

## ANSWER # 02

(a)

The conference of Parties-28 (COP-28) was held in the United Arab Emirate (UAE) under the leadership of Dr Sultan Al Jaber. The conference remain successful as many new projects, assistance programmes and commitments were announced. The conference also materialize plans which were envisioned in COP-27.

### KEY FEATURES OF COP-28

#### I. Provisions regarding the Loss and Damage Fund:

A new independent secretariat and governing board is established under the World Bank. The World Bank is designated as interim trustee for four years. Various countries announced to contribute to the fund.

## II. Climate Financing:

To further facilitate climate change financing UAE announced \$30 billion climate fund called **ALTEERRA** to invest in climate friendly environment.

## III. New Commitments to the Existing

### Funds:

National governments and organizations announced commitments to climate finance including Green Climate Fund, Adaptation Fund, least developed countries Fund and special climate change fund.

## IV. Joint Declaration and Task Force on Credit Enhancement and Sustainability Linked Sovereign Financing:

The Declaration and its subsequent formation of Task Force aims to respond to the needs of developing countries by providing long term fiscal solutions and short-term debts.



## CONCLUSION :

COP-28 remain successful, as it not only ~~can~~ make the loss and Damage Fund functional. but also established new funds and committees.

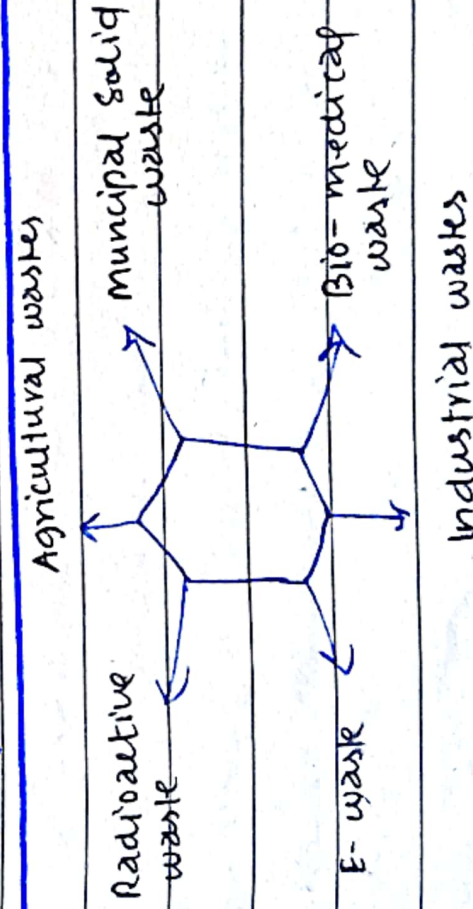
(b)

## (i) INTRODUCTION TO SOLID WASTE

### MANAGEMENT :

Solid waste Management (WSM) refers to the systematic management of the generation, collection and transfer, treatment, recycling and disposal of solid waste.

## ii. CATEGORIZATION OF SOLID WASTE



### (iii) METHOD OF SOLID WASTE

#### MANAGEMENT:

##### a. waste Generation:

waste generation means

that the materials that are no longer of any use are thrown away and are gathered.

##### b. Collection of waste:

This includes the gathering and transport of wastes materials through vehicles or other means to any particular location.

##### c. Source Reduction and Reuse:

Source reduction also means waste prevention. This means reducing waste at the source i.e. reducing packing, redesigning products etc. Reuse means to enable product to be use again by passing it through a particular process

##### d. Recycling and Compositing



Recycling is a series of activities that includes collecting used, reused or unused items that would otherwise be considered as waste, sorting, and processing the recyclable products into raw materials. After reducing them into raw materials, they are remanufactured and are converted into new products.

#### e. Energy Recovery:

Products or wastes that are unable to be reused or recycled or used to produce energy through the process of combustion, gasification, pyrolyzation etc.

#### f. Treatment and Disposal:

Prior to disposal, treatment can help reduce the volume and toxic of waste. After the treatment the wastes are disposed in landfills which are special structured designed for the purpose.

#### (iv) CONCLUSION:

Solid waste management is an efficient and effective procedure to treat waste products at various levels, there reduction and disposition.

#### (c)

#### (i) INTRODUCTION TO BALANCE DIET

A balance diet is a diet which includes the right amount of all the required nutrients which the body needs for proper development and normal functioning of the body.

#### (ii) THE REQUIREMENT OF BALANCE DIET:

A balance diet is required for the proper development and functions of the body. A balance diet has a direct relation to health. Body of a living organism have different needs at different stages of life. Similarly, different sexes have also different



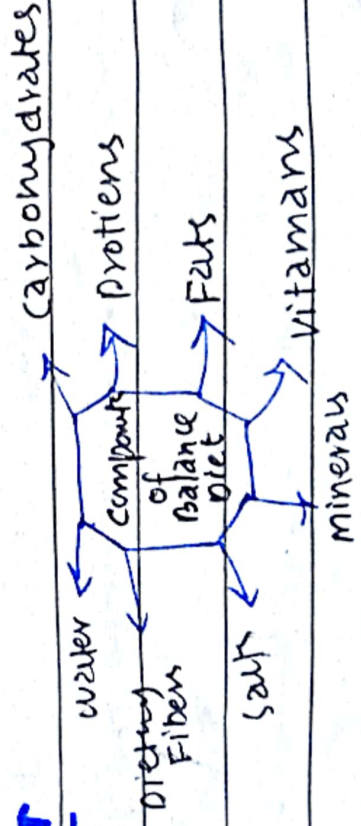
requirements of nutrients. In the same manner, the routine activities of living organisms also influence their body's nutrients requirements...

(III) AMOUNT OF ENERGY REQUIRED BY PEOPLE OF DIFFERENT AGE BRACKET

Person	Required Kilo calories
children at the age 1-3	1200
children age in 4-6	1600
children age in 7-9	2000
children age in 10-12	2500
Adult women	2090
Adult man	3400

(IV) COMPONENTS OF A BALANCE

DIET



## (v) CONCLUSION

A balance diet is, thus, a diet which could suffice the requirements of body in terms of growth, proper function and maintained health.

(D)

## (i) INTRODUCTION TO CPEC:

CPEC stands for China-Pakistan Economic Corridor. This is one of the flagship programs under the Umbrella of Belt and Road Initiative of China which aims to build infrastructure and make regional connectivity in the region.

## (ii) UNDERSTANDING THE CONCEPT OF RENEWABLE ENERGY

Renewable energy is generally defined as energy that is collected from resources which are naturally replenished, on a human timescale such as sunlight, wind, tides and geothermal heat.



## V) RENEWABLE ENERGY PROJECTS

### UNDER CPEC :

#### a. Solar Energy Projects:

Under CPEC various projects of solar energy are to be completed. The major among these is Quid-e-Azam Solar Park. Bahawalpur which produce 1000 megawatt energy.

#### b. Wind Power Projects:

Under the flagship project of CPEC some wind power projects have already been completed, and some are under constructions.

Completed projects: Hydro China Dawood wind farm, Thatta; wind farm Jamshur Thatta, Sachal wind farm etc.

Under construction projects: Cacho wind power project, western Energy (pvt) wind power project.

#### c. Hydro - Power Projects:

To tap the hydro - power generation

capacity of Pakistan, various hydro-powers have been built under CPEC.

Reference Karot Hydropower Project, Sulai Kinari Power Project, Azad Dattam Hydropower Project etc.

### (V) CONCLUSION:

CPEC is a major project which aims to make Pakistan not only self sufficient in its energy requirement but also to facilitate the transformation of Pakistan towards green energy.

### ANSWER # 03:

(a)

### I. INTRODUCTION:

Human eye is one of the vital organ of human body. Eye works under a complex mechanism to enable human to visualise the world around him. However, due to various reasons, the eye may not function properly due



to two major defects i.e. far-sightedness and long-sightedness.

## (ii) DIFFERENT PARTS OF HUMAN

EYE:

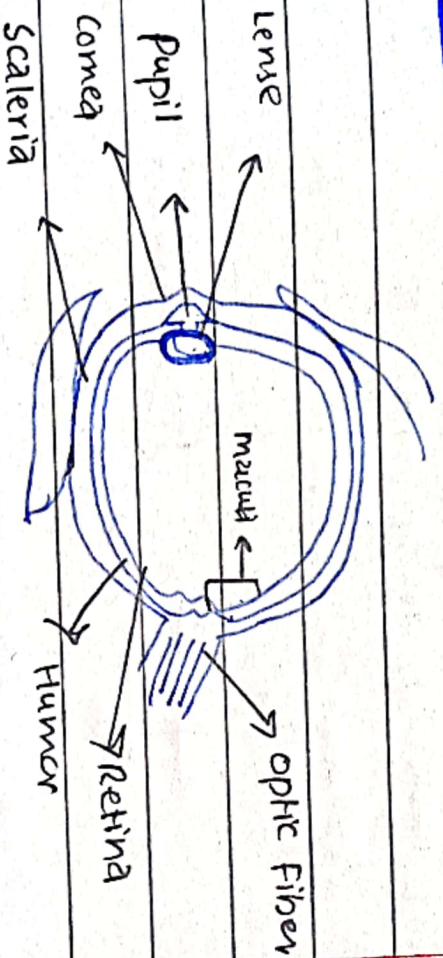


Figure: Structure and Parts of Eye

## III. How to correct SHORT SIGHTEDNESS

Short-sightedness occurs because of high converging power of the eye lens. In this way, an image is formed before the retina. In order to correct this defect, a concave lens is used so that an image can be formed on the retina.



Fig: correction of shortsightedness

## (IV) CORRECTION OF ~~HEAR~~ LONG-SIGHTEDNESS:

### -DNESS:

In long-sightedness, the image is formed beyond retina. This gives birth to issues which create difficulty in focusing on near objects. In order to correct this convex lens is used to correct the defect.

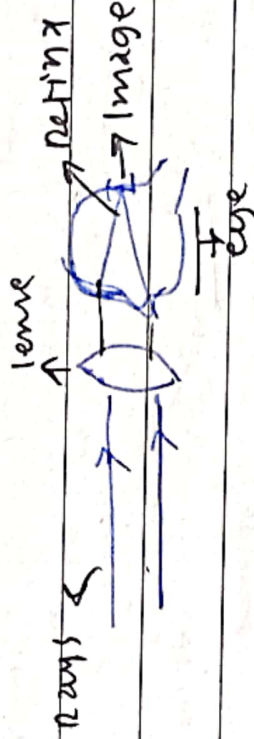


Figure: Correction of Long sightness

### (V) CONCLUSION:

Human eye is one of the vital organs of human body. Eye has different parts which perform various complex functions. The two major defects of eyes i.e. far-sightedness and short-sightedness can be corrected through convex and concave lenses respectively.



## I. INTRODUCTION TO HUMAN

### KIDNEY:

Kidney is the filtering organ of in humans and animals. There are two kidneys in human body which are dark red in color and have structure like beans.

## II. STRUCTURE OF HUMAN KIDNEY:

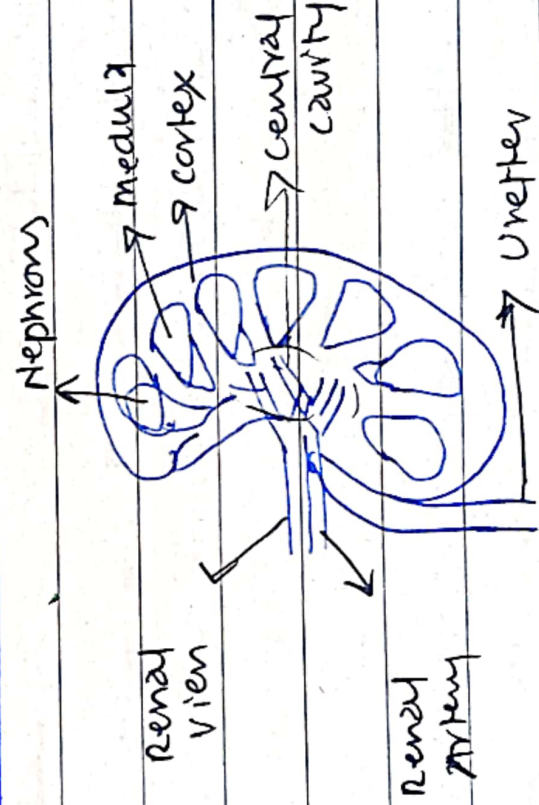
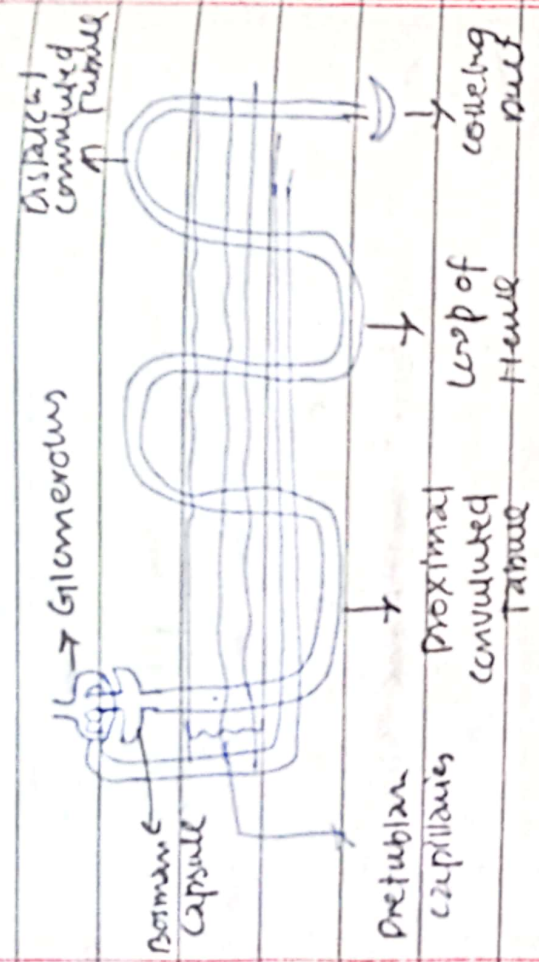


Fig: Structure of Kidney

## III. FUNCTION OF KIDNEY:

Kidney carries out its function through its basic units called nephrons. The nephron is the basic structural and

functional unit of human kidney.



Functions of various parts:

Distal convoluted tubule	control of pH level
Proximal convoluted tubule	salt absorption
Peritubular capillaries	salt minerals
Loop of Henle	water and salt

After passing of the fluid through nephron, the fluid continues its way to the collecting duct where it then goes to the ureter followed by bladder.

(V) CONCLUSION:

Kidney is the filtering organ of body which functions through its



basic structural and functional units called nephrons. After filtration urine goes out of kidney through ureter and finally into the bladder after absorbing the necessary nutrient by neuron.

(6)

## I. INTRODUCTION TO BLACK HOLE:

A black hole is defined as an object that is so dense that even light cannot escape its surface. A black hole is an area of space time where gravity is so powerful that nothing can leave it including particles and electromagnetic waves.

## II. NATURE OF BLACK HOLE:

It is an enormous amount of matter packed into a minimal area. A black hole is ten times more than the sun packed into a sphere approximately to the size of New York City. This results in a gravitational field so strong that

even light escape it. Because no light can pass if they are invisible

## FORMATION OF BLACK HOLE:

According to Astronomists, depending upon the mass of star, formation of black hole comes from super nova.

The ~~pre-solar~~ depending upon the star's mass, only one of the three things can happen once it runs out of fuel.

(a) A star with a mass less than that of the sun falls into a 'white dwarf' with a radius barely few kilometers

(b) If the mass of the star is between one and four times of that of sun, it can form a "neutron star" with a radius of only a few kilometers.

(c) If the star has a mass greater than four times that of the sun, it can avoid collapsing and form black hole.



## CONCLUSION

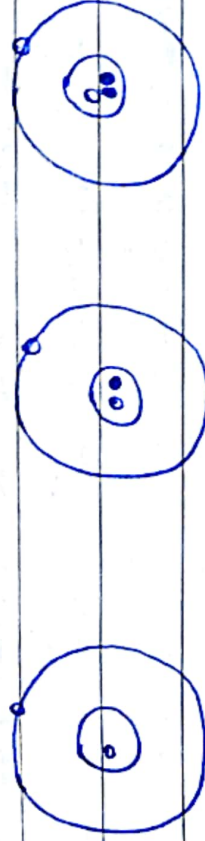
Black hole is a huge amount of matter in the space which has a strong gravitational force and do not allow anything to penetrate it. Black hole is formed when a star lose its energy source and the gravitational force override it.

(d)

## INTRODUCTION TO ISOTOPES:

Isotopes can be defined as variants of a particular element where these variants have the same number of protons but differ in the number of neutron in the atom.

Example: Hydrogen has the following three isotopes.



NO neutron

1 neutron

2 Neutron

(Protium)

(deuterium)

(Tritium)

other elements too have isotopes

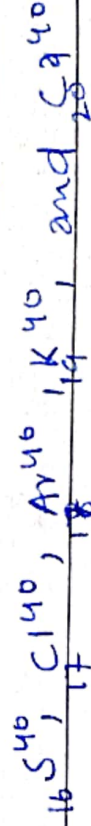
such as that of carbon are:  $C_{12}$ ,  $C_{13}$  and  $C_{14}$

### (ii) WHAT ARE ISOBARS:

Isobars are elements who have same number of nucleons (i.e. sum of proton and neutron). Although, the sum of total protons in the nucleus are the same but the number of neutron and protons are different.

Example:

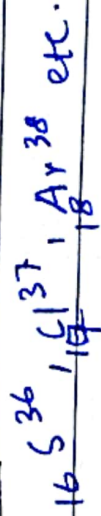
The series of elements with 40 number serve as a good example.



### (iii) WHAT ARE ISOTONES:

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

Example:





PART - III

**ANSWER #06**

**(b)**

Given Data:

The mean of 10, 30,  $y$  and 50 is 50

Required: what is the value of  $y$

Formula:  $\text{Mean} = \frac{\text{Sum of all observations}}{\text{Total observations}}$

Solution:

On the question we have given that the means of all the four numbers is 50.

So, Sum of all observations =  $750 \times 4 = 400$

$$\text{Hence} = 10 + 30 + y + 50 = 200$$

$$\Rightarrow 90 + y = 200$$

$$\Rightarrow y = 200 - 90$$

$$\Rightarrow y = 110$$

Hence, the value of  $y$  is 110

(c)

(i) 3, 6, 18, 54,  $\frac{162}{-}$

(ii) 325, 256  $\frac{27}{-}$ , 4, 1