

Q NO#2

a) COP-28 held in UAE,

- => Conference of Parties (COP) is held every year to discuss issues related to climate change and their solutions.
- => Recently, COP 28 held in UAE its basic agenda was to raise funds for the affected countries.

Key Features:

- => COP 28 discusses the funds paid to the developing countries in the form of loss and damage funds.
- => Developing countries like Pakistan has just contributed 0.58% of carbon emissions, but they are bearing brunt of climate disasters.
- => Therefore, all the countries along with multi-national companies of UAE have pledged to pay \$100bn as loss and damage fund.
- => It was also pledged to provide funds in the form of loose debt.

1) Debts in the form of infrastructure building.

2) Subsidies were given on debts related to climate change.

b) Solid Waste Management:

Solid waste management is the transfer of solid waste from collection ^{point} to recovery phase and ultimately to the disposal point.

Steps:

- Collection of solid waste
- Recovery of solid waste at the transfer point
- Disposal of solid waste

Methods of Solid waste Management

1. Land filling:

Land filling is the method in which solid waste collected from the generation point is loaded and thrown away at the location far away from the cities.

It is considered to be a dangerous and harmful method, as it increases the pollution.

2. Incineration:

Incineration is the method in which the waste materials are burned in an area far away from the cities.

It also increases the harmful gases in the environment.

3. Composting:

Composting is the method in which a dig is made in the land and waste is filled in it.

It is good option for the organic waste. Because

it is decomposed with time.

c) Balanced Diet:

Balanced diet is maintenance of balance between different components of food according to the requirement of the body.

Components of balanced diet:

There are two main components of balanced diet,

- i) Macronutrients
- ii) Micronutrients

Macronutrients:

Macronutrients are those which are required in large quantities for optimum growth, energy, and development of body.

Types of Macronutrients:

- Carbohydrates - 60-70%.
- Proteins - 20-25%.
- Fats or lipids - 5-10%.

=> Carbohydrates constitute the largest part of macronutrients. Almost 60-70% of calories are fulfilled by carbohydrates.

=> Proteins comprised of 20-25% of energy calories and it is important for the growth and development of body.

=> Fats and lipids comprised of 5-10% of energy calories and it is essential for the health of various organs.

Micronutrients:

Micronutrients are those which are required in very small quantities but are essential for the growth.

Types of Micronutrients:

i) Vitamins

ii) Minerals.

=> Vitamins are important for the various processes of body.

- ⇒ They are of two types i.e. fat soluble and water soluble
- ⇒ Minerals are also important and they aid in absorption of various vitamins.

Benefits of Balanced diet:

- ⇒ Balanced diet is essential for proper functioning of body
- ⇒ Optimum growth and development of body is achieved.
- ⇒ Health of organs i.e. heart brain remains optimum
- ⇒ People taking balanced diet remain fit and active

d) Renewable Energy Sources:

Renewable energy sources are those which can be replenished even after continuous use.

Example:

Hydal energy

Wind Energy

Solar energy.

China - Pakistan Economic Corridor

China - Pakistan Economic Corridor started in 2013. Recently, the project has completed its 10-years in 2023.

With the threat of climate change, various countries have started converting to renewable energy sources. Pakistan has also started its struggles in cooperation with China CPEC.

i) Solar Power plants:

An cooperation with China, Pakistan has ~~four~~ nine solar power plants in different regions.

- Godani-Solar park - 600MW

- Qudd-e-Azam solar park Bahawalpur - 900MW

ii) Wind power plants:

Wind power plants converts the mechanical energy into electrical energy.

Almost four wind plants are planted in Sindh.

- Jampur Wind power energy project - 868 MW.

Hydal power:

Hydal power is the generation of electricity from water.

- Tehlum-Neelum Hydal power project - 969 MW.
- Suki Kinna power project - 868 MW.

=> Debts in the form of infrastructure building.

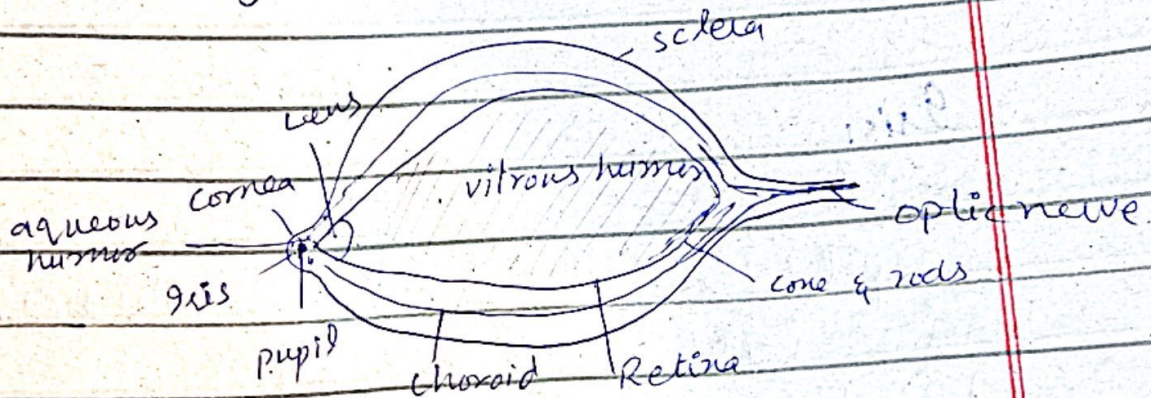
=> Subsidies were given on debts related to climate change.

General Science And Ability

Q No #3:-

Different parts of the Eye

Eye is the sensory organ of human body which helps in visualizing the objects.



Retina:

∴ Retina is the most sensitive part of the eye. It contains the rods and cones which convert the light rays in color visualisation.

Cornea:

Cornea is the outermost covering on the front side of eye. The light which enters the eye first

interacts with cornea. It helps in bending of light.

Sclera:

Sclera is the outermost layer of the eye on the backside.

It is the white part of eye which aids it in protection of eye.

Iris:

Iris is layer outer to the pupil. It helps in transmission of light rays and their bending.

Aqueous and vitreous humor:

- Aqueous humor is the fluid present in the anterior part of the eye while
- while, vitreous humor is present in the posterior part of the eye.
- These are the nutrient-rich fluid which provides nutrition,

protection and lubrication.

Pupil:

The light rays after reflection form their image on the pupil.

Optic Nerve:

The nerve supply of eye is through optic nerve.

It transmits the message from eye to the brain which helps in identification of objects.

Correction of Far-sightedness:

⇒ Far-sightedness or Hyperopia is the condition in which far objects are seen clear while near objects are blurred.

⇒ It is corrected through the usage of convex lens. In advanced stage, it

⇒ is corrected through LASIK and LASER laser surgeries.

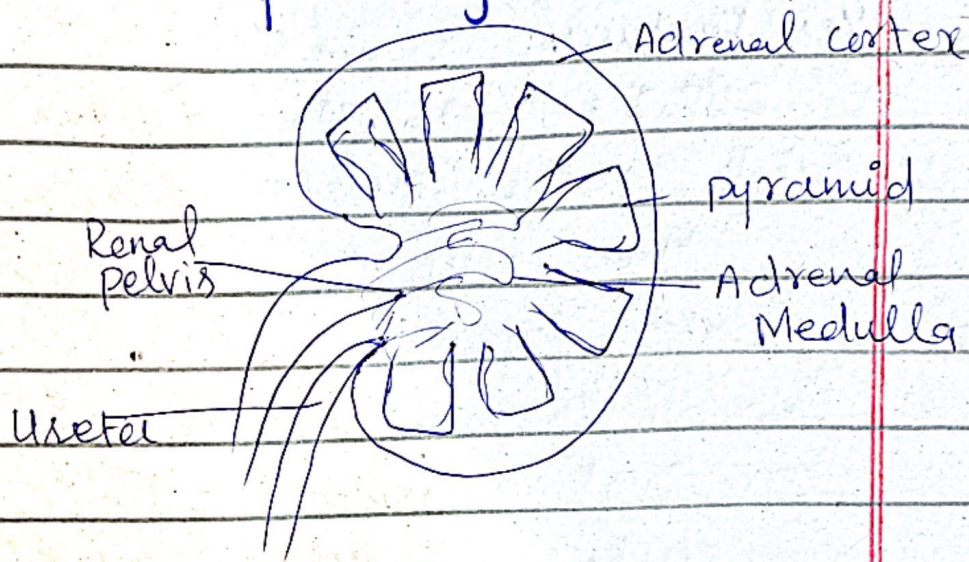
Correction of near-sightedness:

- => Near-sightedness or myopia is the condition in which near objects are seen clear while far objects are blurred.
- => It can be corrected through use of concave lens which helps in the formation of image on the retina.
- => Advanced cases are treated through laser surgeries.

b) Working of Kidney:

Kidney is the bean-shaped organ, two in number and helps in cleaning of blood resulting in the formation of urine.

Structure of Kidney:



Working of Kidney:

The functional and structural unit of kidney is the Nephron.

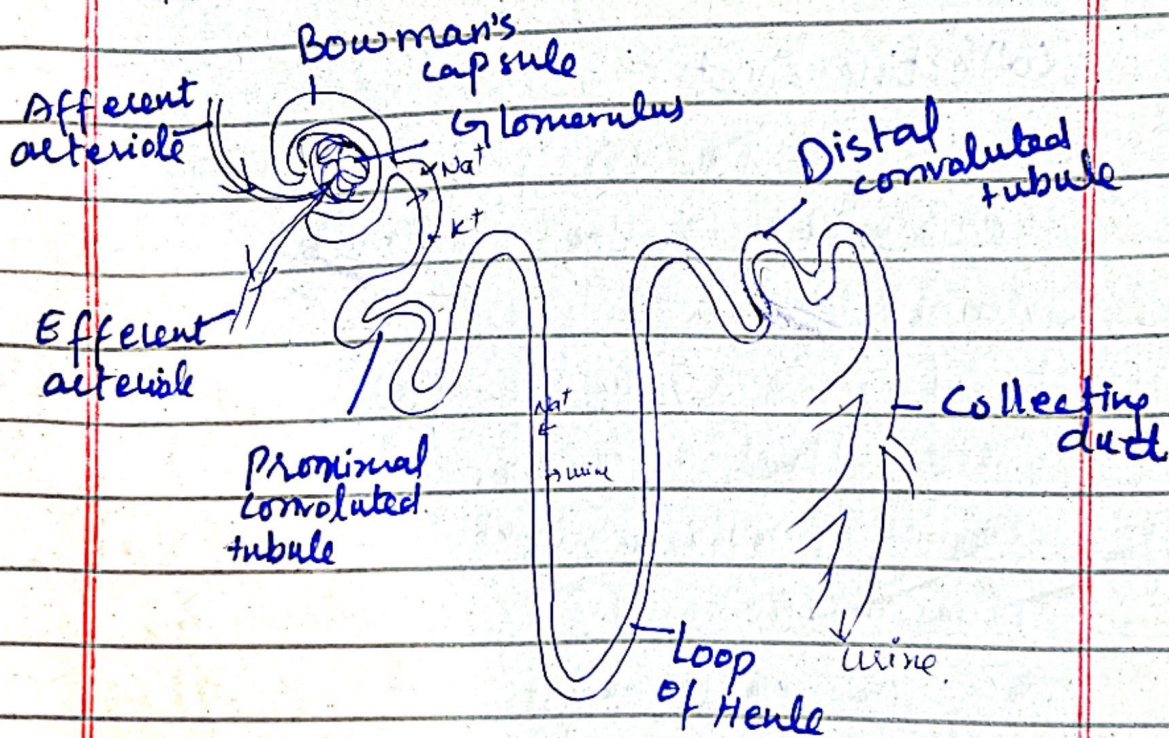
Components of Nephron and their function:

Glomerulus:

Glomerulus is the first part of nephron where arterioles bring the blood and process of filtration and absorption starts here.

Bowman's Capsule:

It is the outer covering of the glomerulus.



Proximal convoluted Tubule:

Proximal convoluted tubule is the coiled tubules where the process of filtration of waste products i.e. urea and ammonia

takes place and reabsorption of sodium and potassium occurs.

Loop of Henle and distal convoluted Tubule:

Then, the process of filtration of blood occurs in the loop of Henle and distal convoluted tubules.

Collecting duct:

The process of filtration completes in the collecting duct. Various collecting ducts combine to form a larger duct and then the urine is drained in renal pelvis and then into ureter which takes the urine to the urinary bladder.

(c) Black holes:

Black holes are the highly dense objects to the extent that nothing can come out of them, not even light.

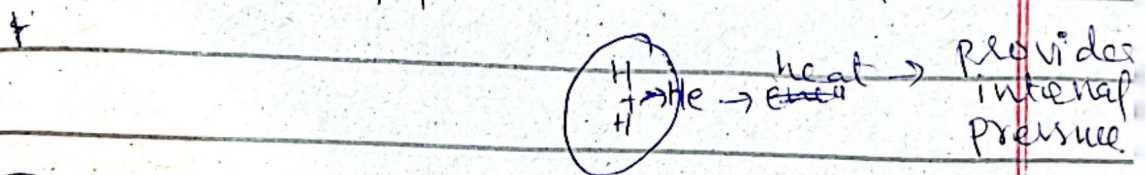
Formation of Black holes:

Stars having high energy and gravitational force:

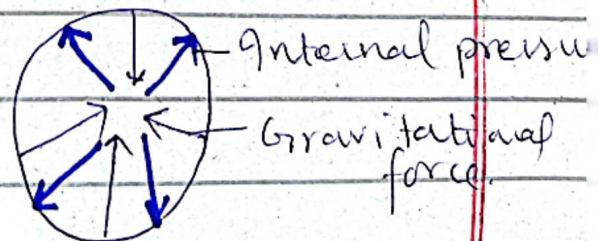
Black holes are formed in the stars having high density and gravitational force. Some of them have energy even greater than the sun.

Internal pressure in the star:

Continuous process of fusion reaction happen in the star.



The heat emitted when two hydrogen atoms joining is contributing to the internal pressure of the star.



In a star, gravitational force and internal pressure balance each other out.

Imbalance between internal pressure and gravitational forces

With the continuous formation of helium through fusion reaction, star gradually run out of the energy.

This results in the decrease in the internal pressure of the star. The balance between the internal pressure and gravitational force is disturbed and the star collapses.

That is why, black holes are also called collapses.

d) Isotopes:

=> Isotopes are the different ~~atoms~~ molecules of same atoms having same atomic number (Z) but different mass number (A).

=> They differ in the number of Neutron (N).

=> Isotopes possess same chemical properties.

=> They have different physical properties.

Isobars:

- => Isobars have the same mass number but different atomic number.
- => They differ in the number of protons.
- => Isobars have same physical properties but different chemical properties.

Example: ${}_{18}^{40}\text{Ar}$, ${}_{19}^{40}\text{K}$

Isotones:

Isotones are those which possess the same number of neutrons.

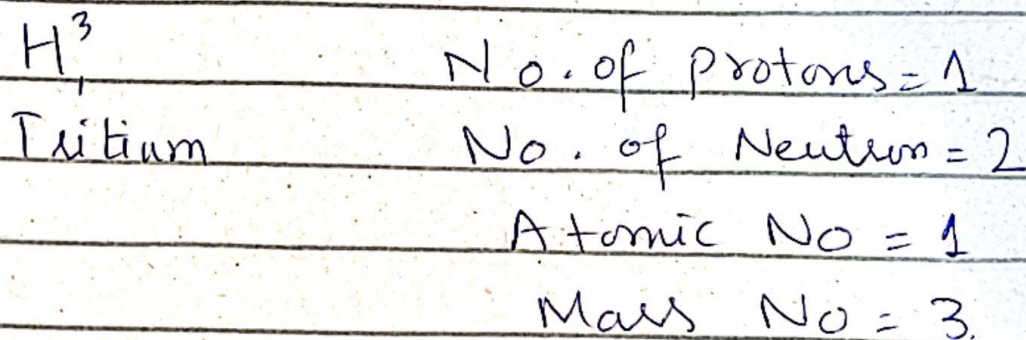
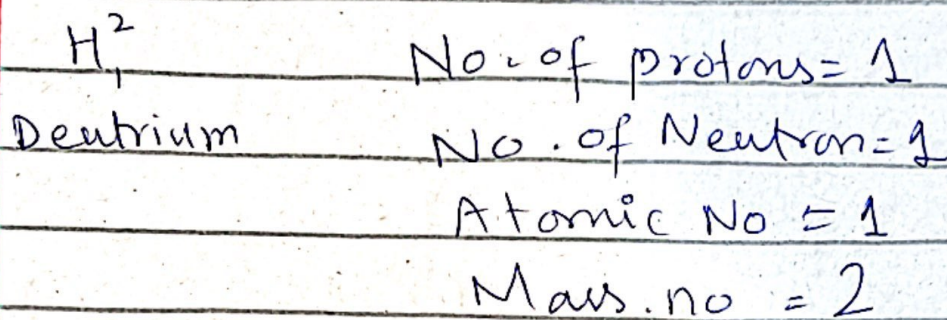
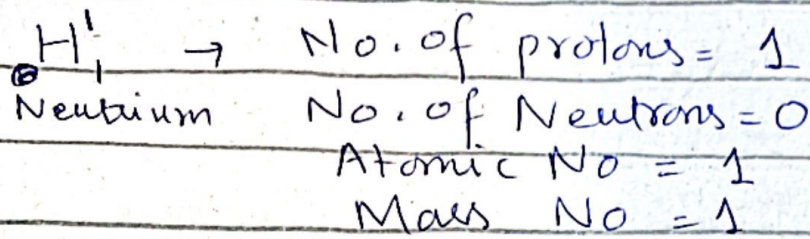
Example ${}_{1}^3\text{H}$, ${}_{2}^4\text{He}$

Both i.e. the isotope of hydrogen Tritium and Helium has two neutrons.

Isotopes of Hydrogen:

There are three different isotopes of hydrogen. All the three has same number of protons but different number

of neutrons.



Hence, proved that isotopes have equal number of protons but different neutrons.

~~y = 30~~

Present age of son = 30

suppose present age of father = y .

5 years ago

Present age

son's age = $30 - 5 = 25$

30

father's age = $y - 5$

y

$$y - 5 = 3(25)$$

$$y - 30$$

$$y - 5 = 75$$

$$y - 30$$

$$y - 5 - y + 30 = 75$$

$$y = 50 \text{ years}$$

Age of the father is 50 years

b) Mean

$$\frac{10 + 30 + Y + 50}{4} = 50$$

$$10 + 30 + Y + 50 = 50 \times 4$$

$$10 + 30 + Y + 50 = 200$$

$$Y = 200 - 50 - 30 - 10$$

$$Y = 110$$

c) Missing Numbers:

i) 2, 6, 18, 54, 162

$\xrightarrow{2 \times 3}$ $\xrightarrow{6 \times 3}$ $\xrightarrow{18 \times 3}$ $\xrightarrow{54 \times 3}$

ii) 3125, 256, 144, 4, 1

d) Given data:

product of two numbers = 320

Their ratio = 1:5

Solution

$$\text{Total parts} = 1 + 5 = 6$$

$$\text{one part} = \frac{320}{6} = 53$$

$$\text{first Number} = 1 \times 53 = 53$$

$$\text{2nd Number} = 5 \times 53 = 265$$

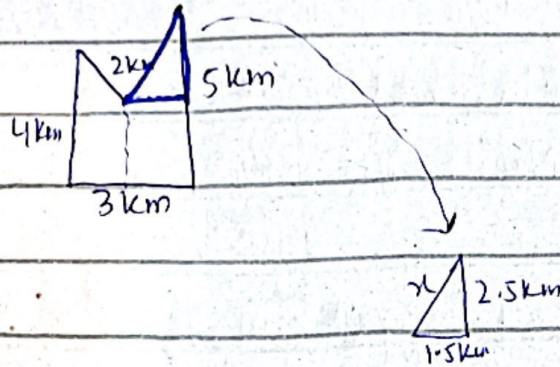
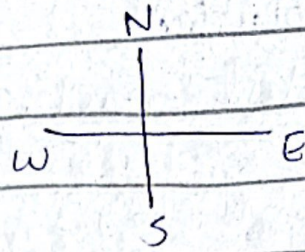
$$\text{Square of first number} = 53^2 = 2809$$

$$\text{Square of 2nd number} = 265^2 = 70,225$$

$$\begin{aligned} \text{Difference between the squares} \\ \text{of two numbers} &= 70,225 - 2809 \\ &= 67,416 \end{aligned}$$

QNO#8.

a)



Apply pythagoras theorem

$$H = \sqrt{P^2 + B^2}$$

$$= \sqrt{(2.5)^2 + (1.5)^2}$$

$$= \sqrt{6.25 + 2.25}$$

$$= \sqrt{8.5}$$

$$H = 3$$

So, the cow is 3 km from its starting point.

b)

Slices of Pizza = 8

Slices containing Raisin = 3

No. of ways raisin slices can be picked = 3

Total possible outcomes = 8

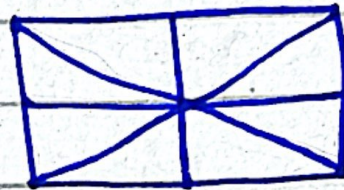
$$\text{Probability of Raisin slice} = \frac{3}{8}$$

$$= 0.375$$

The possibility of Raisin slice picked up by Shiza is 0.375.

c) No. of Triangles:

No. of Triangles in the given diagram are 8.



d) Factors affecting IQ.

IQ is the intelligence quotient of brain of any human being.

Factors affecting IQ are,

- i) ~~Stress~~ Genetic factors
- ii) Environment
- iii) Ethnicity
- iv) Stress

Genetic factors:

Genetics play very important role in defining the IQ of any person. It is determined by the chromosomes of parents.

Ethnicity and Race:

The place where a person born and his ethnicity play a great role in determining his IQ.

Environment:

Environment also contributes in sharpening the IQ.

Stress:

People living in stressful environment devoid of any kind of ~~st~~ critical thinking and exercise. Their IQ level is affected.