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LMSIB

Momna Azam

33430

# General Science And Ability

(Q#4)

(a)

What are the methods employed  
in solid waste management?

The technique to dispose solid refuse  
of industries and home in such a  
way that minimize the risk of adverse  
impact on human being, plants and  
animals. There are certain technique  
which are employed in solid waste  
management.

Solid Waste  
Management  
technique

→ Landfill

→ Sanitary landfill

→ Incineration

## Landfills:-

The municipal solid waste is mainly disposed of by dumping off in a landfill. The landfill is digging a large hole in the ground after dumping off the waste material the hole should be enclosed. It is easy method to dump off the waste and not require at high temperature.

## Sanitary Landfills:

A sanitary landfill is a pit with a protected bottom where trash is buried in layers and compressed to make it more solid. The main purpose of sanitary landfills is to ensure waste is safe by reducing the harm from accumulated waste and allowing safe decomposition.

## In cineration

Waste treatment process in which solid waste is burned at high temperature varying at  $900 - 10000^{\circ}\text{C}$ . The advantage of this method include:

- Reduce bulk volume
- Small volume is easy dump off

(b)

## How does a Human heart work in blood circulation?

All the deoxygenated blood is collected from the body through veins. All the veins from body open into a large vein called Vena Cava. Vena Cava pours its deoxygenated blood into right atrium of heart. The right (att) atrium contracts and blood enters into right ventricle. There arises pulmonary trunk which bifurcates into right and left pulmonary arteries which in turn enter into right and left lungs. The right ventricle contracts and blood through pulmonary arteries enters into lungs.

In lungs oxygenation of blood takes place. From each lung there arise pulmonary veins which enter into left atrium. After oxygenation blood enters into left atrium through pulmonary veins. The left atrium

contracts and oxygenated blood enters into left ventricle through valve. From left ventricle there arises a main artery called aorta. When left ventricle contracts blood enters into the aorta, from where oxygenated blood is distributed into the whole body.

(C)

What is Myopia and Hyperopia? Enlist the major parts of Human Eye.

**Myopia :-**

Other name is called nearsightedness

⇒

“ Myopia is a condition in which, opposite of hyperopia, an image of a distant object becomes focused in front of retina, distant object appear out of focus.”

## Hyperopia :-

→ Other name is called farsightedness.

↳ Hyperopia is a condition in which an image of a distant object becomes focused behind the retina, making objects up close appear out of focus.

## Enlist the major parts of Human eye:

### Human Eye

- Cornea
- Lense
- Optic nerve
- Retina
- Pupil
- IRIS
- Sclera
- Choroid
- Vitreous body
- Ciliary body

(d)

Write the use of each of the following.

→

### Micro wave :-

- Industry uses microwaves to dry and cure plywood, to cure rubber and resins.
- Most common use of microwave energy is in microwave ovens.
- For large bandwidth communication (radar, satellite, telephone etc).

→

### Ultraviolet :-

- Food and drug companies use UV lamps to sterilize their products.
- Suitable doses of Ultraviolet rays cause the body to produce Vitamin D.
- It is also used by doctors to treat vitamin D deficiency.

→

### X-rays :-

- It is used to examine the most area of body.

- It is used in x-rays of bones and joints.
  - It is helpful in ultrasound purposes.
-

(Q115)

(a)

What are the different methods of food preservation?

There are different methods of food preservation.

a: Modern Preservation Methods.

→ Canning

→ Dehydration

→ Freezing and freeze-drying

b: Ancient Preservation methods.

→ Fermentation

→ Drying

→ Curing.

These explanations are given below one by one:

**Canning :-**

• Process of preserving food by



by heating and sealing it in containers for storage.

- Preserving food for times of need.

## Dehydration:-

- Longer storage
- Similar size and weight
- Re-circulated air will not dry food.

## Freezing:-

Creating environment where bacteria cannot grow.

Bacteria on food is still there.

Freezing - dried food last months to years.

## Antient Preservative

## Fermentation

- Extends shelf-life
- Yeast can be used to create wine and beer.

## Drying

Oldest method dehydration

- use of sun to dry foods and extend use.

## Curing :-

- Packing salt around food pulls out moisture.
- Without water, food becomes inhospitable for bacteria.

(b)

What is milkyway? How dark matter is related to galaxies?  
Give different parts of galaxies

## Milkyway:

- The milkyway is a galaxy.
- It is a spiral galaxy.
- There are more than 200 billions stars in the milky way.

How dark matter is related to galaxies

The dark matter makes up most

of the mass of galaxies and galaxy clusters, and is responsible for the way galaxies are organized on grand energy.

## Different parts of galaxies

There are different parts of galaxies.

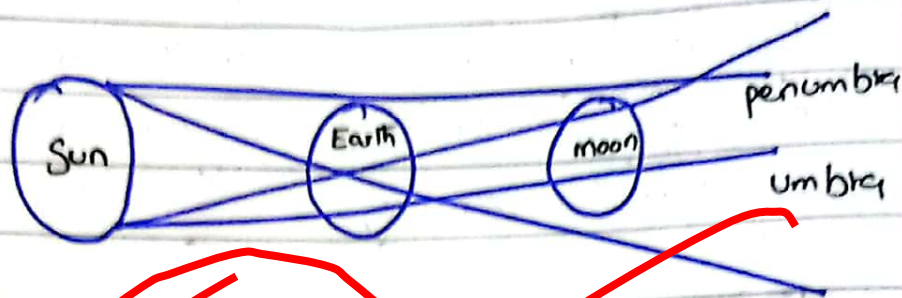
Like,

- 1 - a nucleus
- 2 - a central bulge
- 3 - a disk
- 4 - spiral arm
- 5 - spherical component
- 6 - massive halo

## (C) Distinguish solar and Lunar eclipses

### Lunar Eclipse:

① The Lunar eclipse happens when earth occurs between moon and sun."



### ~~Penumbra lunar eclipse:-~~

~~When moon is completely in the penumbra, it will be penumbral lunar eclipse.~~

### ~~Partial lunar eclipse:-~~

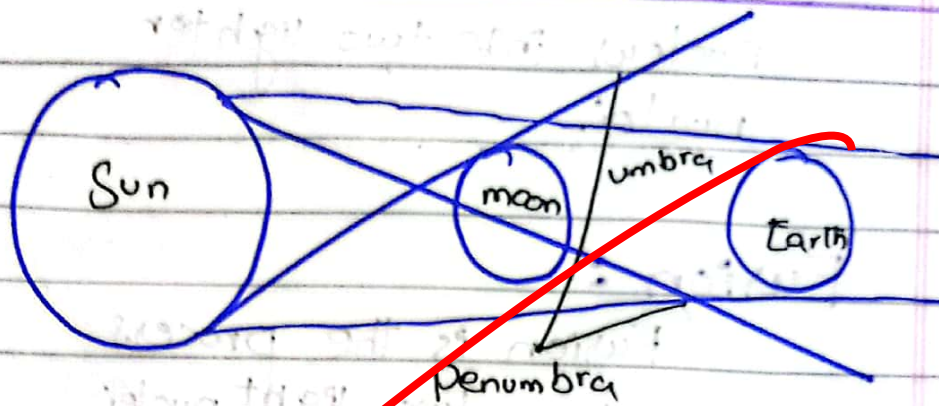
~~When a part of moon is in umbral region and other part in penumbra.~~

### ~~Total eclipse:-~~

~~When moon is completely in the umbral region.~~

### ~~Solar Eclipse:-~~

~~"The moon comes directly between the Earth and the sun."~~



### Total solar eclipse

when moon completely covers the sun.

### Partial solar eclipse

when moon partially covers the disc of sun.

### Annular solar eclipse.

Ring of fire is visible only external body of the sun.

(d)

What are Nuclear Fission and Fusion? Explain ionic bond in table salt.

### Nuclear Fission:-

Fission is the splitting of a heavy, unstable

nucleus into two lighter nuclei.

## Fusion :

Fusion is the process where two light nuclei

combine together releasing a very amount of Energy.

## Section(2)

(Q#6)

(a)

The ratio of angles of a triangle are 3:4:5 ...

Given Data:

Ratio of 3 triangle = 3:4:5

Find:

Find each angle

Solution:

Angles are in the ratio of 3:4:5

Let the angles be  $3x$ ,  $4x$ ,  $5x$

$$3x + 4x + 5x = 180^\circ \quad (\text{sum of angles of triangle})$$

$$12x = 180^\circ$$

$$x = \frac{180}{12}$$

$$x = 15$$

Find the angle of ratio 3  
by put value in  $x$

$$3x$$

$$= 3 \times 15$$

$$= 45$$

Put value in  $4x$

$$= 4(15)$$

$$= 60$$

Put value in  $5x$

$$= 5(15)$$

$$= 75$$

Answer:-

Hence the angles are  $45^\circ, 60^\circ, 75^\circ$

(C)

In a sport meet group of boy--

Given data:-

→ In sport meet group of girls and boys are formed.

→ Each group consist of 4 boys and 6 girls.

Find ?

How many boys required for 102 given girls



For 6 girls = 1 group

for 1 girl =  $\frac{1}{6}$  group

and for 102 girls =  $102 \times \frac{1}{6}$

= 17 groups

So,

$4 \times 17 = 68$  boys are  
required for 102 girls available  
for such grouping.

(d)

The ratio ----

Given data:-

→ ratio of present ages of A and  
B = 6:7

→ After 5 years ratio would  
be = 7:8

Find :-

Present ages of A and B

Solution:-

Present age

6:7

$6x + 7x$

$$7 = 8$$

Difference is same (1)

After five year  $7 = 8$

$$5 \times 6 = 30$$

$$5 \times 7 = 35$$

(Q#8)

The sum of three conse .....

Given data:-

Sum of three consecutive number  
is = 273

Find :-

Find the three odd number

Solution

Let suppose three numbers are  
=  $x, x+1, x+2$

So

$$x + x+1 + x+2 = 273$$

$$3x + 3 = 273$$

$$x + 3 = \frac{273}{3}$$

$$x = 91 - 3$$

$$x = 89$$

Put the value of  $x$  in  $x+1$

$$x+1$$

$$= 89 + 1$$

$$= 90$$

Put the value of  $x$  in  $x+2$

$$x + 2$$

$$= 89 + 2$$

$$= 91$$

Answer:-

The three odd numbers are 89, 90 and 91.

b)

Find the missing number in the given series.

(i)

4, 16, 36, 64, ?, 144

$$\underbrace{4}_{4 \times 4} \quad \underbrace{16}_{4 \times 4} \quad \underbrace{36}_{4 \times 9} \quad \underbrace{64}_{4 \times 16} \quad \underbrace{?}_{4 \times ?} \quad 144$$

100

(ii)

30, 29, 27, ?, 20, 15

$$\underbrace{30}_{-1} \quad \underbrace{29}_{-2} \quad \underbrace{27}_{-3} \quad ? \quad 20 \quad 15$$

24

(iii)

1, 7, 15, 25, ?, 51

6      7+1      8+2      9+3  
37

(iv)

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

2      4      6      8      10      12

42

(v)

48, 24, 72, 35, 108, ?

(c)

Find out the correct word

THRSI → SHIRT

QNDREA → DANGER

SCHAMOT → STOMACH

ONLNDO → LONDON

HOLIDAY → ~~HOLIDAY~~

(d)

Sara's mother - - - -

Given data:

→ Sara's mother is 6 times older than Sara.

→ Her brother Ali's is twice as old as Sara.

→ In three year sum of their ages = 72

Find:-

How old are

Sara = ?

Ali = ?

Mother = ?

Solution

Let  $x$  represent the age of the son so the mother is  $6x$  years of age