

Part - IISection - 1Question - 3

(a)

Causes of cyclone:

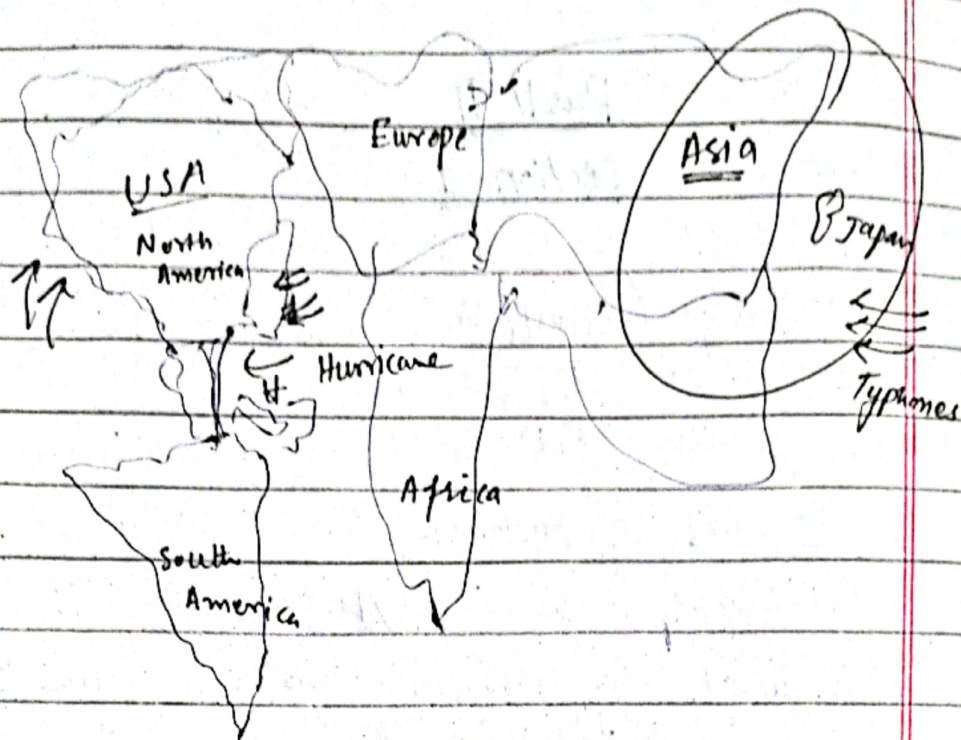
A cyclone is caused by warm air in oceans near tropic. When warm air rises a vacuum created in centre and slowly this winds around the centre get strong and eventually cause a cyclone.

Cyclones are named according to the areas where they occur.

For example, in the east or the west of USA, these are called as ^{Hurricane} Typhoon while in the East of Japan they are called typhoon.

Similarly Willy Willies is also a type of tropical cyclone.

World map



Cyclones are strong in the centre and they are very destructive whenever hit at coasts. For example last year Hurricane Ian hit coast of the USA and Cuba caused a major loss. Similarly Typhoon Noru hit many ~~east~~ eastern countries such as Indonesian islands.

(b)

shallow focus earthquakes:

When the depth of the

earthquake is less than 60 km then it is called shallow focus earthquake.

Deep Focus Earthquake:

When the depth of the earthquake is greater than 300 km, this will be called a deep focus earthquake.

Causes of earthquake

There are different causes of earthquake. For example, the moving of tectonic plates of the earth and erupting of lava from inside the earth, etc.

Magnitude of Recent earthquake in Morocco

The magnitude of recent earthquake in Morocco was 7.0 on Richter scale. It was a devastating quake which killed more than 3000 three thousand peoples and displaced millions.

(4)

(c)

Dengue fever:-

This fever is caused by four different viruses namely DEN-1, DEN-2, DEN-3 and DEN-4.

It spread through a mosquito called Ayges Agypti

symptoms:-

- High fever
- Fatigue
- Vomitting
- Pain in eyes
- Restlessness

Causes

Primarily it is caused by virus namely Den, which have four types as described above.

Spread by a mosquito called Ayges Agypti.

Preventive Measures:-

World Health Organization, mostly recommended vector measures such as mosquito nets and sprays against mosquitos.

(5)

Beside this mosquito producing atmospheres such as marshy places should be avoided. children should be kept aside from marshy places.

→ Treatment:

still no special & #

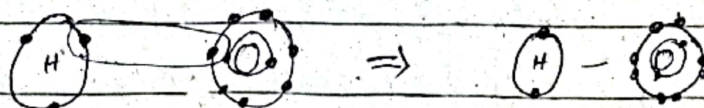
treatment for Dengue discovered. However, a vaccine developed Snofi Pasteur company, which many countries have approved for the treatment of Dengue fever.

(d)

Ionic Bonds:

When two items share their outermost electrons to complete their outer shells - this is called ionic bond.

For example, if outer shell of an atom contains 3 electrons while another atom contains 7 electrons - they will exchange their electrons to complete their valence shells. Suppose,



(6)

Now here valence shell of "H" is complete i.e. its 1st shell contain two electrons and "O" outer shell i.e. 2nd shell also completed by accepting one extra electron from "H". This is called a bonding.

Covalent bonds:

It is also another type of bonding which shares its electrons for completing their valence shells. - that's a bit different from ionic bond.

Question-4

(a)

Causes of pollution:

Land pollution has many cause. For example:

- Wastes from industries
- Use of many pesticides.
- poor sewerage system in big

big cities.

→ Household wastages are the cause of land pollution.

The causes mentioned above are the major source of land pollution. For example, industrial wastes and poor sanitary conditions have spread havoc on earth. Various diseases are spread due to land pollution. Thus world must act now to reduce land pollution more and more in order save the earth from destruction.

(b)

Main goals of COP-27

COP stands for Conference of parties, being 27th conference of party, it is called COP-27.

It was held in Egypt's Sharm el Sheikh city. The main goals of COP-27 are given below.

1. Establishment of loss and

Damage Fund was the most important milestone achieved in COP-27.

- 2) Similarly, the other goal was to convince world leaders to phase out coal which partially agreed by different countries in certain time limits.
- 3) Thirdly, initiatives for African countries as they are most vulnerable from climate change. And many initiatives have been taken.
- 4) Beside this keeping temperature below 1.5 celsius and reducing the threats of climate change were main goals of COP-27.

(C)

GIS and environmental science:

Environmental science is a subject aiming to curb environmental changes, which pose alarming threats to the existence of mankind on the earth. As the

(9)

climate change and environmental transformation from some centuries is the most burning issue in the world. The GIS is a system through which environmental science subject can get its goals easily. It is very helpful for studying environment and its causes & changes.

(d)

Fundamentals of Artificial Intelligence

Artificial intelligence is a human powered technique through which certain softwares, robots, etc perform the functions which otherwise hard to perform the man itself.

For example, chatGPT is an AI project. It can write essays, do programming or whatever one ask or want. Similarly, many countries have introduced robot

anchors i.e. News casters. Similarly, a company in Italy recently appointed an artificial CEO.

Fundamentals of AI includes internet, digital Technology, Energy, Computer programming, etc. And it has also many fundamental objectives i.e. creating ease for human. Its aim is to save time and do things accurately.

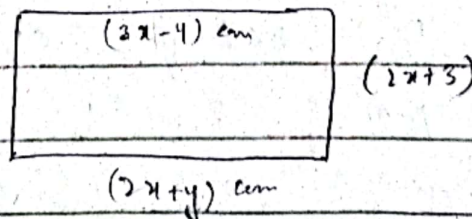


Section- II

Question- 6

(b)

Solution



We know that

(11)

$$\text{Area of Rectangle} = L \times W \rightarrow (i)$$

Also given

$$L = 2x + y$$

$$W = 2x - 3$$

So, putting values in eq $\rightarrow (i)$

$$\begin{aligned} \text{Area of Rectangle} &= (2x + y)(2x - 3) \\ &= 4x^2 - 6x + 2xy - 3y \\ &= 4x^2 - 6x + 2xy - 3y \\ &= 2x(x - 3) + y(x - 3) \end{aligned}$$

$$\boxed{\begin{array}{l} \text{Area of} \\ \text{Rectangle} \end{array} = (2x + y)(x - 3)}$$

Ans.

(C)

Solution:

Let Niha's present age is $= x$

So, Romi's present age is $= x - 15$

if 3 years ago

Niha was 3 times of Romi

So, we know.

$$\boxed{x - 5} = 3 \boxed{x - 15}$$

Niha's age before 5 years.

\rightarrow Romi's present age

\rightarrow Romi's age before 5 years

Now by solving, we get

$$x - 5 = 3(x - 15)$$

$$x - 5 = 3x - 45$$

$$45 - 5 = 3x - x$$

∴

$$3x - x = 45 - 5$$

$$\frac{2x}{2} = \frac{40}{2}$$

$$\boxed{x = 20}$$

So,

Present age of Niha is 20 years.

(d)

Solution:

Number of oranges = 210

Number of apples = 252

and Number of pears = 294.

For equally packing we need to take their ratio, i.e.

$$210 : 252 : 294$$

Dividing by "2" it becomes

$$105 : 126 : 147$$

Thus,

the biggest possible number of cartons needed is 147.

Ans

(a)

(ii) 3, 7, 23, 95, —

Solution:

$$3 \times 2 + 1 = 7$$

$$7 \times 3 + 2 = 23$$

$$23 \times 4 + 3 = 95$$

$$95 \times 5 + 4 = \underline{479}$$

Thus,

3, 7, 23, 95, 479

$$\begin{array}{r} 95 \\ \times 5 \\ \hline 475 \\ 9 \\ \hline 479 \end{array}$$

(i) 10, 100, 200, 310, 450

$$10 \times 1 = 10$$

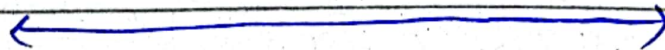
$$10 \times 10 = 100$$

$$10 \times 20 = 200$$

$$10 \times 30 = 300$$

$$10 \times 40 =$$

$$10, 100, 200, 310, \underline{400}$$

Ans

Question-8

(b)

Solution:

First five Prime Numbers = 1, 2, 3, 5, 7

$$\text{Their cubes} = (1)^3 + (2)^3 + (3)^3 + (5)^3 + (7)^3$$

(14)

We know that Arithmetic

$$\text{mean is} = \frac{\text{Sum of Number}}{\text{Total Number}}$$

So,

Sum of ^{cube of} first 5 prime is

$$(1)^3 = 1$$

$$(2)^3 = 2 \times 2 \times 2 = 8$$

$$(3)^3 = 3 \times 3 \times 3 = 27$$

$$(5)^3 = 5 \times 5 \times 5 = 125$$

$$(7)^3 = 7 \times 7 \times 7 = 343$$

So,

$$\text{A. Mean} = \frac{1+8+27+125+343}{5}$$

$$\text{A. mean} = \frac{504}{5} = 10.8$$

Arithmetic mean of

cube of 1st 5 prime number = 10.8

Ans.

(C)

solution

50 men construct 20km in 40 day.

70 men will construct same road

in how many days.

$$\begin{array}{lcl} \text{Men} & : & \text{day} \\ 50 & : & 110 \\ 70 \downarrow & : & \uparrow x \end{array}$$

$$\frac{50}{70} = \frac{x}{40}$$

$$x = \frac{50 \times 40}{70}$$

$$x = \frac{2000}{7} = 285$$

$$\boxed{x = 285 \text{ day}} \text{ Answer}$$

Solution. (d)

$$\text{Zahid left property} = 1750,000$$

$$\text{Debts} = -150,000$$

$$\text{share of son} : 2 \text{ part}$$

$$\text{share of} : 1 \text{ part}$$

So,

we know debts should be

paid first i.e.

$$= 1750,000 - 150,000$$

$$\boxed{\text{property to be divided} = 1600,000}$$

Also we know

(16)

Total shares $2+1=3$

So,

$$\text{Son's share} = \frac{2}{3} \times 1600,000$$

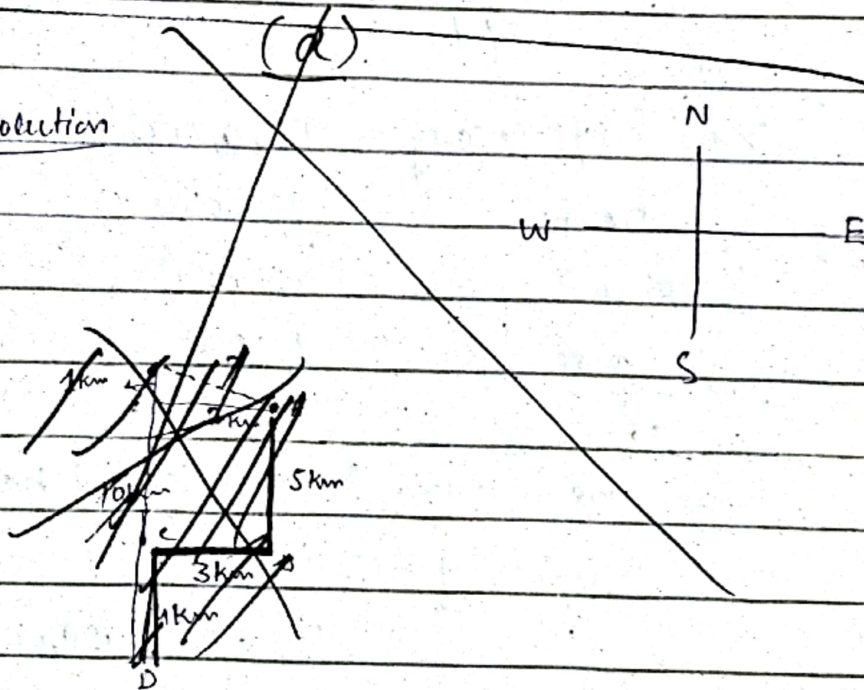
$$= 2 \times 533333.3$$

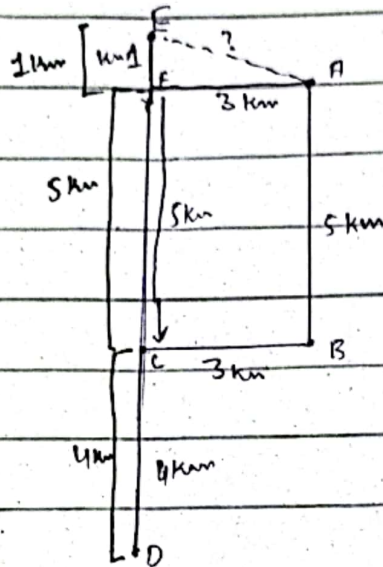
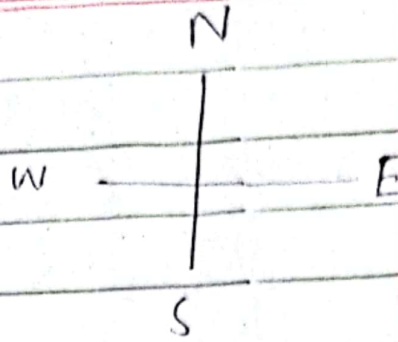
$$= 1066666.6 \text{ Rs}$$

$$\text{Daughters share} = \frac{1}{3} \times 1600,000$$

$$= 533333.3 \text{ Rs}$$

Solution



(a)

We have to find EA ?

As -

$$(\text{Hypotenuse})^2 = (\text{base})^2 + (\text{Perpendicular})^2$$

So

$$\sqrt{(EA)^2} = \sqrt{(3)^2 + (4)^2}$$

$$EA = \sqrt{9 + 16}$$

$$EA = \sqrt{25}$$

Answer

∴ He is in North-West direction
from his starting point

