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Date: _____

Name ATIFULLAH

Paper GSA

Batch 046

SECTION-II

Q.6

9)

Given data:

$$\text{Father's age} = x - 5$$

$$\text{Son's age} = 3(x - 5)$$

$$\text{Son's current age} = 30$$

Required:

$$\text{Father's current age} = ?$$

Solution:

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

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

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

$$x - 5 = 75$$

$$x = 75 + 5$$

$$\boxed{x = 80} \text{ Answer.}$$

Father's current age is 80 years

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b) Value of Y

Data :

Numbers = 10, 30, Y , 50

Mean = 50

Requirement :

Find the value of Y .

Solution:

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

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

$$50 \times 4 = 90 + Y$$

$$Y = 200 - 90$$

$$\boxed{Y = 110} \text{ Answer.}$$

d)

Let the two numbers
are x and y

According to the conditions given:

$$xy = 320 - \textcircled{i}$$

$$x:y = 1:5 - \textcircled{ii}$$

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Required:

Difference of their square

Solution:

$$xy = 320$$

$$x = \frac{320}{y} \quad \text{--- (ii)}$$

Putting value of x in eq (i)

$$x : y = 1 : 5$$

$$\frac{320}{y} : y = 1 : 5$$

$$y = 5 \times \frac{320}{y}$$

$$y^2 = 1600$$

$$\sqrt{y^2} = \sqrt{1600}$$

$$y = 40 \quad \text{--- (iv)}$$

Putting the value of y in eq (ii)

$$x = \frac{320}{40}$$

$$x = 8$$

The two numbers are 40 and 8

The difference of their squares :

$$\begin{aligned}
 &= x^2 - y^2 \\
 &= (40)^2 - (8)^2 \\
 &= 1600 - 64 \\
 &= 1536
 \end{aligned}$$

$$\boxed{x^2 - y^2 = 1536} \quad \text{Answer.}$$

c. Missing term

i) 2, 6, 18, 54, 162

R.W

$$\frac{6}{2} = 3$$

$$\frac{18}{6} = 3$$

$$\frac{54}{18} = 3$$

$$54 \times 3 = 162$$

Q.7

b) Given data:

Men = 195 16 ~~Men =~~

Hours = 10 Hours = 13

Days = 20 days = 15

then find the number
of men.

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Solution:

$$\begin{array}{ccc} \text{Hours} & : & \text{Days} & : & \text{Men} \\ 10 & \downarrow & 20 & : & 195 \uparrow \\ 13 & \downarrow & 15 & : & x \uparrow \end{array}$$

$$\frac{10}{13} \times \frac{20}{15} = \frac{x}{195}$$

$$\frac{200}{195} = \frac{x}{195}$$

$$x = \frac{200 \times 195}{195}$$

$$\boxed{x = 200}$$

So the number of men required would be $\boxed{200}$ Answer.

c) Given:

$$A = \{a, e, i, o, u\}$$

$$U = \{a, b, c, \dots, z\}$$

Required:

A'

Solution

$$A' = U - A$$

$$A' = \{a, b, c, d, \dots, z\} - \{a, e, i, o, u\}$$

$$A' = \{b, c, d, f, \dots, h, j, \dots, n, p, \dots, t, v, \dots, z\}$$

SECTION-II

Q.2 a) COP-28 Key features.

I. Introduction:-

The annual Conference of parties (COP), 28th meeting was held in the United Arab Emirate in December 2023. The meeting was a success in that the lingering issue of 'Loss and Damage' fund was ratified. The key takeaways from the meeting are as follows

a. The fossil fuel Question:-

To limit the global temperature from crossing the 1.5°C

threshold, in earlier COP meetings, it was decided that fossil fuel would be abandoned. During COP-28, the parties to the agreement picked a bone in this regard. Disagreement rose on the "phasing down" of fossil fuel for "phasing out".

b. The Loss and Damage Fund:

The developed world responsible for the global warming owes reparation to the developing world for the crime they did not commit. It was decided in COP-27 that developed world should pledge 100 billion dollars that would be used by the developing world and vulnerable communities to address the ~~imp~~ challenge of climate change.

In COP-28, all the states ratified the loss and damage

Fund. However, the fund collected was only 750 million dollars against a required 400 billion dollars. Astonishingly, China and the USA pledged the least, - though they are the big green house gas emitters.

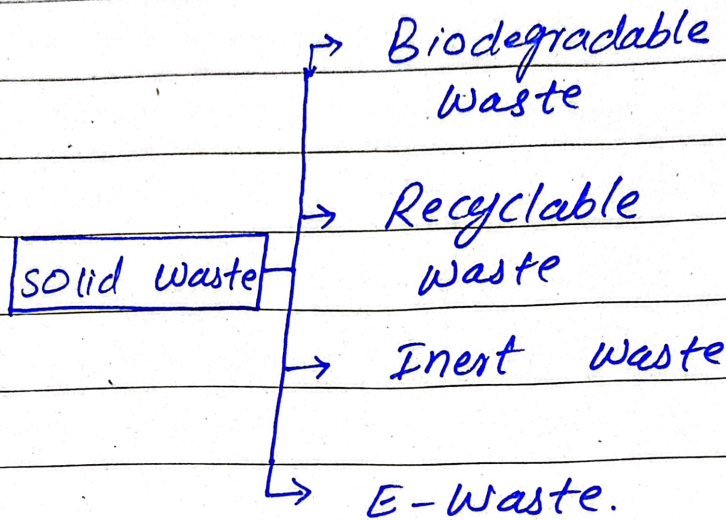
c. Global Financial System Support:-

It was highlighted that the developing world is facing difficulty in servicing their debts. Given the global financial crisis, inflation and the deleterious impacts of climate change, the developing world would be unable to cope with -threatening consequences of global warming. Similarly, they would be unable to transition to green energy and abandon fossil fuel or established green renewable energy infrastructure.

b) Solid waste management

I. Solid waste and its types:-

Waste in solid or semi solid form is called solid waste.



II. Solid waste management

An organized and systematic process of disposal of solid waste is called solid waste management.

III. Steps in solid waste management

a) collection stage:-

At this stage solid waste is collected. An effective collection system require the availability

of staff, vehicles and an area. During this stage solid waste is segregated for further processing.

b) Waste Disposal:- It is the final stage. Various methods are used for this purpose.

i) Open dumping:-

Solid waste is dumped in open area. It is unhealthy as it results in the pollution of environment.

However, such method is widely used. In this case, the dumping site should be far away from the residential area. Similarly, it needs to be a barren land.

ii) Composting:-

During this method involves the controlled biological decomposition of solid waste.

The product of decomposition

is used as fertilizer
for plant.

iii) Incineration :-

In this method solid waste is simply combusted at high temperature. It often results in the emission of harmful gases.

iv) Land fill method :-

This method involves the burial of solid waste. Selection of burial area is crucial in this method. Care should be taken to avoid the contamination of ground water as water percolating through the buried solid waste may find their way to the aquifer.

C Balance Diet :-

I. Definition :- Diet which contain adequate amount of all the food items necessary

for the growth and health of body as recommended by nutritionist is called balanced diet.

ii) Requirement of Balance Diet:-

Our body perform different function. It, therefore, needs optimum level of energy.

Failing to meet this energy requirement the body organs fail to carry out its function.

For the body to perform its function and remain healthy

balance diet intake is

needed. A balance diet

contain a share from proteins,

carbohydrates, vitamins and

minerals in adequate amount.

iii) Variation in Balance Diet

Balance diet varies from

person to person. It depends

on gender, age and

activity.

Q. 4 a) Earthquake

I. Definition:- Earthquake is a geophysical natural disaster. It is the sudden shaking and tremor of the earth surface as a result of the energy transferred from the epicentre.

II. Earthquake Generation:-

• Earthquake generates in the subsurface at a point called the epicentre. The epicenter is located along the fault in the subsurface. The generation of earthquake is explained through the elastic rebound theory.

Elastic Rebound theory:-

Rocks in the subsurface are under continuous stress. Stress accumulates in the rock over time. At a time reach when the rock is strained to the point of rupture. Upon rupturing

The stress accumulated is released in the form of seismic wave. These waves carry the energy to earth surface and cause it to shake, resulting in earthquake.

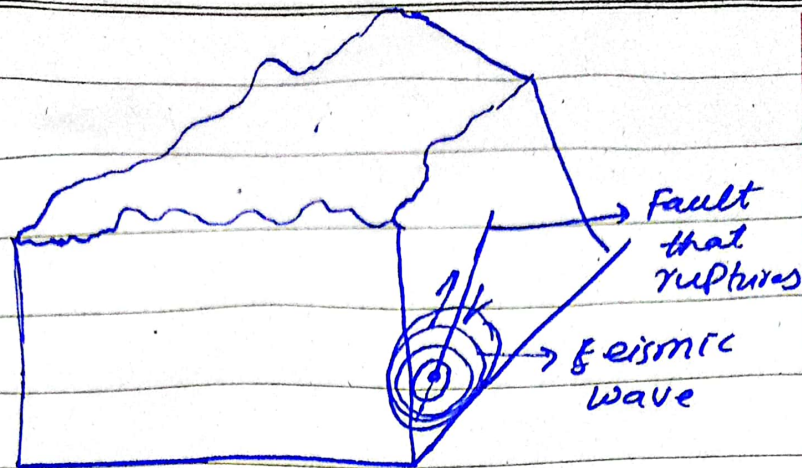
Tsunami

A tsunami is related to oceans and sea.

Active tectonically active oceanic plate often experience earthquake. These ocean earthquakes result in tsunamis.

During tsunamis earlier stage square waves form on the water surface.

Water moves at a considerably high speed. Reaching the shore the water, due to its high speed, flood the coastal area.



Earthquake Generation.

c. Solar and Lunar Eclipse.

I. Eclipse:-

The ^{obscure} ~~obstruction~~ of a heavenly body by another is called eclipse.

II. Lunar eclipse

When earth comes in line between the sun and moon. A lunar eclipse has two types.

① Total lunar eclipse:-

It is also called umbra. The earth is completely along the line of sun and moon.

b) Partial lunar eclipse

The earth is partially in line with the sun and moon. It is called penumbra.

b) Solar Eclipse

During solar eclipse, the moon lies between the sun and earth.

The shadow of moon forms on the earth. It has three types.

i) Total solar eclipse

ii) Partial solar eclipse

iii) Annular solar eclipse.

d) Doping in semi-conductor.

I: Semi conductor:- Material having conductive properties between that of insulators and conductors are called semi conductor.

ii. Doping :-

Semiconductor are added impurities for the desired purpose of conductivity. Such process is called doping. Such semiconductors are classified as extrinsic semiconductor. They are classified as:

a. N-Type semiconductor:-

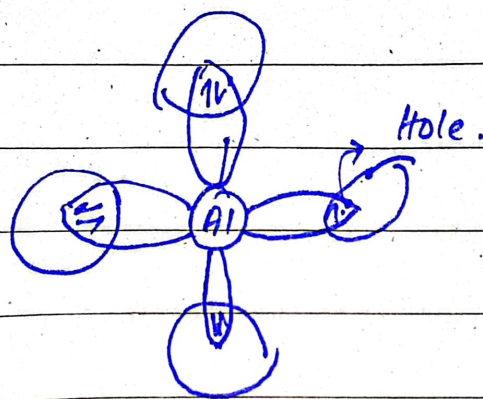
Formation of N-type semiconductor involves doping in which an element from group five of the periodic table is added to either Silicon or Germanium.

The four electrons form each atoms bond, leaving one free electron which conduct current.

b. P-type semiconductor:-

The doping process in this case involves the addition of group three

-three element to
silicon or Germanium.
Four electrons of the
semi conductor (Si, Ge) bond
with three electrons of the
added atoms elements. The
deficiency of one electron
create a hole which
conduct current.



b. Coriolis force:-

The force arise as
a result of earth's
rotation that deflects
the moving objects.

The moving object may
be ocean currents, a

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projectile. These bodies
are deflected towards the
right in the Northern
hemisphere and towards
south in the southern
hemisphere.