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Add headings

Part II

Section 1

QNO 4

(a)  
What are the methods employed in solid waste management?

Solid waste Management

The term solid waste management is mainly refers to the complete process of collecting, treating and disposing of solid wastes.

In the waste management process, the waste is collected from different sources and disposed off. This process includes collection, transportation, treatment and disposal of waste.

Methods employed in Solid waste Management

Solid waste disposal and management involve different methods to handle and dispose of waste material generated by

human activities. Some common methods of waste management are as follows

### Landfilling:

In this method, the waste is deposited and compacted in the land. The waste is covered by soil to prevent the spread of diseases, reduce odour and minimize environmental contamination. Landfills should meet the regulatory requirements to prevent pollution of soil, groundwater and air.

### Incineration

Incineration or combustion of solid waste involve the burning of solid waste at high temperature to reduce the volume of waste and generate energy through combustion. There should be proper air pollution control measures/system to minimize harmful emission into the air.



## Composting

Biological decomposition of organic waste. This method is environment friendly and result in valuable soil amendments that can be used as in agriculture. Composting diverts organic waste from the waste stream.

## Recycling

Recycling involve separating, processing and reusing the solid waste material. Paper, plastics and some types of glass materials can be recycled and reused. This process helps to reduce green house gases emission.

## Resource reduction

This is the reduction of waste generation at source. Plastics, glass materials should be recycled and reused.

## Biogas generation

Biogas generation is an environment friendly method

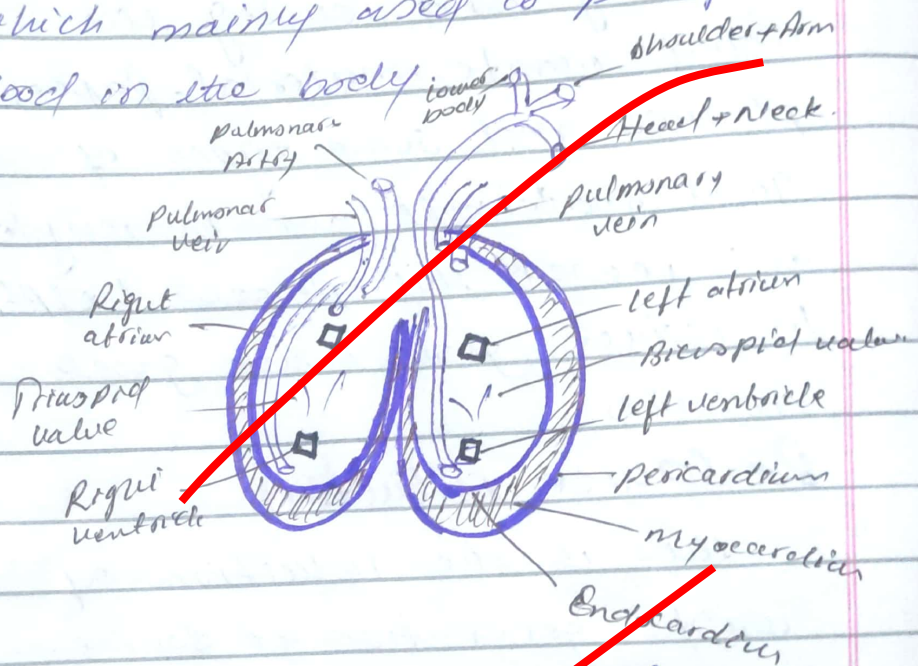
This method involves the decomposition of organic waste in an aerobic environment to produce methane rich biogas and nutrient rich digestate.

(b)

## How does a human heart work in Blood circulation

### HEART

Heart is a strong muscle which mainly used to pump blood in the body



Heart is composed of several muscle called cardiac muscle. composed of 4-chambers.

Basically heart is composed of 3-layers, pericardium, myocardium and Endo-cardium. From different



parts of body, different veins  
arise which carries deoxygenated  
blood. Vena cava is larger vein  
which collects deoxygenated  
blood and transport towards  
right atrium. Right atrium used  
to contract and blood moves to  
bicuspid valve. then blood entered  
into right ventricle. After  
contraction of right ventricle  
it enters into pulmonary artery  
through which it entered into  
lungs. After oxygenation of  
blood in lungs blood come out  
through pulmonary vein.

(C)

what is myopia and  
hyperopia? Enlist major parts  
of human eye.

Hyperopia

is a condition in which  
an image becomes focused behind  
retina, making the objects out  
of focus.

it is basically farsightedness, makes  
it difficult to see the things that

## Myopia

Myopia or nearsightedness is due to elongated eyeball. The refraction of light from a distant object falls in front of the retina resulting in a blurry image. People with myopia can see nearby things and have difficulty seeing at a distance.

## Major parts of human Eye.

i) Sclera: It is outer covering, protective tough white layer (white part of eye)

### ii) Cornea

Front transparent part of sclera

### iii) Iris

A dark muscular tissue and ring like structure behind the cornea is called iris.

(d)

write uses of the following

### i) Microwave

- i) (roasting) cooking
- ii) Reheating
- iii) Baking
- iv) Boiling and steaming



## Ultraviolet

- i) Fluorescent effect
- ii) Inactivating microorganisms
- iii) curing inks
- iv) phototherapy

## X-Rays

- i) Detect bone fractures (X-Rays) certain tumours, and other abnormal masses.
- ii) It also required for arthritis, infections, osteoporosis and even tooth decay.

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## QNOs

(a)

What are the different methods of food preservation?

Food preservation

Food preservation is a process of treating and handling of food to stop or slow down spoilage caused by microorganisms.

## Natural food preservatives

Salt, sugar, alcohol, vinegar, citric acid, and ascorbic acid.

## Chemical food preservatives

Benzoates, nitrites, sulphites, sorbates.

## Modern preservative methods

### i) Canning

Canning is a process to preserve food by heating food and sealing in a container.

### ii) (Freezing) Dehydration

This method is used to preserve food by dehydrating it through sun dry, oven dry or by dehydrators.

### iii) Freezing

This method involves to preserve food at a temperature where bacteria can not grow.



(b)

What is Milkyway? How dark matter is related to galaxies? Give different parts of galaxy Milkyway.

Milkyway is the galaxy that includes the solar system. It has no particular shape and full of dust and gases, star etc. a large collection of dust, gases and stars. It contains 100-400 billion stars.

Dark matter related to galaxies.

Dark matter which does not emit or interact with light like other matters, is thought to make up a significant portion of Milkyway and other galaxies. Dark matter is present every where in the universe. It is responsible for holding other galaxies. Scientist observed all other stars <sup>rotating</sup> revolving with same speed like galaxies, so these ~~is~~ this mean that there is

Some matter holding these stars together. As that matter is unknown, they named it as dark matter.

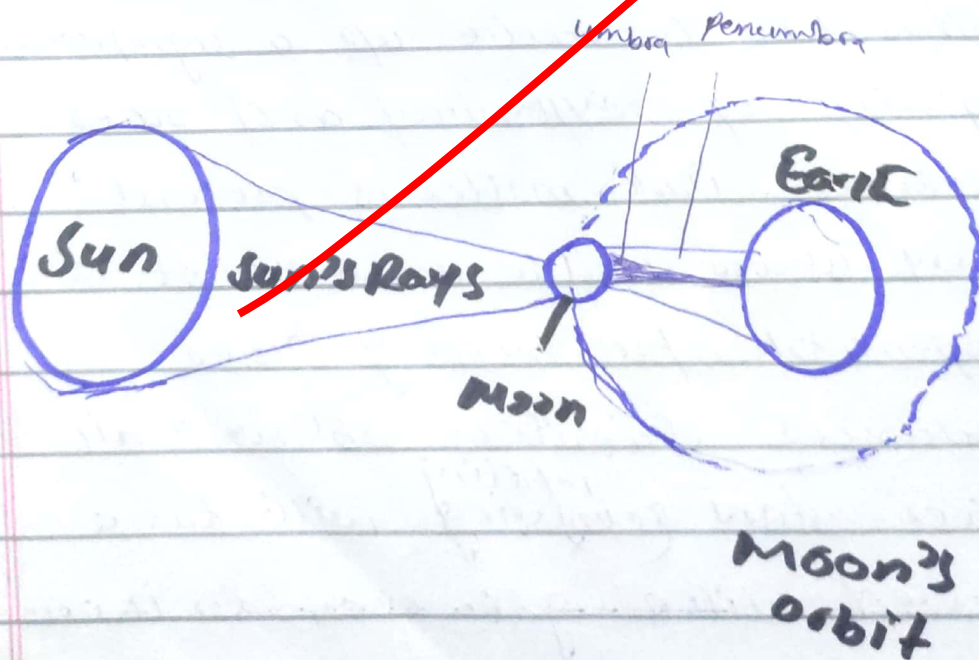
**Parts of galaxies:-** there are 4 main components of galaxies.

- i) A disc
- ii) Centre or black hole
- iii) spiral arms
- iv) A massive halo

**Distinguish solar and lunar eclipses.**

Solar Eclipse.

Moon comes between the Earth and Sun and its shadow obscures the face of earth from the light of sun.

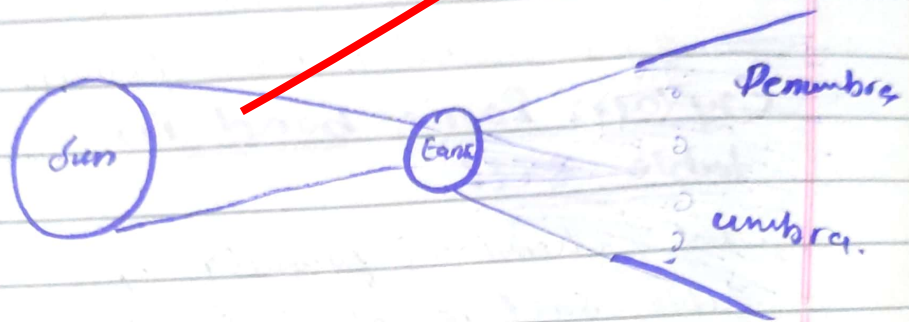




## Section II

### Lunar Eclipse

Earth comes between moon and sun. and its shadow falls on moon.

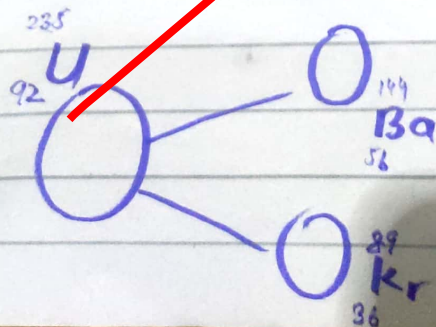


— (d) —

What is nuclear fission and nuclear fusion?

### Nuclear Fission

The process in which a heavy nucleus splits into two lighter nuclei such as uranium or plutonium of nearly the same mass is called nuclear fission.

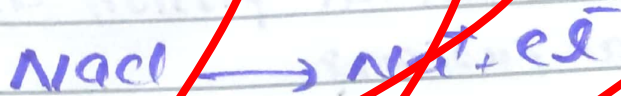


## Nuclear Fusion

The process in which two light nuclei combine to form a single heavier nucleus and release large amount of energy is called nuclear fusion.

## Explain ionic bond in table salt.

The chemical formula of table salt is  $\text{NaCl}$ . The bond formed between  $\text{Na}^+$  and  $\text{Cl}^-$  is called ionic bond.



The bond formed between  $\text{Na}^+$  and  $\text{Cl}^-$  is called ionic bond.

(The bond formed between two opposite charges is called ionic bond).



## Section II

### QNO 8

(a)

The sum of 3-consecutive odd numbers is 273. What are the three odd numbers.

The sum of three consecutive odd number = 273.

$$89 + 91 + 93 = 273$$

These odd numbers are 89, 91, 93

(b)

Find missing numbers in the given series.

i) 4, 16, 36, 64, ?, 144

4, 16, 36, 64, 100, 144

Hence, the missing number

is = 100

(ii)

i) 30, 29, 27, ?, 20, 15

$30, 29, 27, 24, 20, 15$

Hence, the missing number

is = 24

(iii)

ii) 1, 7, 15, 25, ?, 51

$1, 7, 15, 25, ?, 51$

$1, 7, 15, 25, 37, 51$

Missing number is = 37

(iv)

0, 2, 6, 12, 20, 30, ?

$0, 2, 6, 12, 20, 30, ?$

$0, 2, 6, 12, 20, 30, 42$

Missing number is = 42

(v)

48, 24, 72, 35, 108, ?

$48, 24, 72, 35, 108, ?$

$48, 24, 72, 35, 108, 54$

Missing no = 54



(c) Find out the correct word from given jumbled spellings.

i) SHIRT

ii) GENDAR

iii) STOMACH

iv)

v) HOLIDAY

(d)

Sara's mother is 6 times older than Sara, whereas her brother

Ali is twice as old as Sara.

In 3-years time, the sum of their ages will be 72. How old are Sara, Ali and their mother now?

	current age	After 3-years
Sara	$x$	$x+3$
Mother	$6x$	$6x+3$
Ali	$2x$	$2x+3$

Sum of ages in 3-years will be 72

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

$$9x+9=72$$

$$9x=72-9$$

$$9x=63$$

$$x = \frac{63}{9} = 7$$

$$\begin{aligned} \text{Sara} &= x + 3 = 7 + 3 = 10 \text{ years} \\ \text{Mother} &= 6x + 3 = 6(7) + 3 = 45 \text{ years} \\ \text{Ali} &= 2x + 3 = 2(7) + 3 = 17 \text{ years} \end{aligned}$$

## QNO6

3 candidates contested elections in constituent assembly of Islamabad and received votes, 15000, 10,000, and 8000 respectively. What is the %age of total votes of winning candidate.

$$\frac{15000}{33000} \times 100 = \frac{15000}{33}$$

$$\frac{15000}{33} = 454.54 = 45\%$$

(b)

The ratio of angle of triangle are 3:4:5 in total distribution. Find the each angle.

$$\text{Let the angle be } = 3x, 4x, 5x \text{ --- (1)}$$

$$3x + 4x + 5x = 180 \text{ --- (2)}$$

$$12x = 180$$

By putting x in eq 1  $x = 15$

Hence the angles are 45, 60, 75°



(C)

in a sup sport groups group of boys and girls to be formed. Each group consists of 4-boys and 6 girls. How many boys are required, if 102 girls are available for such grouping?

Ratio and proportion of boys to girls

$$4:6 = x:102$$

$$4:6 = x:102$$

$$4 \times 102 = 6 \times x$$

$$408 = 6x$$

$$\frac{408}{6} = \frac{6x}{6}$$

$$x = 68$$

So, 68 boys are required

(d)

The ratio of present ages of A and B is 6:7. After 5-years this ratio would become 7:8. Find present ages of A and B.

$$\frac{13}{6} \times 100$$

$$\text{Present age of A} = 30$$

$$\therefore \text{B} = 35$$

$$(6n+5)(7n+5) = 7/8$$

$$48n + 40 = 49n + 35$$

$$n = 5$$

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

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