# Section II

Q2 Write a note on balanced diet.

Keep length equal for all answers
Paper presentation is fine
Enough length
Enough headings
Fine diagrams
Work in math portion

## Part a Balanced Diet:

"Balanced diet is a diet which contains right amount of nutrients for proper growth, development and normal functioning of the body"

## Components of a Balanced Diet.

### 1. Carbohydrates

Carbohydrates are the main source of energy to the body. These are necessary for mental performance and functioning of vital organs i-e brain, kidneys, heart etc.

Sources:

- Wheat
- Oats
- Sweet fruit

### 2. Proteins.

Proteins are also a source of energy esential for muscle building, tissue building, healing process.

Sources:

- Milk
- Eggs
- Meat

## 3. Fats

Necessary for the transport of fat soluble vitamins i-e Vitamin A, D, E, K. Fats are also essential for the insulation of vital organs of the body.

- Milk
- fish
- oil
- nuts

## 4. Minerals.

a. Calcium: vital for strengthening of bones and blood clotting. It is found in dates, spinach, avocado.

b. Zinc.

Essential for healthy nerves working, growth homones and maintenance of body. It is found in dairy products, grains.

c. Pottasium

Essential for muscles, for the regulation of food balance in the body.

It is found in oranges, pears, apple etc.

d. Iron

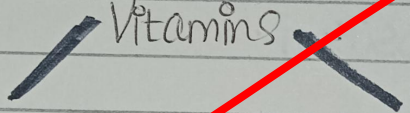
It is essential for blood and healthy

nerve functioning.
It is found in Spinach, Red meat, fish and eggs etc.

## 5. Vitamins.

Vitamins are organic compounds essential for normal growth, reproduction and working of the body.

Vita




Water Soluble
Vitamin B-complex.
Vitamin C.

Fat Soluble.
(A, D, E, K)

## Conclusion:

Balanced diet is a diet that contains the right amount of carbohydrates, proteins, fats, minerals and vitamins for healthy functioning of human body. The requirement of these nutrients may vary from person to person..

Part (B) (b)

# Solid Waste Management.

" Solid waste management is a supervised handling of waste from its generation points (collection) through the recovery process upto the disposal "

## Classification of Solid Waste on the basis of its Composition.

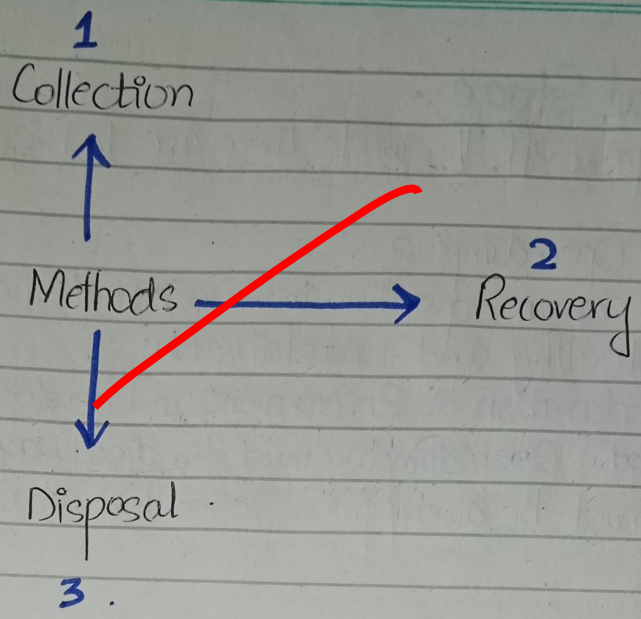
1. Biodegradable waste
It includes food waste, crops, organic waste etc.

2. Recyleable waste
It includes plastics, bottles, cans, metals etc.

3. Inert waste
It includes construction waste, debris, rocks etc

4. E-waste
It includes cellphones, laptops, computers etc.

## APPROACHES To Handle Solid Waste Management.




## Collection Stage.

Collection stage is the most expensive part of waste management system but in the presence of effective waste management system it can help reduce diseases and environmental damage.

Pre Requisities for collection stage are:

1. Collection staff
2. Proper workforce management
3. Collection vehicles.

## Recovery Stage.

Transfer stations are a prerequisite for recovery stage. It is a centralized facility which is preferrably present somewhere in the middle of the city. Within 3-4 hours the waste is to be recollected. It is not the peermanent destination.

## Disposal Stage.

To dispose off the waste there are techniques available like.

a. Open dumping.

Open deposition in surrounding cities. It is unsafe, unhealthy and unsustainable.

Rio Declaration on Environment and development Principle 1 holds that "Open dumping must be discouraged"

It must be away from residential areas, agricultural lands.

b. Composting.

Composting is controlled biological degradation of waste. As a result of composting "Compost" is formed.

c. Incineration

It is about burning of waste by using incinerators.

d. Landfill system

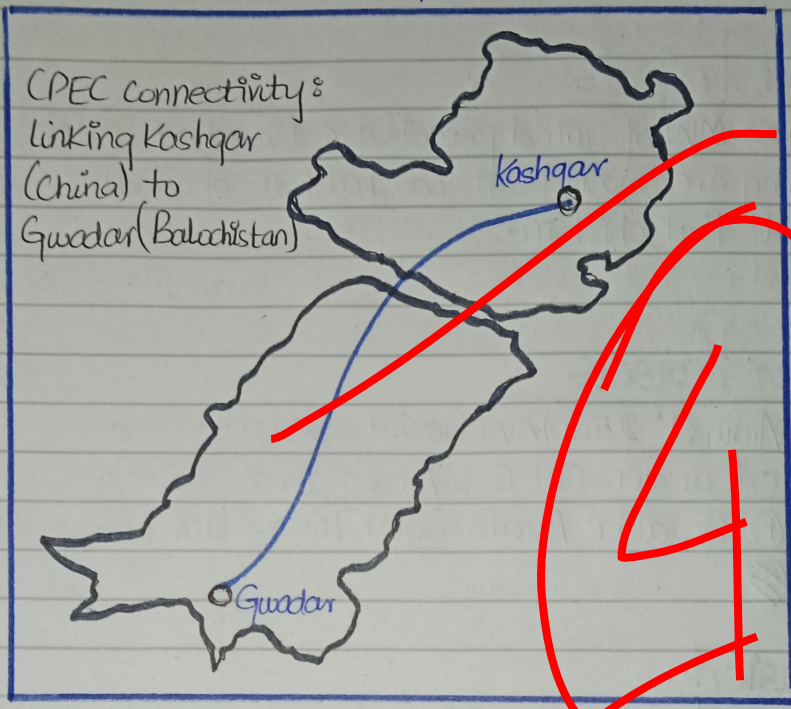
It is a method of burying of waste.

**Part d.**

## CPEC:

CPEC is a flagship project of Belt and Road initiative. It was launched in 2015 by President Xi Jinping during his visit to Islamabad. It is a $46 2B project composed of construction of roads,

railways, highways etc. Energy and transport infrastructure are major components of CPEC.

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## Renewable Energy Sources Under CPEC.

The three Renewable energy projects under CPEC are.

1. Hydro projects
2. Wind projects
3. Solar projects

## 1. Hydropower Projects

a. Sukki Kinari. It is 883MW.
b. Kasot. 1100 MW project. It is under construction.
c. Kohala. 730 MW project It is operational.

d. Pir Mehal.
e. Azad Patan.

## Wind Projects

3000MW of wind projects are launched under CPEC. They are mostly on coastal belt of Sindh and Balochistan.

## Solar Projects

Around 2500MW based solar projects, are launched under CPEC. Among these include.

① Quaide Azam Solar Power plant (Bahawalpur)

②.

## Conclusion

To Conclude, CPEC has a great potential for Pakistan to shift from fossil fuel to renewable sources. The launch of these solar, wind and hydel projects is a testament to this fact.

a. Discuss Key features of COP-28 held in UAE.

## COP-28

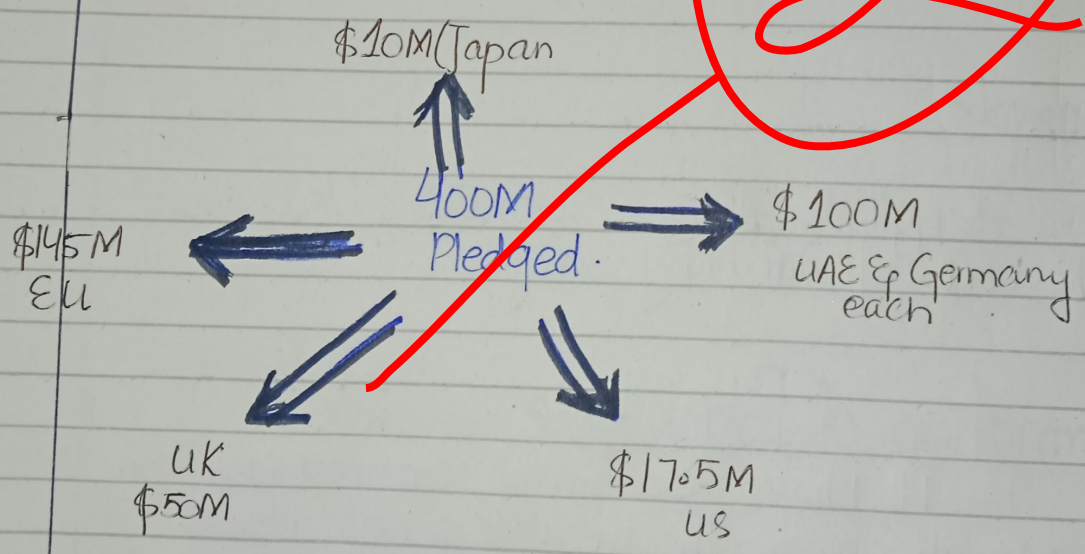
Recently the COP-28 took place in dubai, UAE with representatives of 197 countries presenting their initiatives to curb Global Warming and engaging in discussion on future climate actions.

Conference yielded a mix of results with some hailing it as a conclusion of fossil fuel era while others have apprehensions about deficiencies in adaptation efforts and troubling gaps in mitigation strategies.

## 1. Loss and Damage Fund :

COP-28 member countries reached an agreement to operationalise the loss and damage fund aimed at compensating countries grappling with climate change impacts

- World Bank will be the interim host of the fund for 4 years.
- All developing countries are eligible to apply and every country is invited to contribute voluntarily.



Q3

How black holes are formed.
(Part a)

# Black Holes

A black hole is a region in space where gravitational pull is so strong that nothing can escape from it. It is a cosmic body in the centre of almost every galaxy, including the milky way galaxy in our solar system.

## Example

Soggitarius A* is a supermassive blackhole in the centre of milky way galaxy.

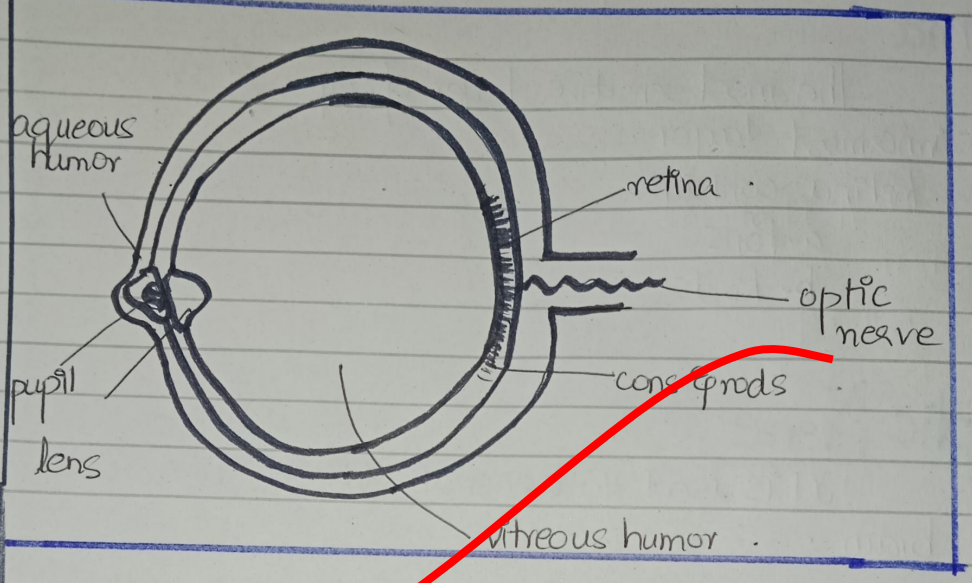
## Formation of Black Hole

Blackholes are one of the most fascinating and enigmatic objects. The heart of a black hole is singulasity. Surrounding the singulanty there is an event horizon, which masks the boundary beyond which nothing can escape the black hole's pull.

Black holes are formed when a massive star collapses. This is because of the stars own gravity after it has exhausted its nuclear fuel. The star can no longer hold its own weight and collapses - resultantly a black hole is formed.

## (Part b)

Discuss different parts of an eye.




Eye is a sensory organ which is mainly responsible to provide sensory information. It provides information in the form of visuals. It is an organ that helps us to see.

### Cornea

Outermost transparent layer which interacts with light first. It is for bending of light waves.

### Iris

Iris is a pigmented muscle which controls the movement of pupil. Pupil is small hole from where light enters eye.

### lens:

Reception of light waves. for the focusing

of lightwaves onto the retina.

## Retina

The most sensitive layer of eye. It is the innermost layer.

Retina contains

a. Pons

b. Rods

## Optic Nerve

It is used to transmit image towards the brain.

## Sclera

Sclera is the outermost layer at the backside of eye. It protects the internal content of eye.

## Choroid.

Present beneath sclera. Thick and reddish layer. Responsible for nourishment of eye.

## Aqueous Humor

Fluid filled part present on the frontal side of an eye. Involved in providing nutrients and gases.

## Part c

# Isotopes

Isotopes are elements that contain same number of protons but different number of neutrons.

There are two types of isotopes.

a. Stable isotopes

b. Radioactive isotopes.

Stable isotopes can exist in free state without breaking down instantaneously.

Isotopes of hydrogen $^{1}_{1}H$, $^{2}_{1}H$, $^{3}_{1}H$

(Protium) (deutrium) (tritium)

# Isobars

Isobars are elements that have same number of nucleons i.e the sum of protons and neutrons.

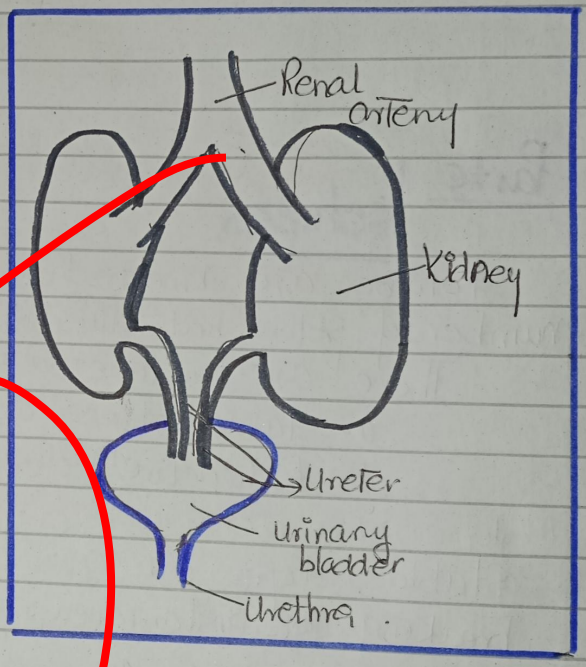
$^{40}_{16}S$, $^{40}_{17}Cl$, $^{40}_{18}Ar$

## Isotones

Isotones are atoms that have same neutron number but different proton number.

$$^{36}_{16}S \quad , \quad ^{38}_{17}Cl \quad , \quad ^{39}_{18}Ar$$

## Part d




## KIDNEY

Human body has a pair of kidneys. They are shaped like a pea and weigh about 180g.

## WORKING OF KIDNEY

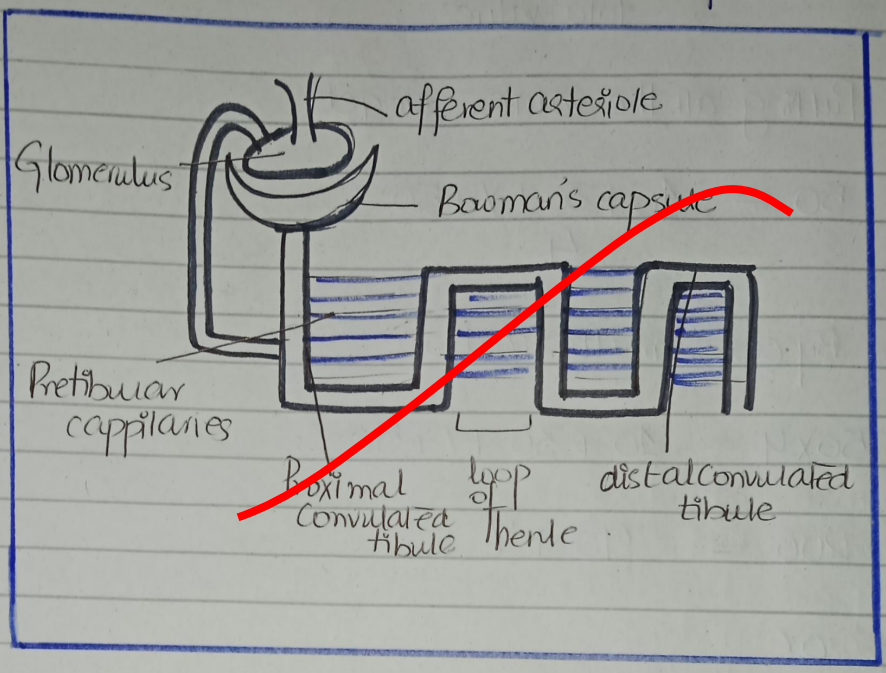
Kidneys are the most vital part of usinary tract. Renal astery carry the blood towards the kidneys, the blood gets filtered. Renal vein then carries this filtered blood away from the kidney.

Millions of nephrons are present in the kidney. They are the structural and functional unit.

When blood enters from Renal astery it has

to be redistributed for filteration

Afferent Arteriole carries blood to the nephrons.




Glomerulus: filtration of blood takes place. The glomerulus contains a cluster of capularies in it. The capularies are small enough to diffuse excessive waste, salts and other minerals.

Proximal and distal convulated tibule; loop of henle
The filtrate will move downward in proximal convulated tibule. The reabsorbtion of water salts and minerals take place in distal convulated tibule and loop of henle.
The filtered blood moves out of kidney.

# SECTION II

Q6 Mean of 10, 30, Y and 50 is 50. Find Y

(i)

$$\text{Mean} = \frac{\text{Sum of values}}{\text{total values}}$$

Putting all the values we get

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

By cross multiplication

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

$$200 = 90+Y$$

or

$$Y+90 = 200$$

$$Y = 200-90$$

$$\boxed{Y = 110}$$

(ii) Five years ago age of father was thrice the age of son. If son is 30yrs old now what is the current age of father

Present age of son = 30yrs.
let age of father = y.

__/__/202 Day:_____

let 5 years ago their ages are

Age of son = 30 − 5
= 25

Age of father = 3(25)
= 75

Present age of father
Age of father 5 years ago = 75
Present age of father = 75 + 5
= 80

(c) 1 + (3)

Find missing team

(i) 2, 6, 18, 54, 162

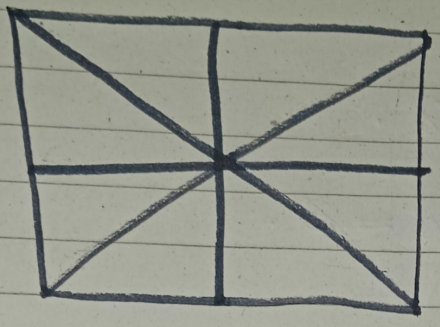
All of these numbers are obtained by multiplying each number by 3
i.e
2 × 3 = 6
6 × 3 = 18
18 × 3 = 54
hence the next team will be
54 × 3 = 162

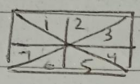
/ / 202 Day:

Q#8

a) Find the number of triangles.

i)






= 7

= 1

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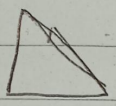

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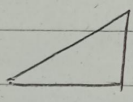

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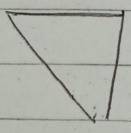

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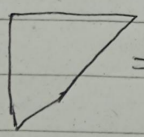

= 1

There are 15 triangles in this diagram.

(ii) A pizza slice is divide into 8 slices

total pizza slices = 8.

Pizza slices with raisins = 3.

Probability = $\frac{\text{No. of ways of occurence}}{\text{total possible outcome}}$

Probability = $\frac{3}{8}$

=