Q.No.3. (Ans)

(a) Ans,

According to Development Bank, 2023 was the hottest year because of the high rise in temperature.

Global warming is increase in temperature globally. It is increasing day by day. As according to UN, global temperature will have risen to $2.7°F$ above the average of the pre-industrial era by 2030.

Developing countries are facing many problems to tackle the impacts of global warming.

Less economical growth → Natural disasters

Infrastructural loss ←

Impacts of Global Warming in developing countries

→ Impact on human health

Loss of biodiversity ←

Water scarcity

Decrease in production of agriculture
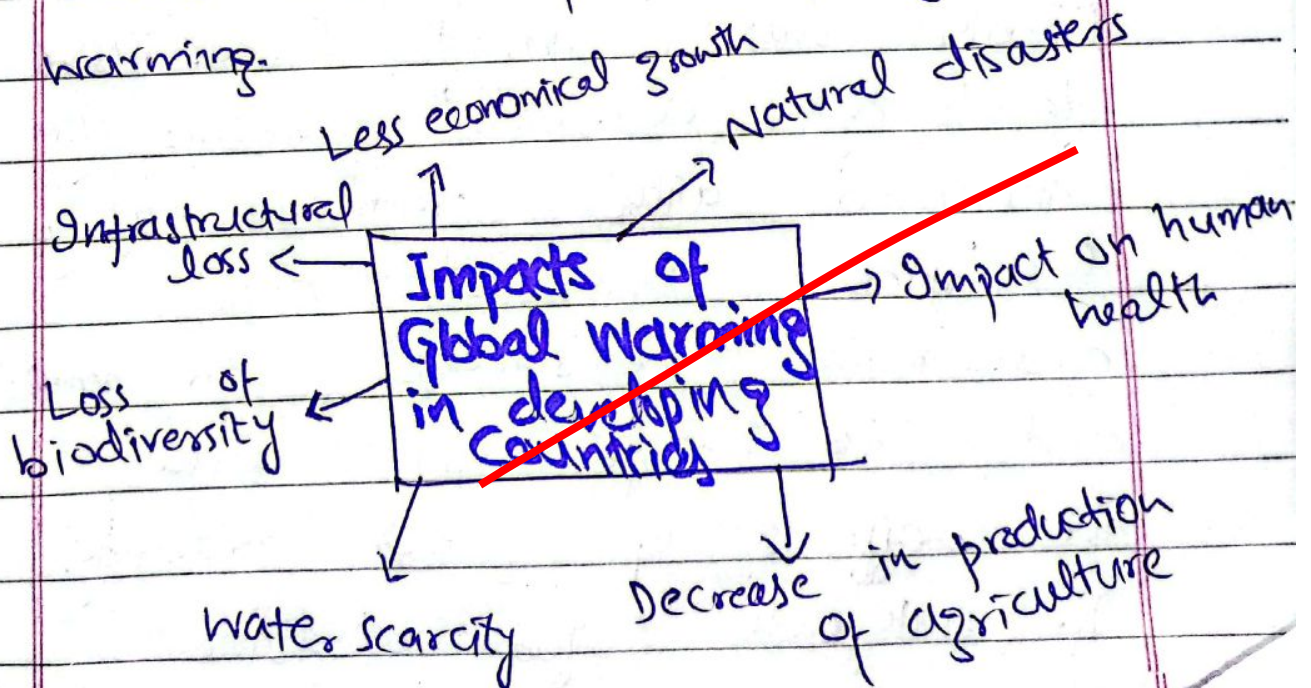
Just like in Pakistan, it has faced worst floods in 2022 which has affected almost 33 Million people.

COP 28's Perspective :-

In Cop 28, many steps have been taken to deal global warming. Such as Shift from fossil fuels to Clean energy, the Adaptation goal was established, Strengthening national Climate Commitments pledges to curb Methan emmissions and inclusion of the role of private Sector. Above all, loss and damage fund of $700M was operationalized. Now developing countries' problems are concerned with finances majorly. Developing countries need economical resources to handle and to cope up with the effects of global warming. To integrate food systems by 2025, they need best

agricultural yield, but almost they are using old methods of agriculture. So, they need to develop modern techniques of agriculture to secure food. Many other pledges to curb global warning are just pledges because developing countries depend upon the developed countries financially. They will have to improve their economy to handle the effects too. So, Cop 28 has brought many challenges for developing countries.

b- Ans,
1- **Balanced Diet:-**

A balanced diet is that kind of diet which contains the right quantities of essential nutrients in it. Nutrients like Micro-nutrients, macro-nutrients and water.

Nutrients ⟹ {
→ Micro Nutrients
→ Macro Nutrients
→ Water

(ii) a- Micro - Nutrients:-

Vitamins and Minerals

(iii) b- Macro Nutrients:-

Carbohydrates, proteins, fats etc

a. Carbohydrates:-

Carbohydrates are the major source of energy. They are essential for the proper working of brain, heart and other vital organs. Major sources of it are Wheat, pulses, dates etc. Its deficiency leads to less supply of energy to the organs and it results in the poor and lack of brain performance and human heart. Its excessive intake causes Obesity and Diabetes.

b- Proteins:-

Proteins are also one of macro-nutrients. They are beneficial for musle building, tissue building and balanced

immunity. Its sources are milk, eggs, chicken, fish etc. Its deficiency affects proper functioning of organs and its excessiveness leads to heart diseases.

c. Fats:-

Fats are the sources of energy which are essential for the transport of fat-soluble vitamins. Its sources are fish, oils, meet etc. Its deficiency can lead to imbalance working of organs.

2. Micro-Nutrients:-

a. Vitamins:-

Vitamins are the organic compounds which are important for the proper growth, reproduction and normal functioning of the body. Their sources are fruits, dairy products, vegetables, sun and so on.

Types of Vitamins:-

1. Fat-Soluble Vitamins
2. Water-Soluble Vitamins

Vitamin D

Vitamin A ⟵ Fat-Soluble vitamins → Vitamin E

Vitamin D   Vitamin K

Water-Soluble Vitamins
→ Vitamin C
→ Vitamin B Complex
↳ B1, B2, B3,
B5, B6, B7, B9, B12

All these vitamins can lead to many deficiencies like night blindness, Anemia, Berry Berry and many other diseases, If not intaken propely.

c. Water:-

Water is the major source of life. It is the chief constituent of the body. It is essential for the basic function of the body. Plasma in blood contains 90% water, brain 75% and bones 25 – 30% water. Its intake varies from person to person. But

an adult should drink 10-14 glass water daily.

C- Ans,

1- Artificial Intelligence:-

The term "Artifical Intelligence" has been formulated by John McCarthy in 1956. It means the study of intelligence machines which are capable of performing functions just like human beings.

2- Machine Learning: Subset of AI:-

Machine learning is the subset of AI. In all fields, many intelligence machines are used to make things more valuable and develop fast and easy solutions to every problem.

Like they machines are used in every field like education, health, & bussinesses, engineering, army and all

other professions which have features of Artificial Intelligence.

3. How machines have revolutionized the World?

(i) Education:-

In education sector, the ChatGPT has changed the dimensions of learning. The students and teachers are taking advantage from it to accelerate their learning.

(ii) Health:-

In Health department, AI developed machines are helping to get proper and clear picture of the inner parts of the body through machines. Besides this, they are used to diagnose cancer, mammography and so on.

(iii) Military:-

In military, AI has revolutionized it with massive destructive weapons and with such machines

to get clear knowledge of the location of the enemy.

(iv)_ Justice Department:-
The judiciary all over the world are busy in making their judicial proceedings efficient by the use of AI developed machines. Recently, in Pakistan, a judge has used ChatGPT to solve a juvenile case.

(v)_ Economy:-
In economy, these machines are used to get the better income and profit. It is helpful to get the modern trends in trade and business.

(d)Ans,
RAM and ROM are the parts of the computer and they are basically related to the memory of the computer. They help to proceed the functions of the computer.

RAM	ROM
1- It is called Random Access Memory, a volatile memory which can store data as long as the power is supplied.	It is called Read Only Memory, a non-volatile memory which can retain its data even when the power is off.
2- Data can be retrieved and altered.	Data in it, can only be read.
3- It is a high-speed memory	It is much slower than the RAM.
4- Large size with higher capacity.	Small size with less capacity.
5- It is used to store the data that has been currently processed	It stores the instructions required during

by the CPU.	the bootstrap of the computer.
6. It is costly as compared to ROM.	It is cheaper than RAM.

Q.No.5 (Ans)

a. **Food Preservation:-**
      Food preservation is the technique of saving the food from deterioration.

b. **Methods of food preservation:-**
      There are various methods of food preservation. Some of the major methods are given below.

(i). **Freezing:-**
      Freezing the food is one of the widely used method to preserve the food. The food is freezed either after cooking or before cooking. The growth of microorganisms is decreased when the

the food is freezed. The quality of the food depends on how well it is cooked and how early it is preserved after cooking.

(ii) Canning and Bottling:-

Canning and bottling is the best method in food markets. The food is preserved in canning and bottling with the help of some chemicals to keep it for lasting and longer time. The cans and bottles are labelled with the details of the ingredient and manufactured date so that the quality of the food will be ensured.

(iii) Salting:-

Salting is one of the oldest method to preserve food. It decreases the growth of bacteria and preserve food from other contaminants.

(iv). Drying:-

Drying is one of the oldest methods to keep food safe. The food is dried in the heat of the sun and the nourishment of many micro-organisms is decreased. It can be used for a long time.

(b) Ans,

1. Milky Way:-

Milky way is a large spherical shaped galaxy that includes several billion stars and one of them is the sun.

2. Features:-

a. The milky way is about 100,000 light years in diametre.

b. It is formed about 18.7 billion years ago.

c. Sun takes 250 million years to orbit around the milky way.

d. Nearest galaxy to our milky way is Andromeda.

3. Parts of the galaxy:-

There are six separate parts of the galaxy.

a → nucleus

b → central bulge

c → Disk

d → Spiral arms

e → a Spherical component

f → a Massive halo
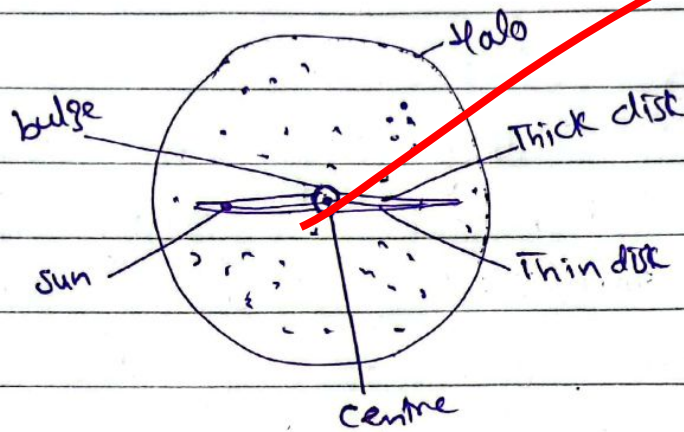
4. Dark Matter:-

Dark matter are those particles that do not absorb, reject or emit light. It cannot be seen with electromagnetic radiations. It is a mysterious, and invisible substance. It is believed because that it exists because visible matter does not have

enough gravitational muster to hold galaxies together.

5. Relation of dark matter with galaxies:-

Dark matter and galaxies are inalienable. The dark matter is essential because the galaxies are made through dark matter. The mars and cluster of galaxies are formulated by dark matter, and dark matter is also responsible for the organization of galaxies.

C-(Ans)

An eclipse takes place when one heavenly body moves into the shadow of another heavenly body.

1. Types of Eclipse
a. Solar eclipse
b. Lunar eclipse

a. Solar Eclipse:-
When the moon comes

between the earth and the Sun and casts shadow over the surface of the earth, it's called solar eclipse. It can be total or partial solar eclipse. It always occurs at the time of the new moon. It lasts for a few minutes. It is not safe to look at the directly.
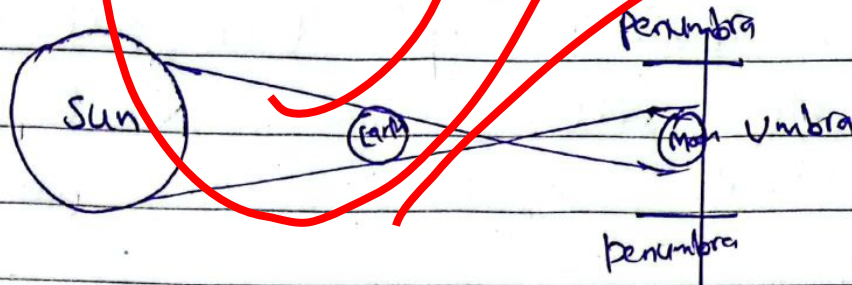
Sun   Moon   Earth

Complete solar eclipse

Annular solar eclipse

Partial solar eclipse.
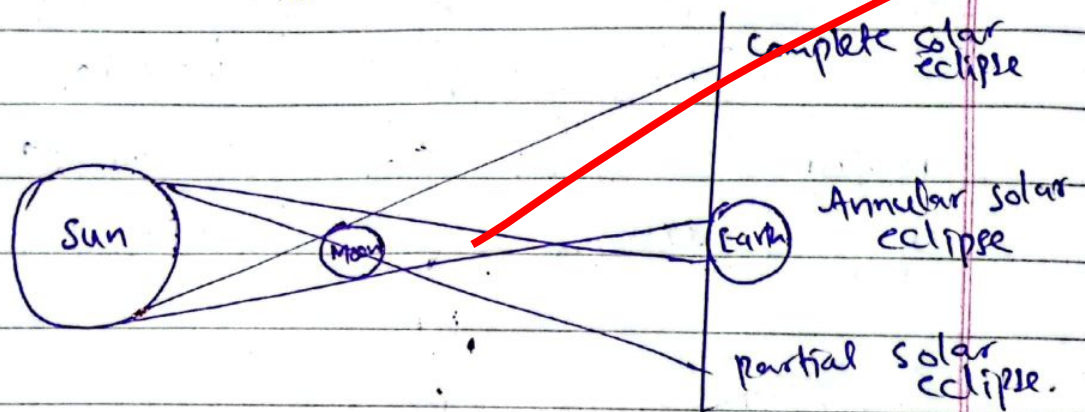
b- Lunar Eclipse:-

When earth comes between moon and the Sun and casts shadow over the surface of the moon, it's called lunar eclipse. It can be complete and partial. It always occurs at the time of

the full moon. It is safe to look at it.

d-(Ans)

1- Nuclear Fission:-

Nuclear fission means the splitting of lighter nuclei which is heavy and unstable through a nuclear reaction, such as free electrons.

2- Nuclear Fusion:-

Nuclear fusion refers to a reaction through which two or or more light nuclei combine together to release, like in stars.

3- Iionic Bond:-

Ionic bond is that form of bond which is occured by the complete

transfer of electrons from one item to another. It can be easily illustrated with the example of table salt. In table salt, sodium and chloride are two major items.
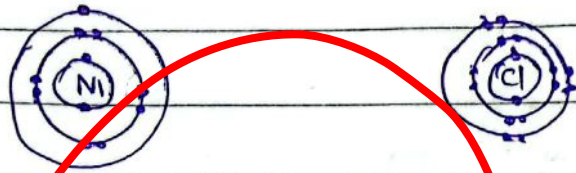
Sodium has 11 electrons and chloride has 17 electrons usually, but here chloride has 16 electrons. Now chloride in order to stabilize itself, wants chemical bonding. Sodium is ready to give its electron to chloride because sodium will be stable after sharing of electron. So, it shares its electron to chloride and chloride is stable now as it is shown.
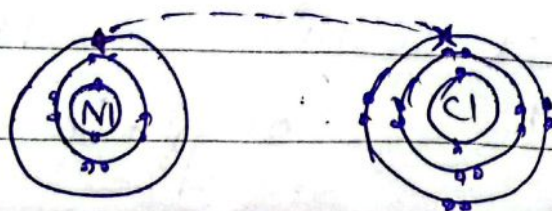
Q.No.8 (a)

Sum of the consecutive odd number is = 273

Let consider "x" as odd

$$x + (x+2) + (x+4) = 273$$
$$x + x + 2 + x + 4 = 273$$
$$3x + 6 = 273$$
$$3x = 273 - 6$$
$$3x = 267$$
$$x = \frac{267}{3}^{89}$$
$$x = 89$$

the first consecutive number is 89 and the next two numbers are 91 and 93. So, the three consecutive numbers are 89, 91, and 93.

b. 4, 16, 36, 64, ___, 144

$$\underset{2^2 \; 14^2, \; 6^2, \; 8^2, \; 10^2 \; 12^2}{4, \; 16, \; 36, \; 64, \; \underline{\quad}, \; 144}$$

$$= 4, 16, 36, 64, \boxed{100}, 144 \rightarrow \text{Solution}$$

$$30, 29, 27, \cancel{2}\underline{\quad}, 20, 15$$

$$\underset{-1 \quad -2 \quad -3 \quad -4 \; -5}{30, 29, 27, \underline{\quad}, 20, 15}$$

$$= 30, 29, 27, \boxed{24}, 20, 15$$

1, 7, 15, 25, ___, 51

1, 7, 15, 25, ___, 51
  +6 +8 +10 +12

= 1, 7, 15, 25, (37), 51

0, 2, 6, 12, 20, 30, ___

0, 2, 6, 12, 20, 30, ___
  +2 +4 +6 +8 +10 +12

= 0, 2, 6, 12, 20, 30, (42)

48, 24, 72, 35, 108, ___

48, 24, 72, 35, 108, ___
    ⌣   ⌣
    ×3   ×3

= 48, 24, 72, 35, 108, (234)

C-

(i) - Shirt

(ii) - Garden

(iii) - Stomach

(iv) - London

(v) - Holiday

d-

Let Sara's age is = x

Mother's age now = 6x

Ali's age = 2x

After 3 years = ?

Sara's age = $x + 3$

M's = $6x + 3$

Ali's = $2x + 3$

$(x+3) + (6x+3) + (2x+3) = 72$

$x + 3 + 6x + 3 + 2x + 3 = 72$

$9x + 9 = 72$

$9x = 72 - 9$

$9x = 63$

$x = \dfrac{63}{9}$

$x = \dfrac{63}{9}$

$x = 7$

Sara is now 7 years old

Mother's age = $7 \times 6 = 18$

Ali's age = $7 \times 2 = 14$

Q.No.6

a-

Total votes by 3 Candidates

are = 15000, 10000, 8000

Sum of Total votes = 15000 + 10000 + 8000

= 33000

Let's apply percentage formula

$\% = \dfrac{\text{obtained votes}}{\text{Total votes}} \times 100$

$$= \frac{15000 \times 100}{33000}$$

$$= \frac{15 \times 100}{33}$$

$$= 45.45\%$$

So, the winning candidates receive 45.45% votes of the total cast.

b_ the ratio of angles of a triangle are = 3:4:5
each triangle's angle sum is 180°

Let's take common multiplier = x

$$3x + 4x + 5x = 180$$
$$12x = 180$$
$$x = \frac{180}{12}$$
$$x = 15$$

Let's multiply it with angles.
$$3x = 3(15) = 45°$$
So, the first angle is 45°

$$4x = 4(15) = 60°$$
2nd angle is 60°

$5(15) = 75°$

So, the 3rd angle is 75°

Thus, the three angles of a triangle are 45°, 60° and 75°

C-

ratio of boys and girls for one group $= 4:6$

Total girls $= 102$

total number of groups that can be formed with total 102 girls $= ?$

$102 \div 6 = 17$

boys are required $= ?$

$17 \times 4 = 68$

68 boys are required.

d-

ratio of present ages $= 6:7$ of A & B

After 5 years = $6x + 5 = 7$
A's age will be ⌐|

After 5 years, B's age will be = $7x + 5 = 8$

$$\frac{6x+5}{7x+5} = \frac{7}{8}$$

Let's do cross multiply

$$8(6x+5) = 7(7x+5)$$
$$48x + 40 = 49x + 35$$
$$48x - 49x = 35 - 40$$
$$x = +5$$

present age of A = $6x$
$$= 6(5) = 30$$

present age of B = $7x$
$$= 7(5) = 35$$

So, the ages of A & B are 30 and 35 respectively.