward displacement of water

~~(2) Close the~~



(2) The atomic number of Silicon is 14. The electronic configuration of Silicon is 2, 8, 4.

Sources of Silicon –

(1) In the earth crust silicon is second to oxygen.

(2) Silicon is found in clay, mica, granite and felspar.

(3) method to obtain pure ~~Si~~ silicon. Silicon is reacted with first Chlorine and then with hydrogen.

$Si + 2Cl_2 \rightarrow SiCl_4$ (Silicon chloride)

$SiCl_4 + 2H_2 \rightarrow Si + 4HCl$ (Pure Silicon)

Properties of Silicon.

(1) It possesses external luster.

(2) It forms alloys with metal like Iron and, aluminium.

(3) Silicon is semiconductor.

(4) melting point of Silicon is high.

Uses of Silicon –

(1) It is used in preparation of Solar cell.

(3) It is used in preparing Silicon polymer.

(4) It is used as semiconductor

(5) Silicon carbide is used in making tools for cutting hard metals and rock.

(3) The method for purification of bauxite ($Al_2O_3, 2H_2O$) was discovered by Bayer. - So it is known as Bayer's method.

(1) First Bauxite is powdered. On heating its ferrous oxide get converted into ferric oxide.

Q4A(3) (2) The roasted bauxite is dried and powdered. Then it is mixed with 45% solution of Sodium hydroxide and heated in a closed vessel for 6 to 8 hours at 5 to 6 atmospheric pressure at about 160°C. So bauxite gets converted in to sodium aluminate according to the following reaction.

$$Al_2O_3 + 2NaOH \rightarrow 2NaAlO_2 + H_2O$$

Sodium aluminate

Insoluble impurities collect at the bottom of the vessel. On filtration, Soluble Sodium aluminate is obtained in the filtrate.

(3) Excess water is added to sodium aluminate and stirred. So white gelatinous precipitates of aluminium hydroxide is obtained.

$$NaAlO_2 + 2H_2O \rightarrow Al(OH)_3 + NaOH$$

Aluminium Hydroxide

(4) These precipitates are repeatedly washed with water and then dried. On heating them at 1100°C Al_2O_3 is obtained.

$$2Al(OH)_3 \rightarrow Al_2O_3 + 3H_2O$$

Thus by this process about 99.5% pure alumina - Al_2O_3 is obtained.

Q4 (1)

metal	Non metal
(1) There are 1, 2, 3 free electrons in the last orbit.	There are 5, 6, 7 electrons in the last orbit
(2) They have tendency to lose electrons.	(2) – They have tendency to gain electron.
(3) They form positive Ions	They form negative Ions.
(4) Their oxides are Generally basic.	Their oxides are acidic

(2)

Saturated hydrocarbon	Unsaturated hydrocarbon
(1) The hydrocarbons in which one single covalent bond between Carbon-Carbon atoms are known as Saturated hydrocarbon.	The hydrocarbons in which there are double or triple bond between Carbon-Carbon atoms are known as unsaturated hydrocarbon.
(2) Their general formula is C_nH_{2n+2}	Their general formula is C_nH_{2n-2} and C_nH_{2n}

(3) $P_4 + 6Cl_2 \rightarrow 4PCl_3$

When phosphorous reacts with chlorine phosphorous trichloride is formed.

(4) when sodium bicarbonate heated it decomposed in to Sodium Carbonate and Carbondioxide is librated.

$2NaHCO_3 \xrightarrow{\Delta} Na_2CO_3 + H_2O + CO_2$

(5) Four uses of Sulphur

(1) Sulphur is mainly used in the manufacturing of Sulphuric acid.

(2) It is used in preparing ointment for skin diseases.

Q4B(5) (3) It is used in preparing solvent like Carbondisulphide.
(4) It is used in making fireworks and in gun powder.

(6) Organic Compound having – COO group are known as esters.
Name formulae.
methyl formate – $HCOOCH_3$
methyleacetate – CH_3COOCH_3

Q4C (1) Carbon black is added to natural rubber to make it hard.
(2) methanol is prepared when wood is heated in the absence of air.
(3) The colour of Iron sulphide is black.
(4) Magnesium Chloride makes the sea water hygroscopic

Q5A(1) Following are the uses of Artificial satellite?
(1) To make radio and T.V. programmes easily available.
(2) For Commercial Communication.
(3) For weather monitoring and forecasting.
(4) For detecting water and mineral resources.
(5) For detecting diseases in plant and trees.
(6) Useful in oceanographic Studies.

(2) Protostar — If the cloud hydrogen gas in a glo galaxy is dense and large, the gravitation force of attraction.

Q5A(2) between its molecules is very strong and the cloud start Contracting On adequate Contraction the cloud Contracts into a dense gas material which is known as a protostar.

Protostar :—

(1) At this stage the protostar does not glow as sufficient energy is not emitted

(2) The Contraction of a protostar can Continue for million years. In due Course it start glowing and

Star from Protostar :—

(1) The Contraction of a protostar Continue for about 1 million years. During this inner temperature increases from $-173^{\circ}C$ to $10^{7}\cdot C$.

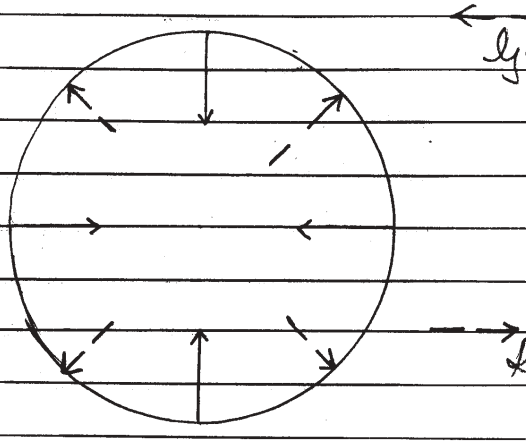
(2) At this temperature thermonuclear fusion starts. In this four hydrogen nuclei Combine to form helium nucleus.

(3) The mass of helium nucleus so formed is slightly less than the mass of four hydrogen nuclei. This mass which is lost is converted in to heat energy according to Einstein's formula $E = \Delta m \times C^2$ where E is the heat energy, Δm is lost in mass and 'C' is the velocity of light.

(4) The energy released due to fusion exerts radiation pressure. It acts in the opposite direction of Gravitional force which acts towards the Centre.

(5) The tremendous amount of heat energy released during this process is in the form of visible light and other electromagnetic waves. So the protostar starts glowing. Thus star is

Q.5.A (2) (6) (6) It takes billions of years to get a protostar converted into star.



(3) Short note on :- Nylon fibres

(1) Nylon are manmade fibres

(2) In nylon there are innumerable monomers of amides – NHCO group linking continuously

(3) Nylon is polymer of polyamide type.

Method to prepare nylon :-

(1) Nylon is obtained by the process of polymerisation between two organic compounds having ($-NH_2$) and two carboxylic ($-COOH$) groups. The appearance of nylon is like silk.

$$nH_2N-\square-NH_2 + nHOOC-\square-COOH \longrightarrow H_2N-(-\square-NHCO-\square-)_n - COOH + nH_2O$$

where 'n' shows very large number of carbonic compounds and $\square$ denotes the hydrocarbon of the compounds.

Q5 A (3) (1) In 1935 American Scientist first obtained nylon on the basis of amid group. But the Commercial production was started in 1939.

Q5 B (1) A short note on meteor.

(1) meteor is a space objects.
(2) When it enters the earths atmosphere it starts burning and bright streak of light is seen in the sky.
(3) In Common language it is known as shooting star.
(4) most of the meteors burns out but some dont not burn.
(5) The left over part of a meteor falls on the earth is known as a meteorite.

(2)

Solid fuel rocket	Liquid fuel rocket
(1) Solid fuel is used.	Liquid fuel is used.
(2) After stopping it, it can not be restarted again.	It can be started or stopped as per our desire.
(3) It can be preserved longtime.	It can be preserved longtime after filling.
(4) It is used for military purpose.	It is used for space research.

(3)

mars	mercury
(1) It is outer planet	It is inner planet
(2) It has two satellites	It has no satellite.
(3) It has thin atmosphere.	It does not have atmosphere.
(4) Daytime temperature is 40°C	Daytime temperature is 555°C

Q3 B (4) Life is not possible on the moon.
(1) There is no atmosphere on the moon.
(2) The temperature on the moon, during daytime is 100°C and during night is ~~-11~~ -115°C. Thus difference is 215°C. So life is not possible on the moon.

(5) If a star moves towards the earth the frequency of light emitted by it when received on the earth gradually increases.
The position of the corresponding spectral line in the visible spectrum would shift towards violet.
This is known as violet shift.

(6) Thermoplastic	Thermosetting plastic
(1) In thermoplastic molecules of polymer form long chain.	In thermosetting plastic polymers are cross-linked.
(2) It can be moulded into desired shapes.	once moulded, its shapes can not be changed on heating.

S.C. (1) Asteroids are the debris of small objects made of rocks and minerals. Which fail to assemble into planet.
(2) The name of the first man made satellite was Sputnik-I.
(3) 97% of CO_2 is present on venus
(4) Radiometric dating technique is used to determine the age of the solar system.