

## Section - B

Q No 6

(a) Data

Present value = 8748

decrease every year = 10%

Solution:

Let consider the value of machine  $x$  years ago  $x$ .

As mentioned in the question 10% decrease every year.

$$x \times 10\% = 8748$$

$$x = \frac{8748}{10\%}$$

$$x = \frac{8748 \times 100}{10} = 87480$$

$$\frac{10x}{100} = 8748$$

$$10x = 8748 \times 10$$

$$x = \frac{87480}{10}$$

$$x = 8748$$

8748, one year before present value.

Now find for 2 year ago.

$$x \times 10\% = 8748$$

$$x = \frac{8748 \times 100}{10} = 87480$$

$$x - \frac{x}{10} = 9720$$

$$\frac{10x - x}{10} = 9720 \times 10$$

$$9x = 97200$$

$$x = \frac{97200}{9}$$

9

$$\boxed{x = 10800}$$

10800, it was the price 2 years ago.  
Now, find for 3 years ago.

$$x - x \times 10\% = 10800$$

$$x - \frac{10x}{100} = 10800$$

$$\frac{10x - x}{10} = 10800$$

$$9x = 10800 \times 10$$

$$x = \frac{108000}{9}$$

9

$$\boxed{x = 12000}$$

12000 was the price of washing machine  
3 years ago.

Ans

Q NO 6 (b)

Let the age of Daughter is  $x$ .

age of father 4 times more than daughter =  $4x$

After 5 years, father is three times older

$$4x + 5 = 3(x + 5)$$

$$4x + 5 = 3x + 15$$

$$4x - 3x = 15 - 5$$

$$x = 10$$

Age of Daughter After 5 years

Age of Father =  $4x$

Age of Father =  $4(10)$

Age of Father = 40 years

After further 5 years

Age of daughter =  $10 + 5$

Age of daughter = 15 years

Age of father =  $40 + 5$

Age of father = 45 years

$$\text{How many times he is} = \frac{45}{15} = 3 \text{ times}$$

So, He would be 3 times of his daughter

Ans

Date: \_\_\_\_\_

Page No: \_\_\_\_\_

Q NO 6 (c)

Date

Diameter = 12 cm

$$\text{Radius} = \frac{d}{2} = \frac{12 \text{ cm}}{2} = 6 \text{ cm}$$

Solution

$$V = \frac{4}{3} \pi r^3$$

$$= \frac{4}{3} \pi (6)^3$$

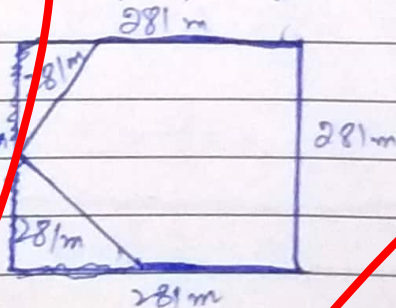
$$= \frac{4}{3} \times \frac{22}{7} (216)$$

$$V = 904.77 \text{ cm}^3$$

So, the volume of football is  $904.77 \text{ cm}^3$  Ans

Q NO 6 (d)

Each side of pentagon is 281 m. pentagon has 5 sides.



$$P = 281 + 281 + 281 + 281 + 281$$
$$= 1405 \text{ m}$$

So, Perimeter of the pentagon building is 1405 m. Ans

Date: \_\_\_\_\_

Page No: \_\_\_\_\_

Q NO7(a)

Average of 7-consecutive no: is 20.  
let the minimum number is  $x$

$$\frac{x + (x+1) + (x+2) + (x+3) + (x+4) + (x+5) + (x+6)}{7} = 20$$

$$\frac{7x + 21}{7} = 20$$

$$7x + 21 = 20 \times 7$$

$$7x = 140 - 21$$

$$7x = 119$$

$$x = 17 \rightarrow \text{Smallest number}$$

For, find the largest number

$$x + 6 = \text{largest Number}$$

$$17 + 6 = \text{largest Number}$$

$$23 = \text{largest Number}$$

So, 23 is the largest number

Ans.

Q NO7(b)

Data:

D is A's cousin but not the brother of C.

C is A's father's nephew

What is relation b/w D & C?

Solution

C is A's father's nephew mean C is the cousin of A.

Date: \_\_\_\_\_

Page No: \_\_\_\_\_

D is also cousin of A but not the brother of L

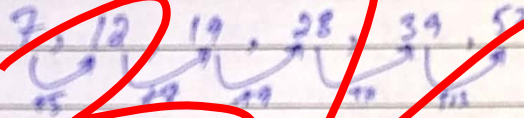
So, D is the sister of C.

Ans

Q107(L)

7, 12, 19, 28, 39, ?

Solution:



There is +2 addition in every previous addition

So, 52 is the missing number.

Ans

Q107(d)

Data:

money distributed among A, B, C and D with ratio of 5:2:4:3

Condition:

If C gets Rs 1000 more than D, what is B's share?

Solution:

Sum of all ratio = 5+2+4+3

Sum of all ratio = 14

The ratio difference between C and D

Date: \_\_\_\_\_

Page No: \_\_\_\_\_

is 1 and C gets 1000 Rs more than D. So, it means one part share is Rs. 1000.

$$\text{Share of A} = 5 \times 1000$$

$$\boxed{\text{Share of A} = 5000}$$

$$\text{Share of B} = 2 \times 1000$$

$$\boxed{\text{Share of B} = 2000}$$

$$\text{Share of C} = 4 \times 1000$$

$$\boxed{\text{Share of C} = 4000}$$

$$\text{Share of D} = 3 \times 1000$$

$$\boxed{\text{Share of D} = 3000}$$

$\boxed{\text{So, share of B is Rs. 2000/..}}$

Ans.

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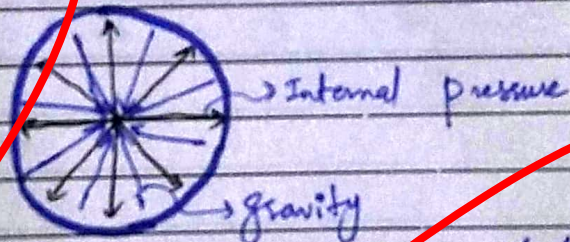
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Q No 3(a)

**Black Hole:** An object of an extreme density and strong gravitational pull even light cannot escape from it.

### Formation of Black Hole from Star:

There is a balance between internal pressure and gravity of star. Internal pressure and gravity both are opposite. If this maintained balance is changed then star collapses.



Due to attaining the maximum stability, fusion reaction is slowdown. Therefore, internal pressure decrease. In a result, star merged in small area and its density increases. When density increases then gravitational force also increases that is it attracts the object.

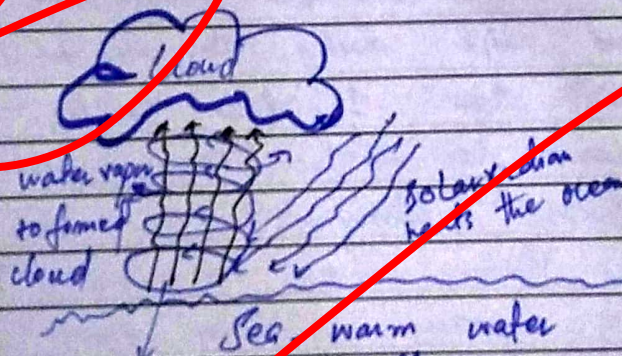


Q NO3 (b)

Cyclone: A tropical storm with winds blowing in large spiral.

### How Cyclones are formed:

It is formed when the warm, moist air rises upward over the ocean. As air moves up, there is a formation of low-pressure area in internal side. Now, the low-pressure area is filled with the high-pressure air from surroundings. As a result, cyclone are formed.



This creates internally low-pressure area. After creation of low-pressure area air filled that area that creates cyclone.

# QNO3(L)

## Causes of floods:

### ① Global Warming:

As global warming affect the climate increasingly every year more rains come every year. In a result, floods are caused. For example, flooding in 2022, killed 10-15 lac animals, and almost 2000+ floods are recorded in the world due to global warming.

### ② Overflowing Rivers.

Areas near rivers have a higher flood risk during an overflow. In 2022, more than 1 lac people migrated from near places of River because of overflowing rivers.

### ③ Snow-melt:

Much of the spring time streamflow in rivers is accountable for melting snow or ice. When there is heavy precipitation, flooding will most likely occur.

### ④ Heavy Rainfall:

It can occur due to

various weather conditions for example, A tropical cyclones, which can transform into hurricanes and produce large amount of rain that cause flooding.

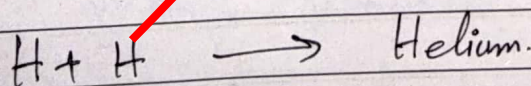
### 5) Emission of Green House Gases:

The burning of fossil fuel and pollution is depleting the level of ozone layer and increasing the level of Green house gases, becoming a major cause of man-made flooding.

### Q No. (d)

Energy is produced inside the Sun:

The energy is produced inside the sun due to fusion reaction. The fusion reaction is done when two nuclei merged together to form a heavier nuclei. In sun 2 hydrogen nuclei merged together and form helium nuclei then in this process energy is produced.



## Factor responsible for Sun's gravity:

There are two factors that responsible for gravity of sun are; mass and distance. The gravity of sun is  $274 \text{ m/s}^2$  it is higher than the earth because its mass is very large than earth.

## Solar Wind:

It is a stream of charged particles released from the upper atmosphere of the sun. Renewable energy is derived from this charged particles streams.

## QNO4(b)

### Methods Of Solid Waste Management.

#### ① Dumping into Sea:

Solid waste shall be taken in barge sufficiently far away from the coast almost 15-30 km and dumped there. It is only possible in coastal areas and not environment friendly.

#### ② Sanitary Land Filling:

A deep trench is excavated and solid waste laid into

Layers. and layers are compacted with some mechanical equipment and covered with earth, leveled and compacted.

③ Use of Energy Combustor:

Solid waste was burned without recovering energy. It exceeds the acceptable temperature for electrostatic precipitators used for particular emission control.

④ Composting:

It is similar to sanitary land filling and popular in developing states. Its product good for fertilizer.

⑤ Fermentation:

Waste convert into compost. In the fermentation, recycle is possible. It convert into compost then the method of Composting used. It is mostly for biological digestion.

Q No 4(c)

Causes Of Water pollution:

① Deforestation - water pollution:

Cutting down the

Excres and concreting over large areas generates an acceleration of flows which does not give enough time for water to infiltrate and be purified by the ground.

### (2) Agriculture - Water pollution.

Agriculture has an impact on water pollution due to use of chemicals, such as fertilizers, fungicides and insecticides, etc.

### (3) Sewage and wastewater - water pollution

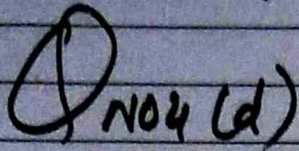
Inadequate sewage collection and treatment are sources of water pollution. According to UN, more than 80% of the worldwide wastewater goes back in the environment without being treated or used.

### (4) Marine Dumping = water pollution.

Everyday, garbage disposed into sea, these items take weeks of hundreds of years to decompose. Therefore, they are also major cause of water pollution.

### (5) Industries - water pollution: Industry produce a lot of waste containing toxic chemicals and pollutants. A huge amount of Industrial waste is

drained in the fresh water therefore, it is also a cause of water pollution.



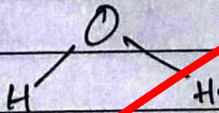
### Coveland Bond:

A bond which is formed by the mutual sharing of electrons between the atom.

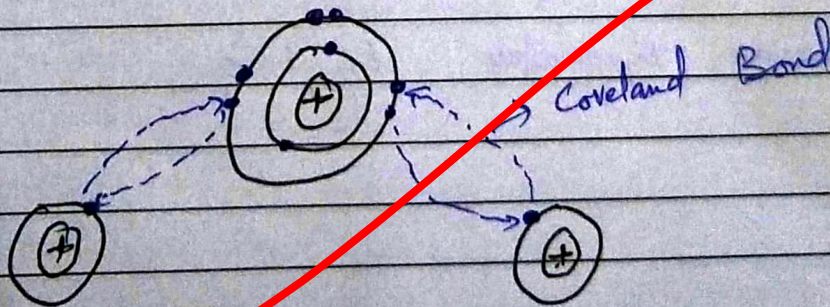
Angular Structure of Water molecule:

Due to lone pair - lone pair repulsions.

Formation of Coveland bond in Water molecule.



For the stability of shell, octet must be completed.



For the stability, oxygen and hydrogen sharing electrons with each other and stable their position.

## Q NO4 (a)

### Goals of COP-26.

- ① Reduce green house gases: It is urgent need of globe.
- ② Convert towards Clean Energy.
- ③ Funds for climate affected.
- ④ Reduce coal usage.

### Goals of COP-27

- ① Zero percent of Green House gases by 2030.
- ② Provide aid and support to affected.
- ③ 100% end of coal usage.
- ④ Decrease temperature by 1.5°C.