

Q no 2

Part A

Improve paper presentation

Use markers

Enough length

Enough headings

Fine diagrams

Work on math portion

Introduction

COP-28 the annual summit UN climate summit held in Dubai UAE from 30-November to 12 December 2023. Here are 6 key features of COP 28 in the context of loss and damage and other financial issues.

a COP-28 agreed on the operationalization of a fund for responding to loss and damage caused by climate change in developing countries. The fund was expected to provide grants, not loans, to help countries cope with the costs of adaptation and recovery.

b COP 28 focused on climate finance, which refers to the money directly to developing countries to help them reduce their emissions and adapt to climate change. The Summit aimed at mobilize more public and private sources of finances, as well as to ensure that the finance is accessible, transparent and aligned with the goals of COP-21.

c COP 28 hosted the first global stocktake which assessed how nearly 200 countries are progressing on climate action. The findings will feed into new targets on the climate crisis. The Global Stocktake covered the full scope of climate issues sending critical signals for energy transportation, nature, and providing directions for the future climate crisis.

d COP-28 recognized the importance of engaging non-party stakeholders, such as business cities investors and civil society in the global climate action agenda.

e COP-28 also addressed "other" issues related to people, lives and livelihood such as adaptation, food, food forest, health, education, gender and youth. The summit launched several initiatives and commitments to enhance resilience, protect nature, create more sustainable food systems and empower vulnerable groups.

Part B.

Solid Waste Management

1 Definition

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

2 Process of handling Solid Waste

It is a 4 steps process

a Approaches to handle waste.

Approaches are classified into 3 steps

i Collection of waste

Collection is the mostly costly part of solid waste management. Collection of

solid waste is responsibility of government authorities.

ii Effective Collection System.

Collection method should be effective which means, government must have the collection staff availability, permanent hirings and staff having proper training and facilities

iii Collection Vehicles

Collection staff should have required vehicles based on requirements.

b Recovery Process

Recovery process has two steps

a Transfer Station

Transfer station is the centralized facility, it should be in the center of the city. If the city is too large, there should be multiple transfer stations. From transfer station, waste gets segregated.

b Segregation of Waste

Waste gets segregated into 3 main categories.

- i Recyclable waste
- ii Disposable waste
- iii Energy harvesting material

c Disposal Stage

Disposal waste goes toward third processing stage called disposition. Heavy compact machines compress the solid waste before disposing off.

Methods of Waste Disposition

1 Open Dumping

Open dumping is a disposition of solid waste in the outskirts of the city. This technique is unsafe

because it will effect our environment's and cause land and air pollution.

2

Composting

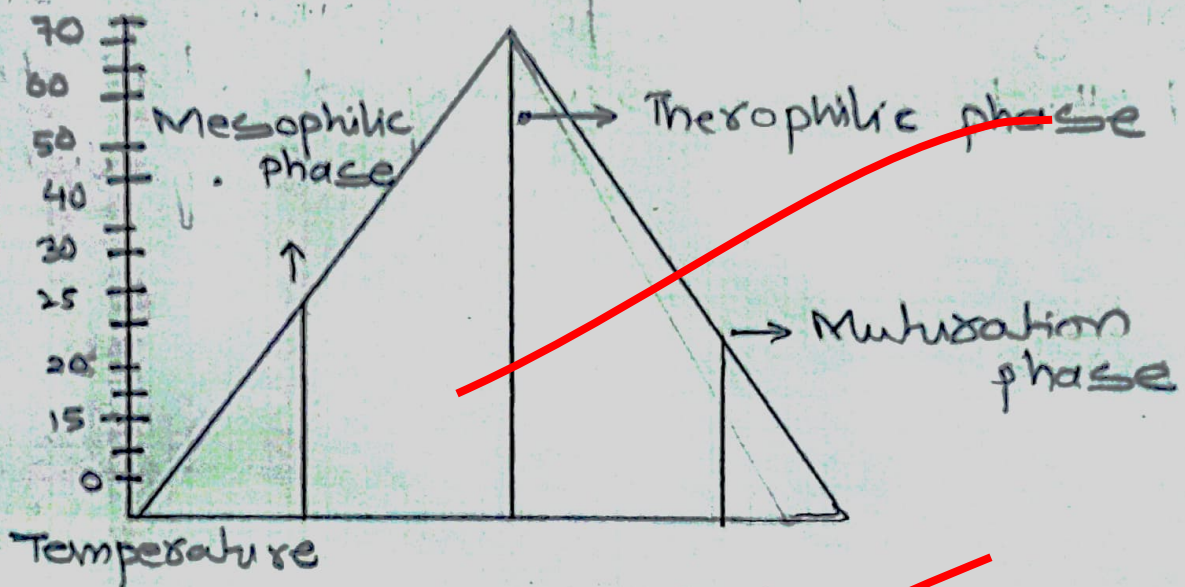
It is biologically controlled process of decomposition of the organic waste by biological agents.

The phases of Compositing

a- Mesophilic Phase

b- Therophilic Phase

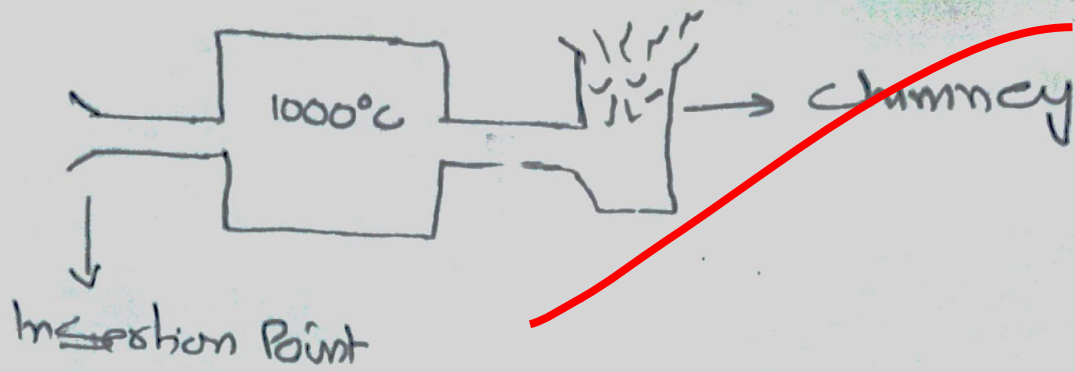
c- Mutilisation Phase.



3

Incineration

It is the method of solid waste, this method involves the combustion of waste at high temperature in a controlled facility.



Part C

Balanced Diet.

Balanced diet is the diet which contains the right quantities of essential nutrients in it.

Essential Nutrients of Balanced Diet:

1. Carbohydrates

It is the major source of energy to body. Carbohydrates are essential source for proper working of brain, heart and kidneys.

a. Major Sources of Carbohydrates

wheat, Oats, Barleys, Pulses, Milk Dairy products, Fruits, Potatoes.

b. Deficiency of Carbohydrates

Deficiency of carbohydrates causes poor mental performances, weakness and fatigue.

c. Excess of Carbohydrates

Excess of this nutrient will lead to weight gain, Obesity and diabetics.

2 Proteins

Proteins are necessary in our body for muscle growth, repairing of muscles and healings of muscles. This is also essential for tissue building and immunity improving.

a Sources of Proteins

Proteins are found in meat, mutton, fish, chicken and eggs.

b Deficiency of Protein

Deficiency of proteins in human body can cause muscular weakness and break down of muscles.

c Excess of Proteins

Excess of proteins can cause heart related problems and kidney issues particularly formation of kidney stones.

3 Fats

Fats are essential for human body because they are involved in providing energy inside body. Fats are also required to solute the fat soluble vitamins (A, D, E, K).

a Sources of Fats

Fats are available in all edible oils, meat and mutton along with

milk and almonds.

b Deficiency of Fats/Lipids

Fats and Lipids are essential for fat soluble vitamins. Fat soluble vitamins will not function in absence of fats will cause organ failures.

Excess of Fats/Lipids

Excess of fats/lipids

Excess of fats and lipids will cause high blood pressure, heart related diseases, specifically heart attacks.

Part D

Renewable Sources of Energy

Definition:

A renewable source of energy is a source of energy that can be replenished at a higher rate than is consumed. Renewable sources of energy include sunlight, wind, water, geothermal heat and biomass.

Projects of Renewable Sources of Energy under C.P.E.C

a Quaid Azam Solar Park
Quaid Azam Solar Park in Bahawalpur, which has installed capacity of 1000 MW and it is largest solar

Power plant in Pakistan.

9

b ~~Hydro China Dawood Wind Farm~~
Hydro China Dawood Wind Farm is in Thatta, which has an installed capacity of 50 MW and it is the first wind power project under CPEC.

c ~~Karot Hydropower Project~~
Karot Hydropower Project is in Azad Jammu and Kashmir which has an installed capacity of 720 MW and it is the first hydropower project under CPEC.

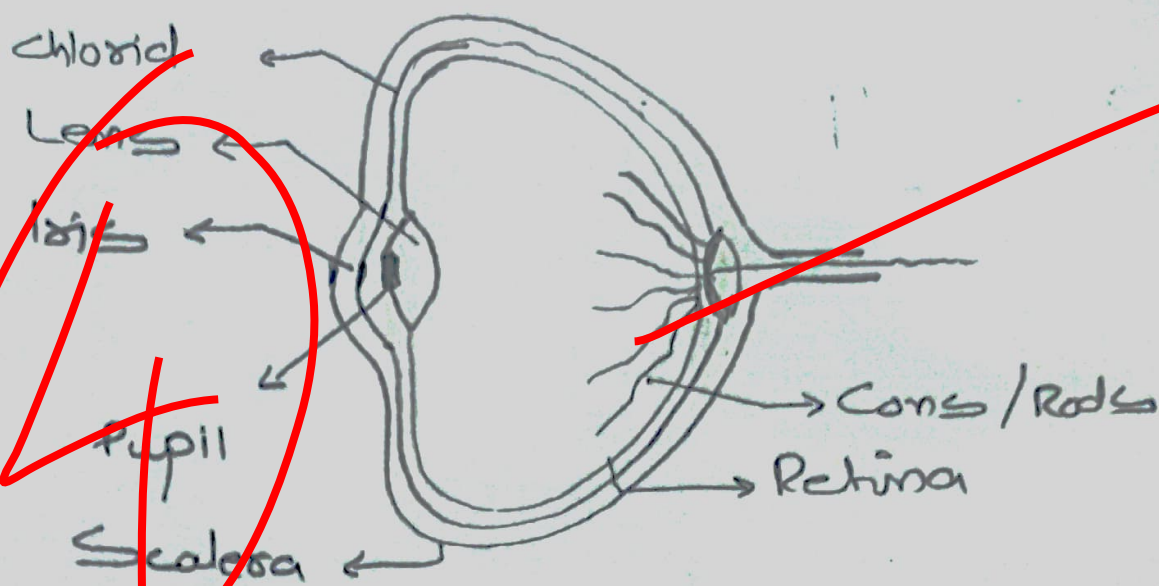
d ~~Kohala Hydropower Project~~
Kohala Hydropower project is in Azad Jammu and Kashmir, which has an installed capacity of 1124 MW and is the largest hydropower project under CPEC.

Q no 3
Part A

Human Eye

Definition:

Human eye is a sensory organ, provision of sensory information in the shape of images and visuals.



3 layers of Human Eye

Human Eye has 3 layers

a Sclera

It is the outermost layer of the human eye. Primary function of Sclera is protection of eye.

b Choroid

Choroid has blood capillaries, those contain nutrients. Those nutrients are responsible to nourish eye by providing minerals.

c Retina

It is the most sensitive part of eye. Light passes towards retina through lens. Image creates in Retina

Other organs of Eye

a Pupil

It is a black hole of eye. Light enters towards lens through pupil.

b Iris

Iris is a pigmented muscle. It is responsible to control the muscle's movement of pupil. Pupil expands and shrinks through iris.

c Lens

Lens is responsible to focus the light towards retina.

d Cones and Rods

Rods help humans to see in partial light.

Cones help humans to differentiate between colors.

How shortsightedness can be corrected
Short sightedness (myopia) can be corrected with eye glasses, or contact lenses, that have concave lenses. Refractive surgery

is also an option. In this surgery shape of the cornea is adjusted to improve vision.

How far-sightedness can be corrected?

Far-sightedness or hyperopia, can be corrected with eye glasses or contact lenses that have convex lenses.

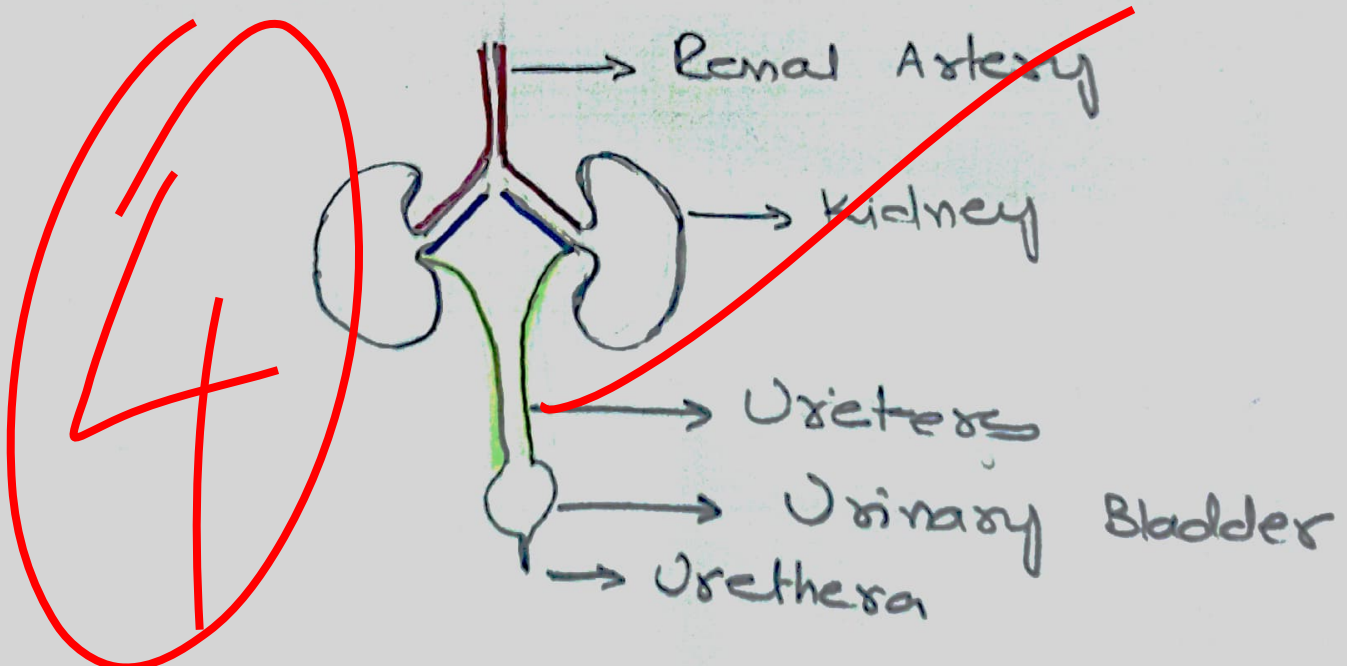
Refractive surgery is also an option, in this surgery the shape of cornea is adjusted.

Part B

Excretory System (Kidney Function)

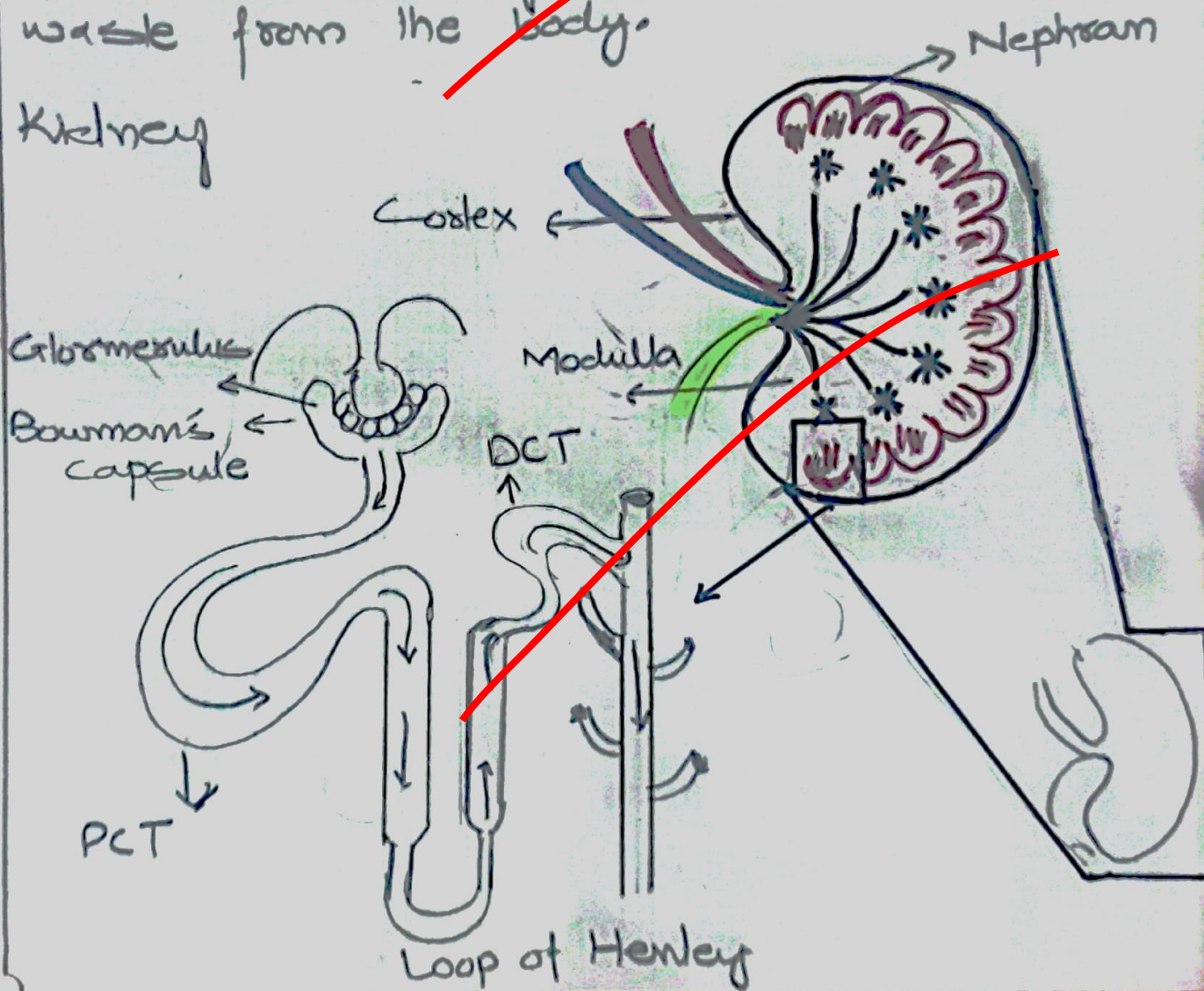
Definition:

It is a system which is responsible for the separation and removal of nitrogenous waste from the body.



Components of Urinary Tract

- 1 Renal Artery
Renal Artery is responsible to transfer blood towards kidney.
- 2 Ureters
Ureters are responsible to carry urine to bladder.
- 3 Urinary bladder
In urinary bladder, nitrogenous waste stay there temporarily.
- 4 Urethra
It is a way out of nitrogenous waste from the body.
- 5 Kidney



Kidney is the main organ to filter the blood. 14

Nephrons

Nephrons are the main organs of kidney, responsible for filtering the blood. Each kidney holds almost 1 million nephrons to filter the blood.

Nephrons contain

1 Glomerulus

Filteration of blood takes place in glomerulus.

2 Bowman's Capsule

Bowman's capsule is responsible to support/hold the glomerulus.

3 Proximal Convolved Tubule (PCT)

PCT is responsible for reabsorption of water and salts

4 Distant Convolved Tubule (DCT)

DCT is responsible for reabsorption of Potassium, magnesium, calcium, etc

Part C

Black Hole and its Formation

Definition:

Black Hole is a place in universe with immense amount of gravitational pull that even light cannot escape from it.

Formation of Black Hole

15

Black hole forms into three steps

1 Star Collapse:

A black hole forms when a massive star runs out of fuel and its core collapses under the force of gravity.

2 Singularity Creation:

During the collapse, the star's mass becomes concentrated in an infinitely small point called singularity where gravity becomes incredibly strong.

3 Event Horizon Formation:

The boundary around the singularity is the event horizon. Anything crosses this boundary including light is pulled into the black hole, making it invisible and creating the intense gravitational effects associated with black holes.

Part D

Isobars, Isotopes, Isotones

Definition of Isobars:

Isobars are atoms of different elements that have same mass number but different atomic number.

2 Definition of Isotopes:

Isotopes are atoms of the same element that have same number of protons but different numbers of neutrons.

3 Definition of Isotones:

Isotones are atoms of different elements that have the same number of neutrons but different atomic numbers.

Examples of isotopes of hydrogen

1 Protium:

Protium is the most common isotope of hydrogen, with one proton and no neutron.

2 Deuterium

It is the stable isotope of hydrogen, with one proton and one neutron.

3 Tritium.

It is a radioactive isotope of hydrogen with one proton and two neutrons.

Section II

Q no 6

Part A

Father = x } Solution
Son = y } current age

$$5 \text{ years ago} = x - 5 = 3(y - 5)$$

$$y = 30$$

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

x

put value of y in equation

$$x - 5 = 3(30 - 5)$$

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

$$x - 5 = 75$$

$$x = 75 + 5$$

$$\boxed{x = 80}$$

Current Age of Father = 80

Part B

Solution

$$10, 30, Y, 50 = 50$$

Value of $Y = ?$

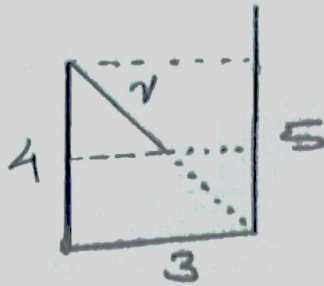
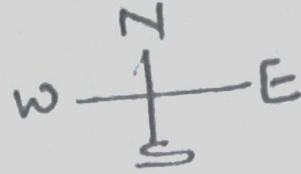
$$\frac{10 + 30 + Y + 50}{4} = 50$$

$$90 + Y = 200$$

$$Y = 200 - 90$$

$$\boxed{Y = 110}$$

Q no 8
Part A



Pathagorean theorem

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

$$P = \sqrt{(3)^2 + (4)^2}$$

$$P = \sqrt{9 + 16}$$

$$P = \sqrt{24}$$

$$P = \sqrt{24}$$

$$P = 4.8$$

Part B

Total pizza = 8

Raisin = 3

Probability = $\frac{\text{Ways of occurrences}}{\text{Total Outcomes}}$

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

$$P = 0.375$$

