Haris Khan

(1)

Q No:02

Part: A.

Brain as leading part of central nervous system (CNS):

Brain is the leading part of central Nervous system to control all the activities of the body. It act as control center to maintain body functions and daily activities

↳ Brain and spinal cord.

Human brain:

Human brain is the control center to maintain all the activities of the body. It has been divide into three main parts according to its functions.

Brain

Fore brain

Mid brain

Hind brain

Brain structure

Functions of fore brain:

Fore brain is considered as frontal part of the brain. which has been divided in to three main part. Cerebrum, Limbic system and Thalmus.

Fore Brain

Cerebrum

Thalmus

Limbic system

(3)

① **Cerebrum :**

Cerebrum is the largest part of brain composed of 70% of human brain. It is associated with the functions of thinking, intelligence learning and decision making process. So it is considered as rational part of the brain.

② **Limbic system :**

Limbic system composed of three part.

③ **Amygdala :**

Amygdala associated with the functions of emotion like sadness, happiness, fiedness and loving.

④ **Hypothalamus :**

Its functions of hypothalamus are

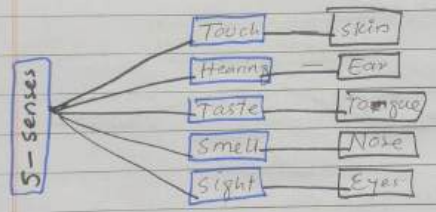
Control of hunger, thirst and menstral cycle.

(c) Hypocampus:

Hypocampus associated with the functins of short term memory.

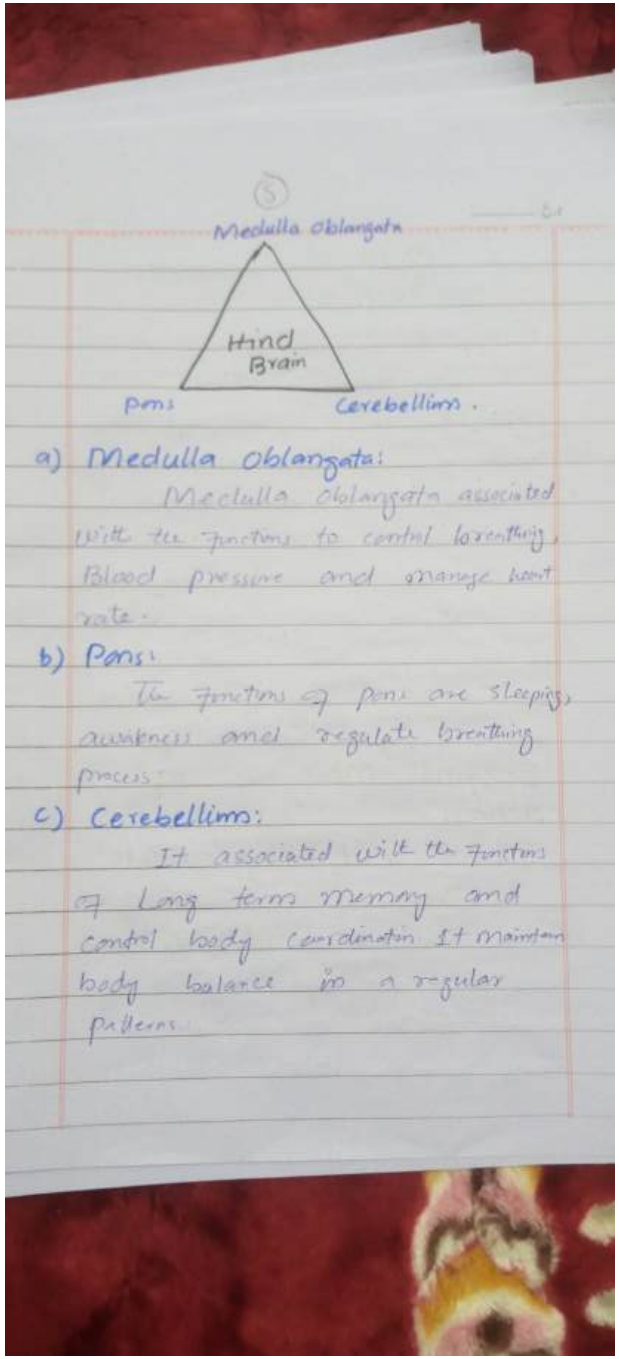
(3) Thalmus:

Thalmus control five senses of the body. including Touching, hearing, tasting, smelling and sight.



Functions of Hind Brain:

Human hind brain is composed of medulla oblongata, pons and cerebellum.



a) Medulla Oblangata:

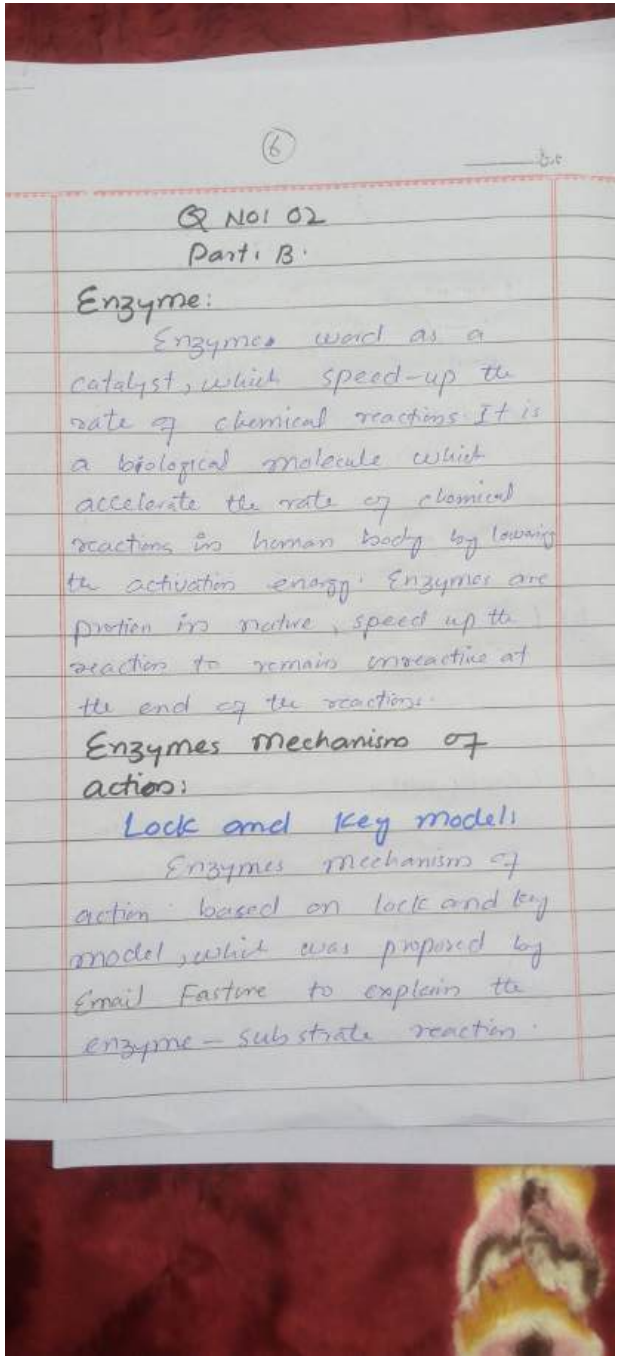
Meclulla Oblangata associated with the functions to control breathing, Blood pressure and manage heart rate.

b) Pons:

The functions of pons are sleeping, awakeness and regulate breathing process.

c) Cerebellims:

It associated with the functions of Long term memory and control body coordination it maintain body balance in a regular patterns.



⑥

Q NO: 02

Part: B.

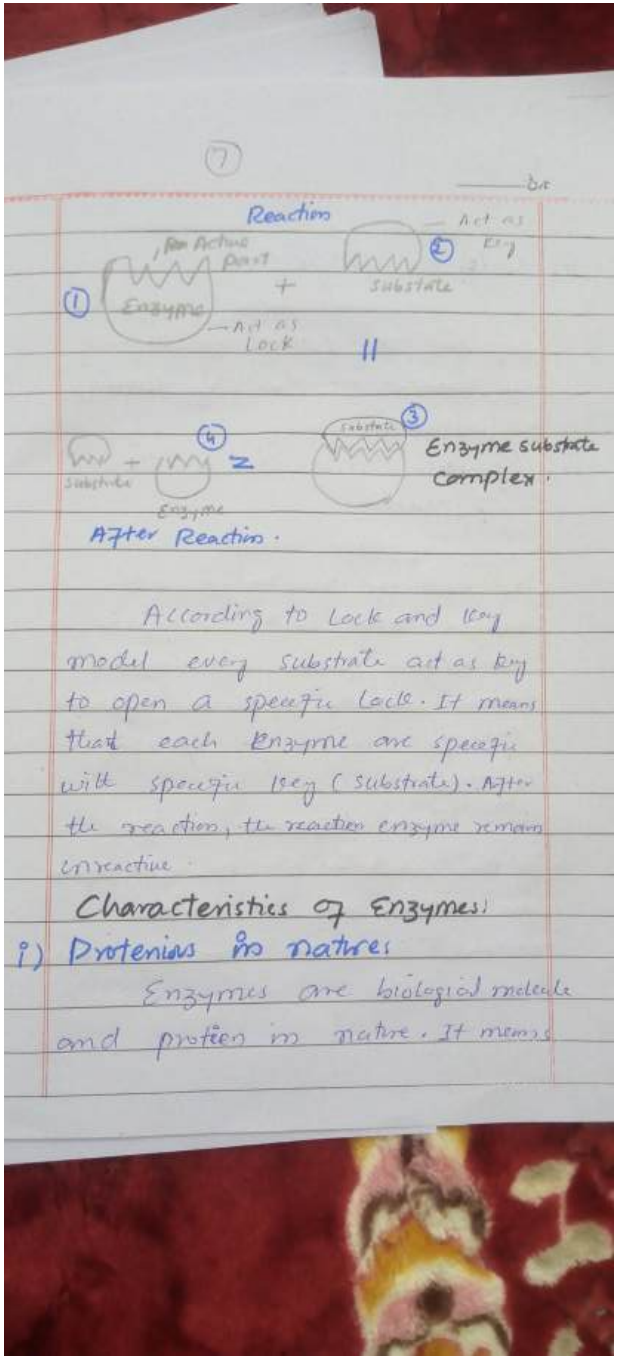
Enzyme:

Enzymes word as a catalyst, which speed-up the rate of chemical reactions. It is a biological molecule which accelerate the rate of chemical reactions in human body by lowering the activation energy. Enzymes are protien in native, speed up the reaction to remain unreactive at the end of the reactions.

Enzymes Mechanism of action:

Lock and Key model:

Enzymes mechanism of action based on lock and key model, which was proposed by Email Fasture to explain the enzyme – substrate reaction.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Reaction
Act as Key
Active part
Enzyme
Act as Lock
Substrate
1
2
3
4
Substrate
Enzyme
Enzyme substrate complex
After Reaction.
According to Lock and key model every substrate act as key to open a specific lock. It means that each Enzyme are specific with specific key (substrate). After the reaction, the reaction enzyme remain inreactive.
Characteristics of Enzymes:
i) Proteins in nature:
Enzymes are biological molecule and protien in nature. It means

that made up of Amino-Acid.

ii) **Catalatic properties:**

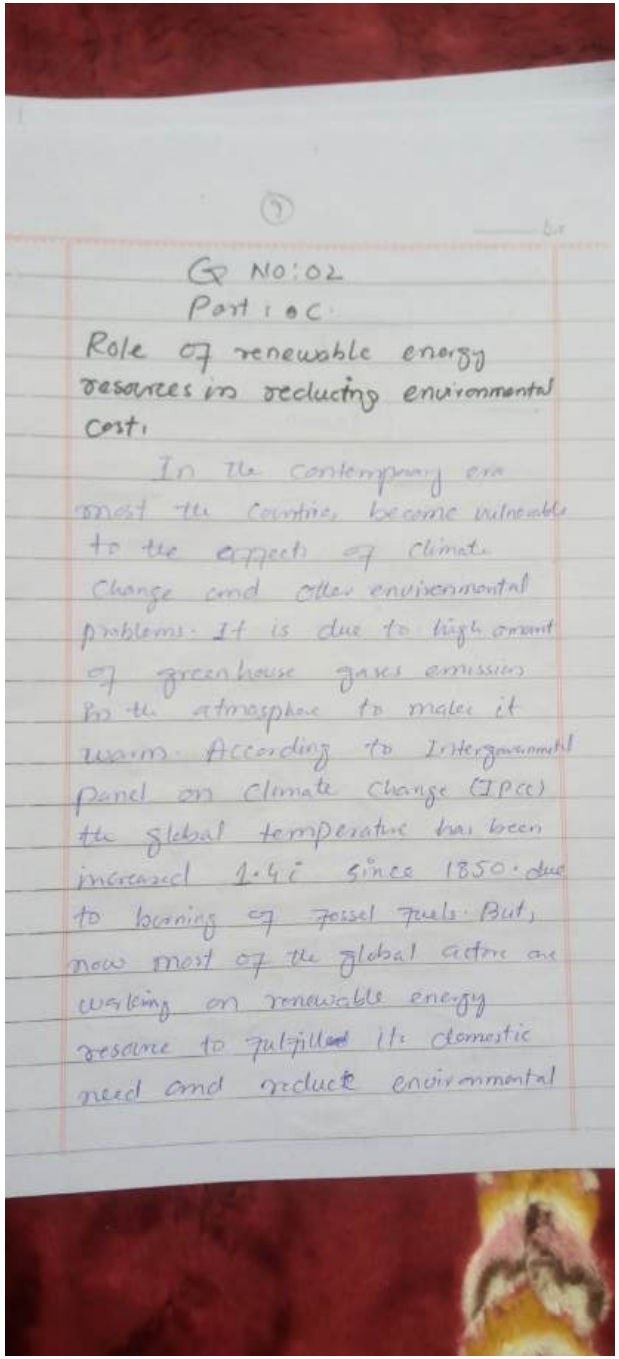
Enzyme have catalatic properties to speed up the rate of chemical reactions by lowering the activation energy.

iii) **Remain unreactive at the end of reaction:**

Enzymes remain unreactive at the end of reaction. means that if Amalyse react with carbohydrate. It Convert into glucose but amylate remain unreactive at the end of reaction.

iv) **Specific enzymes for specific substrates:**

Each enzymes are specific to the substrate. For example pepsin are active only to protein molecule to make them digest into amino-acid.

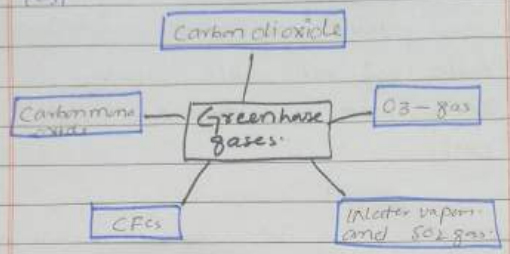


Q NO:02
Part : c.

Role of renewable energy resources in reducing environmental cost.

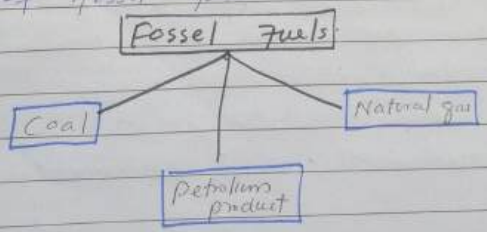
In the contemporary era most the countries become vulnerable to the effects of climate change and other environmental problems. It is due to high amount of greenhouse gases emission in the atmosphere to make it warm. According to Intergovernmental panel on climate change (IPCC) the global temperature has been increased 1.4°C since 1850. due to burning of fossil fuels. But, now most of the global actors are working on renewable energy resource to fulfill its domestic need and reduce environmental

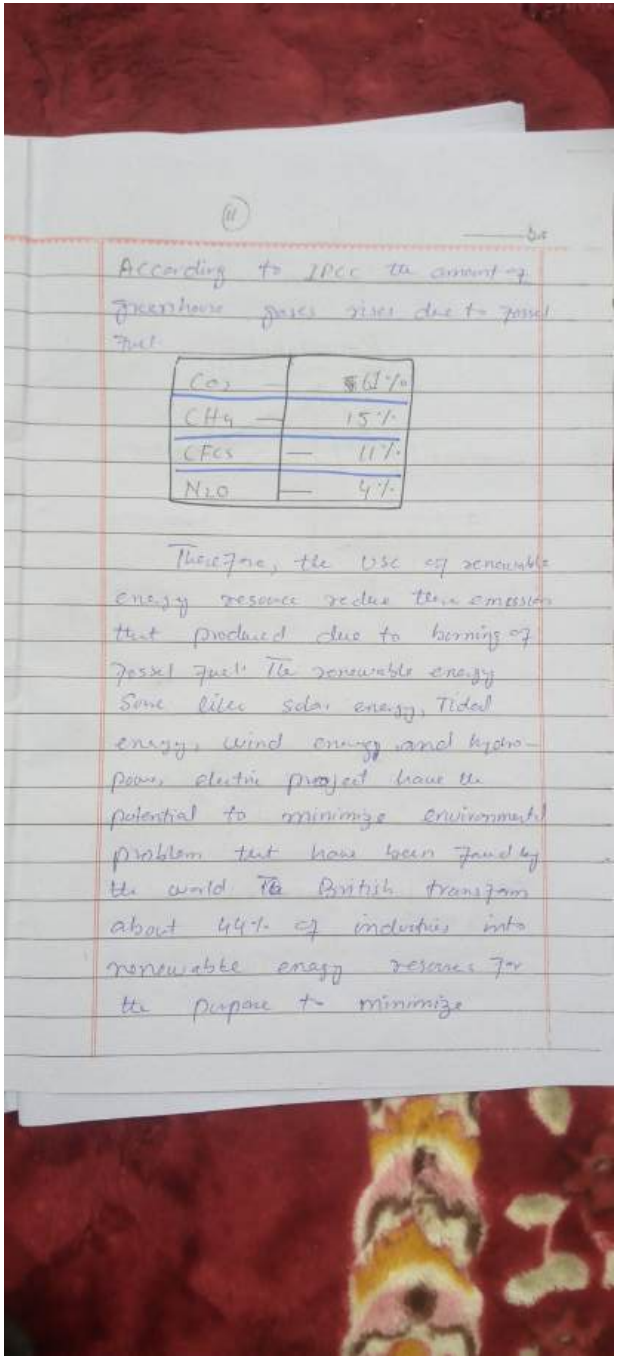
cost



Transition from non-renewable to renewable energy resources:

The adverse effects of environment have been seen due to over emission of greenhouse gases due to burning of fossil fuel. According to IPCC about 95% of global warming is caused due to burning of fossel fuels.





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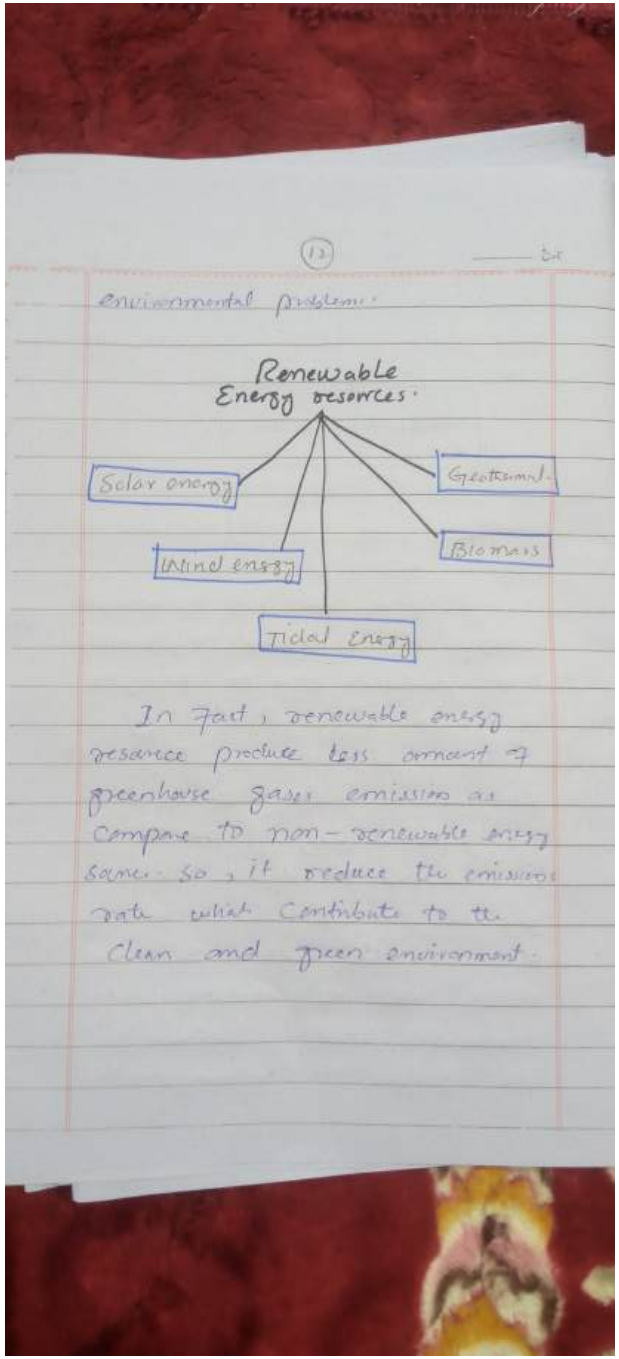
According to IPCC the amount of greenhouse gases rises due to fossil fuel.

CO_2 —	61%
CH_4 —	15%
CFCs —	11%
N_2O —	4%

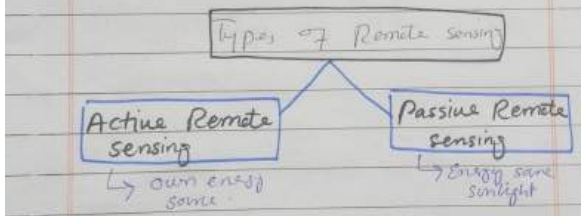
Therefore, the use of renewable energy resource reduce the emission that produced due to burning of fossil fuel. The renewable energy some like solar energy, Tidal energy, wind energy and hydro-power, electric project have the potential to minimize environmental problem that have been faced by the world. To British transform about 44% of industries into renewable energy resource for the purpose to minimize


(12)
environmental problems.
Renewable Energy resources.
Solar energy
Geothermal
Biomass
Wind energy
Tidal energy
In fact, renewable energy resource produce less amount of greenhouse gases emission as compare to non-renewable energy source. So, it reduce the emission rate which contribute to the clean and green environment.

Q NO: 02
Part: 0.

Remote sensing:

Remote sensing is the used of geospatial technology to collect information of distant area without any physical contact. This method help to collect information of those area where physical access become too difficult and costly.



Remote Sensing have four compment that ensure the possibility of remote sensing technology to use for the purpose of information

Applications of Remote sensing:

1) Geographical map:

Remote sensing is used

Diagram of Remote sensing:

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to design geographical map of an area without any physical contact for the purpose of information.

ii) Agricultre application:

Remote sensing provide information about agriculture land. It also informs agronomist about crops diseases and parasitic attack to prevent the agrication land from harmful affacts.

iii) Foresty information:

It give information about forest that how many area of forest is and its location and benefit for clean and green environment.

iv) Disaster management planning:

Remote sensing is used to control disaster on area like wildfire, draught and avelanche attack. It provide information about losses and how to manage it.

Principles of Remote sensing
Transmission Data
Sensing
Target
Analysis
Energy source
Earth application
Application of Remote Sensing
Geographical maps
Agriculture application
Earth information
Weather forecasting
Bio diversity loss
Urban planning
Disaster management system planning

Q NO: 01

Part a.

Cell is the basic unit:

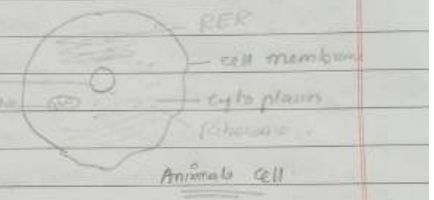
According to cell Theory
Proposed by M.J Schleiden and
T. Schwann. Cell is the structure
and functional unit of life, all
organism are made up of cell and
cell contains hereditary material
(DNA and RNA) that is transfered
from one individual to another. In
every flow is cellular organelles
that perform its own functions. Some
of them are given.

Structure and function of
cell organelles:

1) Cytoplasm:

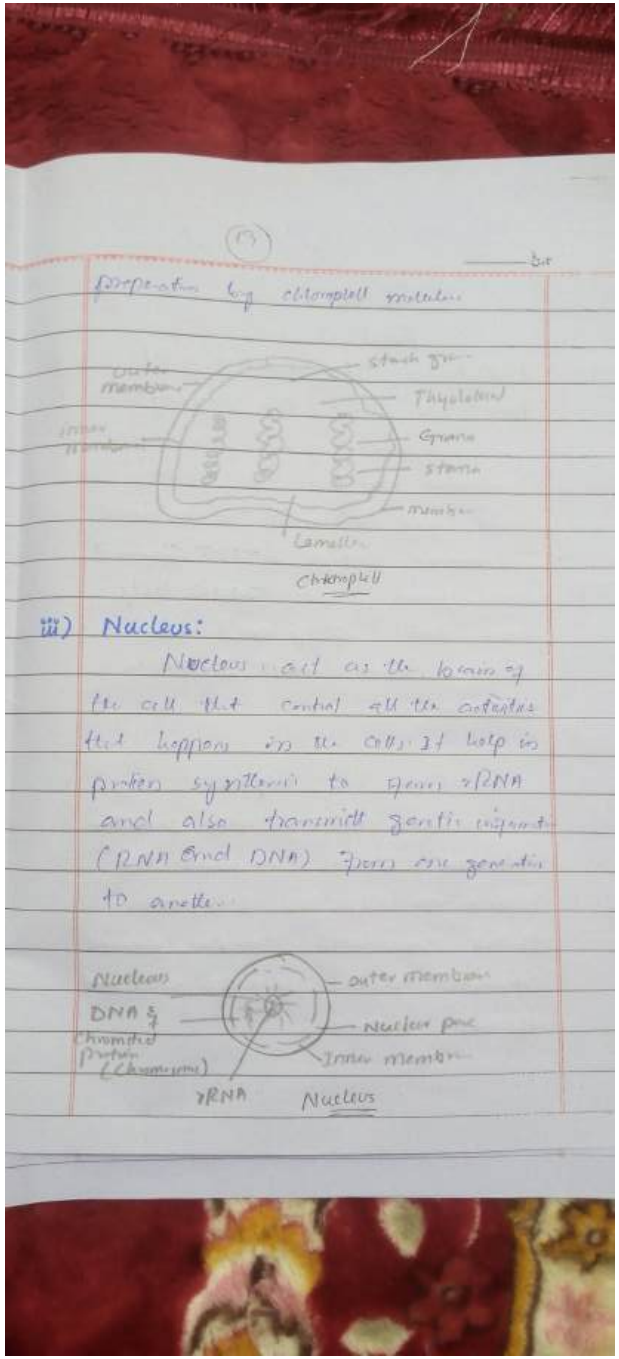
Cytoplasm is a dense
semi-solid or liquid portion of the
cell present between cell membrane
and nuclear membrane. It help in

transport of material in the cell, also provides cytoplasmic environment for the cell organelles to make it nourish and help in transport of mRNA for protein synthesis.



ii) **Plastids:**

Plastids is the pigmatic body present in plant cell and animal cells lack it. It help in pigmentation process to provide colour to the plant. Green colour chloroplast other than green chromoplast and colourless are leucoplast. It also help in photosynthesis process to use sunlight for food.


Photosynthesis by chloroplast molecules
Outer membrane
Starch grain
Thylakoid
Grana
Stroma
Lamella
Chloroplast
iii) Nucleus:
Nucleus act as the brain of the cell that control all the activities that happens in the cell. It help in protein synthesis to form mRNA and also transmit genetic information (RNA and DNA) from one generation to another.
Nucleus
DNA & Chromatid protein (Chromosome)
mRNA
outer membrane
Nucleus pore
Inner membrane
Nucleus

Q No: 1

Part: B.

Nephron "the structure and functional unit of kidney:

Nephron is the structure and functional unit of kidney which help in filteration of blood to remove waste product from it and form urine. Human body have two kidney and each kidney have about 1-million nephrons.

Structure of nephron:

Each kidney have 1-million nephron, which composed of Bowman's capsule, Glumerullus, distal convulated tubules, proximal convulated tubules, Loop of Henle and effarent artrole.

Structure of Nephron.
Functions of Nephron:
Nephron performs the following
functions in the body of living

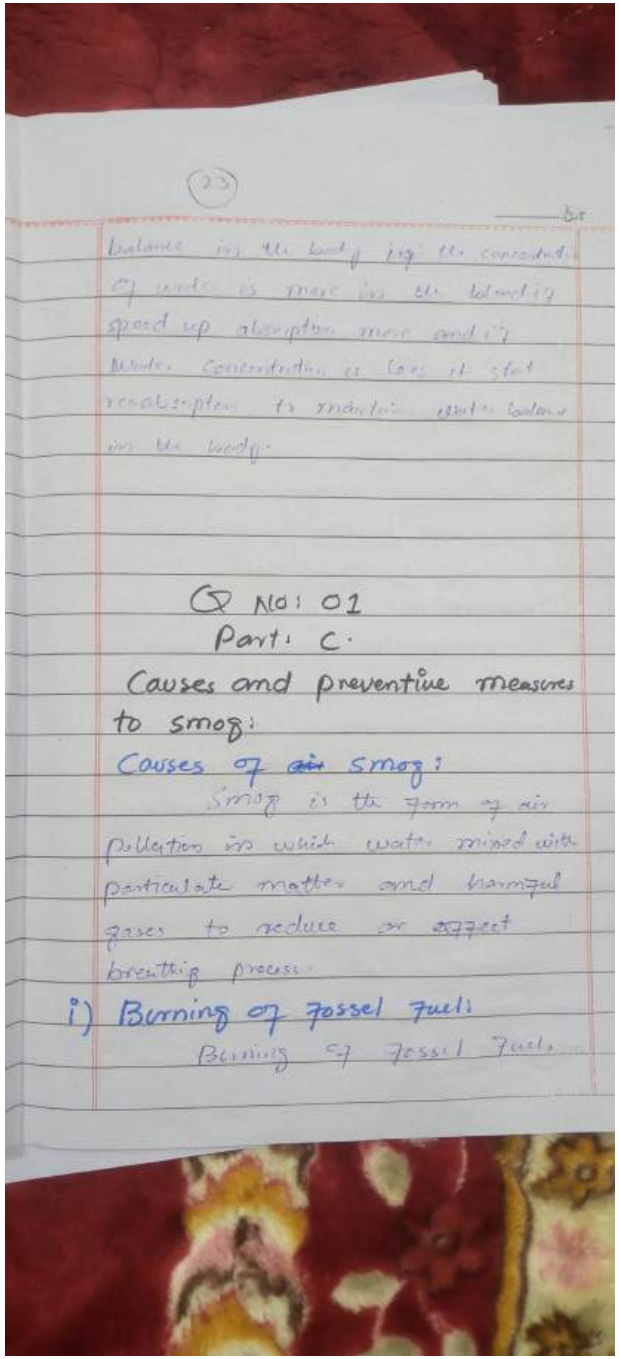
organism.

i) **Blood filteration:**
Nephron help in filteration of blood to remove waste product from the blood and transport clean blood back to the body.

ii) **Regulation of blood pressure:**
Nephron help in regulation of blood pressure to remove sodium and other minerals that accesss in the blood. which regulate blood pressure and make it optimum.

iii) **Main acid base balance**
Nephron maintain acid-base balance in the body. It made blood pH = 7.3 — 7.4 to remove the acidic product to form uric acid that release in the form of urine.

iv) **Regulate water balances**
Nephron regulate water



(23)

balance in the body if the concentration of water is more in the blood it speed up absorption more and if water concentration is low it start reabsorption to maintain water balance in the body.

Q No: 01

Part: C.

Causes and preventive measures to smog:

Causes of ~~air~~ smog:

Smog is the form of air pollution in which water mixed with particulate matter and harmful gases to reduce or affect breathing process.

i) Burning of fossel fuel:

Burning of fossil fuels

are the major cause of smog due to our emission of harmful gases like carbondioxide, carbonmonoxide, SO_2, NO and other gases due to which released as a result of industrialization, energy production and transport sector. According to IPCC about 76% of air pollution is caused due to burning of fossel fuel.

ii) **Urbanization:**

Urbanization become the most significant cause of smog. When increase in number of people also increase its need. For this purpose they used more vehicles as a result of which huge amount of gases are release. that caused smog.

iii) **Deforestation:**

Forest as as carbon sink, to use carbondioxide and release huge amount of ~~and~~ oxygen. When increased

Carbondioxide concentration due to over cutting of forest which leads to smog.

ii) **Transport and weapon of mass distruction:**

As a result of transportations huge amount among greenhouse gases are released due to burning of fossil fuel. Moreover, weapons of mass distruction generate large amount of harmful gases like CO_2, NO_2 and SO_2 to cause smog.

Preventive measures to smog:

a) **Refforestation and Afforestation:**

Plantation in old forest and make more new forest to increase the sources of carbon storage and oxygen production which result as reduction in smog level and minimize air pollution.

b) Sponge city formation:

Sponge city formation is a new technique to reduce the issues of pollution. In sponge cities there is vertical and horizontal formation of houses and formed water reserves in the cities manage use harvesting of rain water and increase greenery in the concern area for the production of more oxygen and proper sustainable uses of water.

c) Use of Renewable energy resources:

Burning of fossil fuel is the most significant case of air pollution like smog. But, when we used renewable energy resource which have the potential to reduce air pollution upto 33%. As British and USA are working to transformed it's industries on renewable energy resources.

27

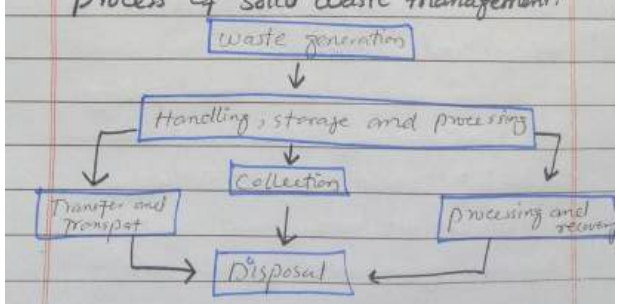
Q No: 1

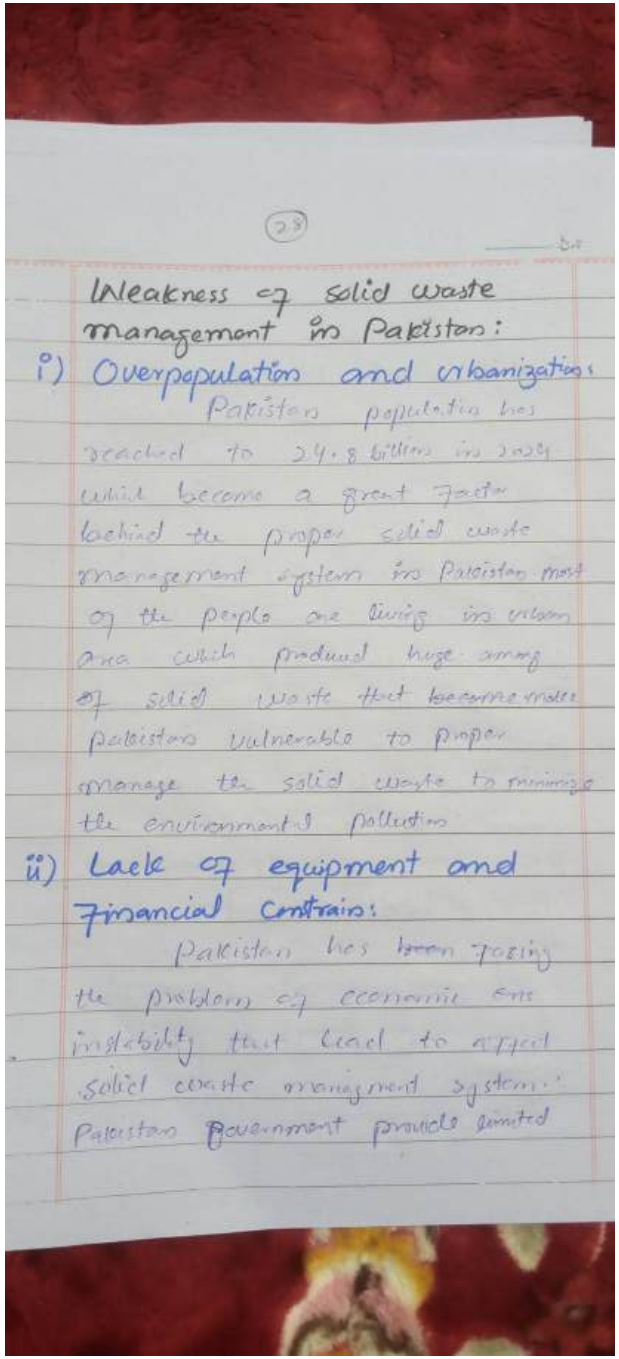
Part: D

Solid waste management:

Solid waste management is the collection, transport and recovery of solid waste from its generation point to the recovery stage. Collection of waste which are in solid form like plastic, glass, domestic waste and infrastructure waste to the recovery point for the maintain of environmental beauty and protect human health from harmful diseases.

Process of solid waste management:





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Weakness of solid waste management in Pakistan:

i) Overpopulation and urbanization:

Pakistan population has reached to 24.8 billion in 2024 which become a great factor behind the proper solid waste management system in Pakistan most of the people are living in urban area which produced huge amount of solid waste that become more Pakistan vulnerable to proper manage the solid waste to minimize the environmental pollution

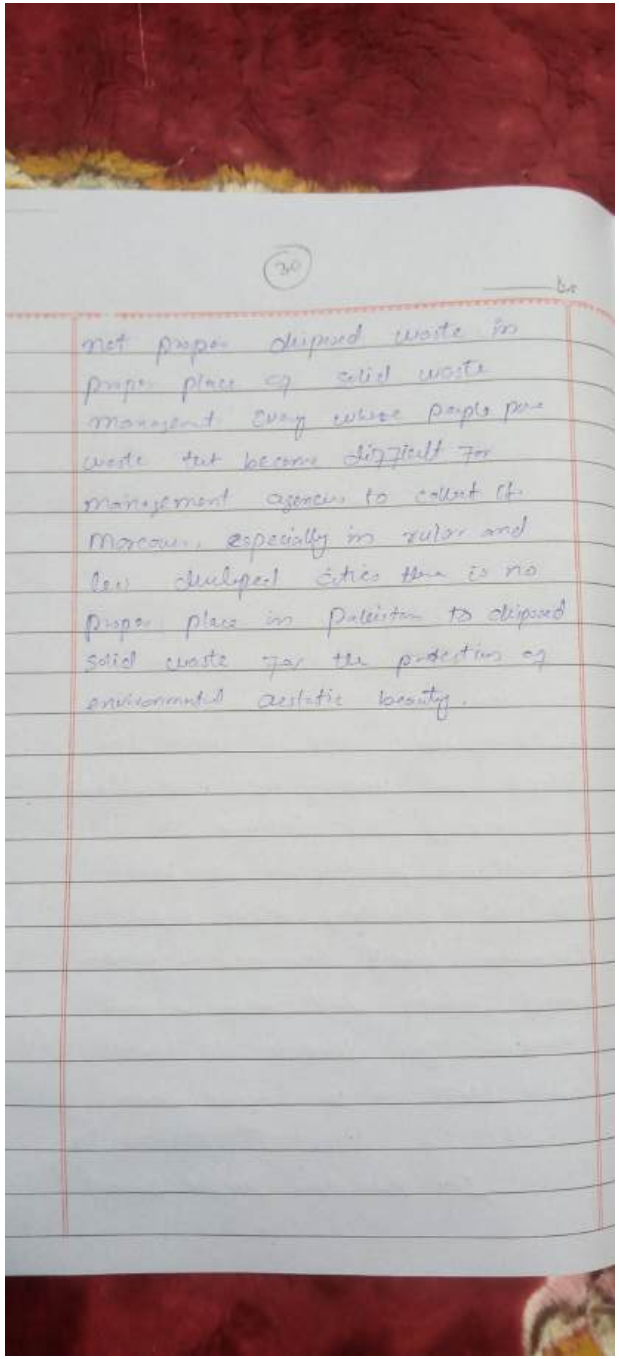
ii) Lack of equipment and financial constrains:

Pakistan has been facing the problem of economic and instability that lead to affect solid waste management system. Pakistan government provide limited

amount of financial assistance. and
government have less equipment and
lacks of modern technologies for the
control of waste management which
do not perform the task of waste
management to protect environment
from harmful objects.

iii) **Lack of awarness among public:**
Most of the people in
Pakistan have less awarness about
pollution and how to control it.
People use products and not dispose
it properly that increase the
amount of pollution in atmosphere.
The lack illiteracy makes people
unaware about environmental problem
and pollution which become a great
weakness for Pakistan to control
solid waste in the concern area

iv) **Absence of proper waste collection**
areas In Pakistan people do not


30
not proper disposed waste in
proper place of solid waste
management every where people pro
waste that become difficult for
management agencies to collect th
Moreover, especially in rular and
less developed cities there is no
proper place in Pakistan to disposed
solid waste for the protection of
environmental aesthetic beauty.