Q. No. 2 Part (i) **Enzyme** (i) سوال نمبر 2 جز

Definition:- Enzymes are proteins which catalyse or speed up a chemical reaction.

Characteristics:-

i) enzymes are specific in their action meaning they can catalyze particular reactions.

ii) enzymes are killed at high temperatures.

iii) enzymes are not used in the reaction
A + enzymes ⟶ A + B + C + enzymes

Composition of air

Q. No. 2 Part (ii) (ii) سوال نمبر 2 جز

These are several gases present in the atmosphere. The composition of air is as follows:

Nitrogen 78%
Oxygen 21%
& Less than 1% gases such as argon, carbon dioxide, etc.

Water vapor is also present in varying amounts as it is significant for weather and climate.

Q. No. 2 Part (iii) **Air pollutants** (iii) سوال نمبر 2 جز

i) Sulphuse dioxide
Source : It is released from factories as an extract.
Harmful effect : It creates problem with breathing
ii) Ozone
Source : released from cars
Harmful effect : It increases temperature.
iii) Carbon dioxide
Source : Released as a result of respiration.
Harmful effect : It is highly toxic and expands the ozone layer.

Q. No. 2 Part (iv) **Ozone depletion** (iv) سوال نمبر 2 جز

Ozone depletion refers to the gradual thinning of the ozone layer caused by harmful gases in the atmosphere. A few of these include :

i) It increases the chances of diseases such as skin cancer, eye disorders, etc.
ii) harmful Uv rays will make the soil infertile.
iii) The sea level will rise.
iv) The temperature will rise to a dangerous level.

Q. No. 2 Part (v) **Need of Food** سوال نمبر 2 جز (v)

The human body needs food to survive as it is the major source of minerals, nutrients and energy. Our body can not sustain itself without food. The human body produces energy through the breakdown of food. A few benefits of food include:

i) it ~~pro~~ provides raw material for the growth and repair of the body.

ii) The food that we eat contains sugar which our body needs in order to obtain energy.

iii) Energy is essential for the proper working of the body.

Q. No. 2 Part (vi) **Deforestation** سوال نمبر 2 جز (vi)

Deforestation has several harmful effects. A few of these include:

i) It destroys the ecosystem since several species live in the forest.

ii) It increases the carbon dioxide level in the air and reduces air quality.

iii) Soil becomes prone to errosion and crop production worsens.

iv) It affects the livelihood of farmers.

Q. No. 2 Part (vii) **Ohm's law** (vii) سوال نمبر 2 جز

ohm's law states that the ~~et~~ current between two points is directly proportional to the voltage between two points.

Mathematically, $I = VR$ where V refers to voltage and R is a constant called resistance of a conductor.

Q. No. 2 Part (viii) **Space Shuttle** (viii) سوال نمبر 2 جز

The purpose of a space shuttle is to transport people and cargo into space. It helps with space exploration and conducting research of different stars and planets. A space shuttle consists of 3 main parts. It is sent into space to observe the working of the galaxy.

Q. No. 2 Part (ix) **Coblat - 60** سوال نمبر 2 جز (ix)

Coblat - 60 is used in the treatment of cancer.

Q. No. 2 Part (x) **Ultrasound and X-Ray** سوال نمبر 2 جز (x)

Ultrasound is preferred over X-Ray for a few reasons:-

i) Ultrasound uses high-frequency sound waves which are harmless whereas X-Ray uses ionizing radiation which may damage tissues & DNA.
ii) Ultrasound gives quick and accurate information such as the heartbeat of a person and X-Ray lacks in that aspect.
iii) Ultrasound can be used to see soft tissues which can not be perceived by X-rays.

Q. No. 2 Part (xi) **Resistance** (xi) سوال نمبر 2 جز

Definition:- Resistance refers to the opposition to electric current in a conductor.

Unit:- The unit of resistance is ohm(Ω)

Q. No. 2 Part (xii) **Principle of rockets** (xii) سوال نمبر 2 جز

Rockets work on ~~Netw~~ ~~Ntet~~ Newton's third law of motion, action and reaction.

It states that every action will have a reaction similar to it.

(Section C)

Q. No. 3 (Page 1) **Transformer** سوال نمبر 3 (صفحہ 1)

Definition:- Transformer is a device used to transfer electrical energy between two circuits, either increasing or reducing the voltage.

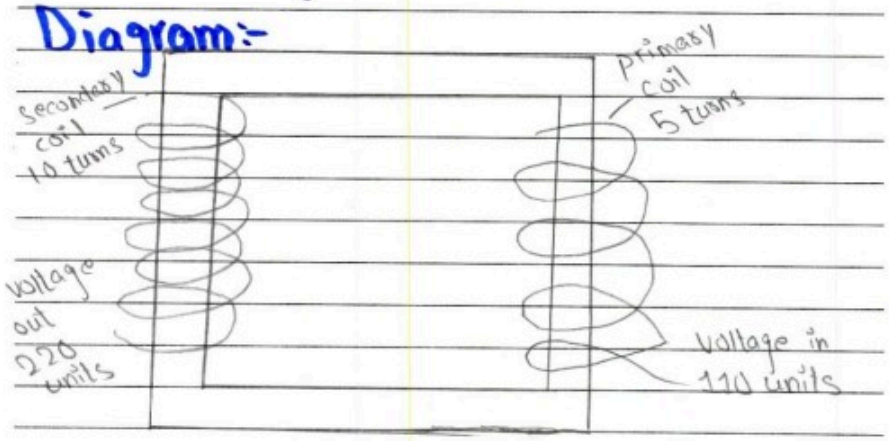
Working Mechanism:- Transformers use an induction of secondary coil and primary coil linked together with common magnetic flux.

Types of transformers:- There are two types of transformers

i) Step up transformers:- Step up transformers increase the voltage from one point to another.

ii) Step down transformers:- Step down transformers reduce the voltage from one point to another.

Diagram:-



Q. No. 3 (Page 2) سوال نمبر 3 (صفحہ 2)

Limitations:- It only works with A.C current.

Q. No. 3 (Page 3) سوال نمبر 3 (صفحہ 3)

Q. No. 4 (Page 1) **Blood cell** سوال نمبر 4 (صفحہ 1)

Human blood:- Blood is one of the most important substances in our body. Its role is to carry essential substances around the body such as oxygen, hormones and wasteful products like carbon dioxide. It is divided into 4 parts

i) Red blood cell
ii) White blood cell
iii) Platelets
iv) Plasma

Red Blood cells:-

Description: Biconcave disc shape, no nucleus

Percentage: Red blood cells make up about 44% of the total human blood.

Functions:- Red blood cells are responsible for carrying oxygen around the body.

They contain a chemical called haemoglobin which makes them red and help bind oxygen.

They are destroyed after 120 days and are reformed again in the bone marrows.

Q. No. 4 (Page 2) سوال نمبر 4 (صفحہ 2)

White blood cell :-

Description :- No fixed shape, irregular

Percentage: They make up less than 1% of the human blood.

Function: They are a key part of the immune system.

They fight off pathogenic diseases

They create antibodies to tackle their respective antigens.

Platelets :-

Description: They are small colorless fragments of cells.

Percentage: They make up less than 1% of the human blood.

Function: They are responsible for creating scabs to prevent a wound from bleeding.

They are made in the bone marrow.

Q. No. 4 (Page 3) سوال نمبر 4 (صفحہ 3)

Plasma :-

Description: It is in the form of a yellowish liquid.

Percentage: It makes up about 55% of the human blood.

Functions: Plasma carry urea, uric acid, and carbon dioxide to the lung for excretion.

They carry useful substances such as hormones, enzymes, etc

They are responsible for transporting inorganic ion.

They also carry antibodies to fight off antigens.

Q. No. 5 (Page 1) **Endocrine gland** سوال نمبر 5 (صفحہ 1)

Endocrine system is part of human coordination and is responsible for the secretion of hormones. It is also called the hormonal system. It consists of 4 important glands. These include

Thyroid gland:- It is located in the middle of the neck on either side. The food that we eat contains iodine. if it lacks iodine, the gland swells up and causes "goiter". It is particularly common in northern areas of Pakistan.

Parathyroid gland: It is a small gland embedded on the thyroid gland. It secretes a hormone which controls calcium level in blood and bones.

Adrenal gland:- It is located in the kidney. It secretes a hormone which helps the body in an emergency situation as shock. It also controls the general rate of metabolism.

Pituitary gland:- It is located in the lower brain. It is responsible for controlling the secretion of other hormones and other bodily functions. Hence it is known as the "master gland" of the body.

Q. No. 5 (Page 2) سوال نمبر 5 (صفحہ 2)

Q. No. 5 (Page 3) سوال نمبر 5 (صفحہ 3)