

General Instructions

1. Give numbering to headings
2. Do not write lengthy paragraphs. Write medium sized paragraphs with headings.
3. Do not use table for comparison and contrast questions.
4. Draw figures/diagram/flowchart where needed.
5. Start new question from fresh page.
6. Write unit of the answer in ability section.
7. Explain mathematical steps and the reasoning for better score.
8. Change colour scheme for references to give them more visibility.
9. Manage time well.
10. Wide page borders are discouraged. Should be reasonable.
11. Avoid writing wrong references.
12. Give more weightage to expressly asked part/s of the question.

Q NO 6)

a. Identify the Series

i) 10, 100, 200, 310

36

series if we see the difference

300 - 100 = 100

200 - 100 = 100

310 - 200 = 110

so the difference increased by

number is 120 which means that

$$310 + 120 = 430$$

The next number is 430

(b) 3, 7, 23, 95

as per series

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

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

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

13

$$95 \times 5 + 4 = 479$$

so the next number is 479

$$\begin{array}{r} 95 \ 2 \\ \times 5 \\ \hline 475 \\ 4 \\ \hline 479 \end{array}$$

(c)

$$\text{Nish} = x$$

$$\text{Romi} = y$$

as per data

$$x = y + 15 \quad \text{--- (i)}$$

5 year ago x was 3 times
 y

$$y + 15 - 5 = 3(y - 5)$$

$$y + 10 = 3y - 15$$

$$y - 3y = -15 - 10$$

$$-2y = -25$$

$$y = \frac{-25}{-2}$$

$$\boxed{y = 12.5}$$

the value of y put in
eq (i)

$$x = 12.5 + 15$$

$$\boxed{x = 27.5}$$

The age of Nisha is 27.5 years

(d)

Given data

210 oranges

252 apples

294 pears

we find H.C.F

$$\begin{aligned} 210 &= 2 \times 3 \times 5 \times 7 \\ 252 &= 2 \times 2 \times 3 \times 3 \times 7 \\ &= 2 \times 3 \times 7 \end{aligned}$$

$$\text{H.C.F} = 2 \times 3 \times 7$$

$$\boxed{\text{H.C.F} = 42}$$

So the biggest possible 42 cartons needed

$$\begin{array}{r} 2 \overline{) 210} \\ \underline{42} \\ 105 \\ \underline{105} \\ 0 \end{array}$$

$$\begin{array}{r} 2 \overline{) 252} \\ \underline{126} \\ 126 \\ \underline{126} \\ 0 \end{array}$$

$$\begin{array}{r} 2 \overline{) 294} \\ \underline{147} \\ 147 \\ \underline{147} \\ 0 \end{array}$$

$$\begin{array}{r} 2 \overline{) 42} \\ \underline{21} \\ 21 \\ \underline{21} \\ 0 \end{array}$$

Q NO 6)

57

(b)

$$A = l \times w$$

$$\text{Perimeter} = (l + w) \times 2$$

$$\text{Perimeter} = 114$$

$$(l + w) \times 2 = 114$$

$$l = 2x - 3$$

$$w_1 = 3x - y$$

$$w_2 = 2x + y$$

in rectangle l_1 and l_2 , w_1 and w_2 are same so

$$w_1 = w_2$$

$$3x - y = 2x + y$$

$$3x - 2x = y + y$$

$$x = 2y \quad \text{--- (i)}$$

Perimeter

$$l_1 + l_2 + w_1 + w_2 = 114$$

$$2x - 3 + 2x - 3 + 3x - y + 2x + y = 114$$

$$9x = 6 + 114$$

$$9x = 120$$

$$x = \frac{120}{9}$$

$$x = 13.33$$

$$x = 13.33$$

value of x put in
eq (i)

$$13.33 = 2y$$

$$\frac{13.33}{2} = y$$

$$y = 6.667$$

$$w_1 = 3x - y$$

$$= 3(13.33) - 6.667$$

$$= 39.99 - 6.667$$

$$w_1 = 33.32$$

$$\begin{aligned}
 w_2 &= x + y \\
 &= 2(13.333) + 6.667 \\
 &= 26.666 + 6.667
 \end{aligned}$$

$$w_2 = 33.333 \text{ cm}$$

$$l = 2x - 3$$

$$\begin{aligned}
 l &= 2(13.333) - 3 \\
 &= 26.666 - 3
 \end{aligned}$$

$$l = 23.666 \text{ cm}$$

So now we calculate Area

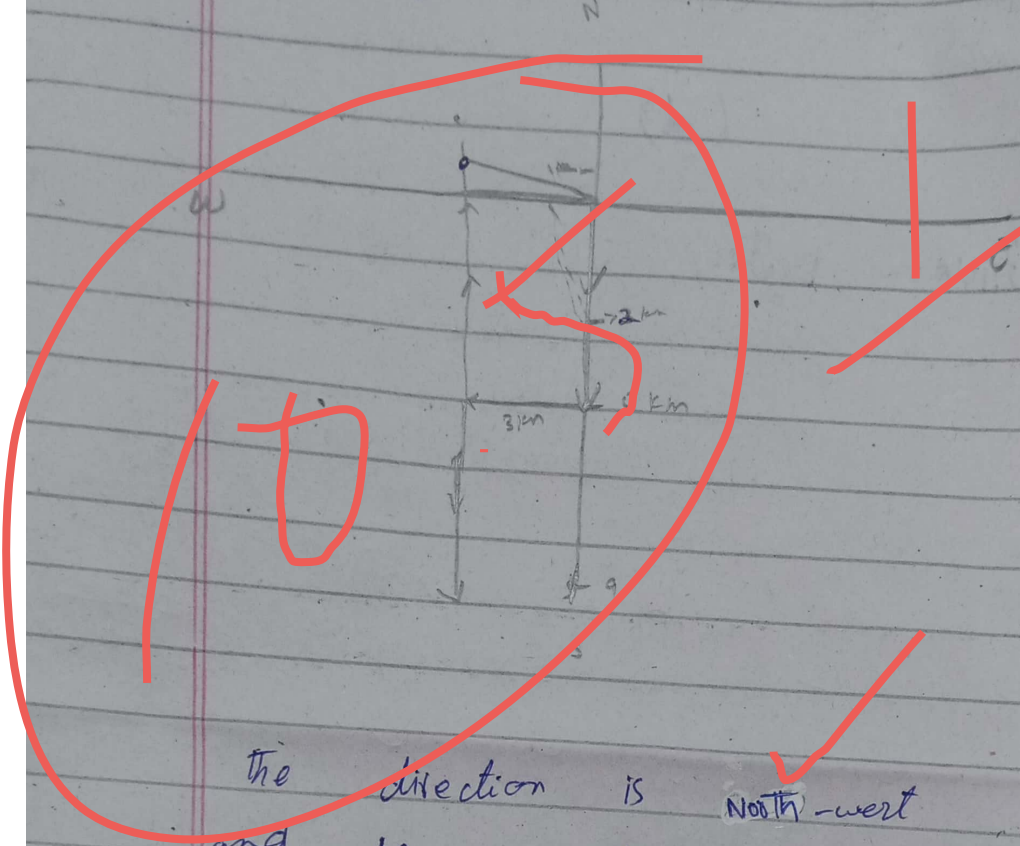
$$\begin{aligned}
 \text{area} &= l \times w \\
 &= 33.333 \times 23.666
 \end{aligned}$$

$$\text{area} = 788.7578 \text{ cm}$$

cm²

$$\begin{array}{r}
 33.333 \\
 \times 23.666 \\
 \hline
 199998 \\
 199998 \times \\
 199998 \times \\
 99999 \times \times \\
 66666 \times \times \times \\
 \hline
 788.757778
 \end{array}$$

Q NO 8)



the direction is North-west
and he is 4 km far from
starting position

$$3^2 + 2^2 = 4^2$$
$$10 - 9 = 1 \text{ km far}$$

(b)

Prime numbers

2, 3, 5, 7, 11

cube

8, 27, 125, 343, 1331

mean

$$\frac{8 + 27 + 125 + 343 + 1331}{5}$$

$$\frac{3068}{5}$$

1884

$$\text{mean} = 366.8$$

The mean of cube of first five prime number is 366.8

(c)

Given Data

man	length	day
50	20	40
70	20	x

Solve

length constant, number of people has inverse relation with days so

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

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

$$\begin{array}{r} 28.57 \\ \hline 200 \\ \hline 7 \end{array}$$

$$= 28.57 \text{ days}$$

70 men take 28.57 days

(d)

2a Given Data

$$\begin{array}{l} \text{Property} = \text{Rs. } 1750,000 \\ \text{debt} = \text{Rs. } 150,000 \\ \text{value after} = 1750000 - 150,000 \\ \text{debt} \\ = \text{Rs. } 1600,000 \end{array}$$

to be find

$$\begin{array}{l} \text{share of daughter} = 1 = ? \\ \text{share of son} = 2 = ? \end{array}$$

Solve

$$\text{Total share} = 1 + 2 = 3$$

$$\text{share of son} = 1600,000 \times \frac{2}{3} \\ 1066666.67$$

$$\text{Share of son} = \text{RS. } 1066666.67$$

$$\text{Share of daughter} = 1600,000 \times \frac{1}{3}$$

$$\text{Share of daughter} = 533333.33$$

Rs

Q NO 5)

(a)

Human Ear:-

Human ear is the organ of hearing and balance. It has three parts

- i) Outer Ear
- ii) middle Ear
- iii) inner Ear

Outer Ear:-

The out ~~part~~ of the ear called outer ear. It has three part

a) Pinna: The out side part and connect ear with body.

b) Auditory Tube: The Tube which is in inside the ear

c) Ear drum: Ear drum which is also called as Tympanic membrane, connect the outer ear with middle ear.

Middle Ear

It has two part

- i) ossicles
- ii) Eustachian Tube

Ossicles:-

Three type of bones connected with each other and produce sound wave

- i) Malleus
- ii) Incus
- iii) Stapes → smallest bone of human body

Eustachian Tube:-

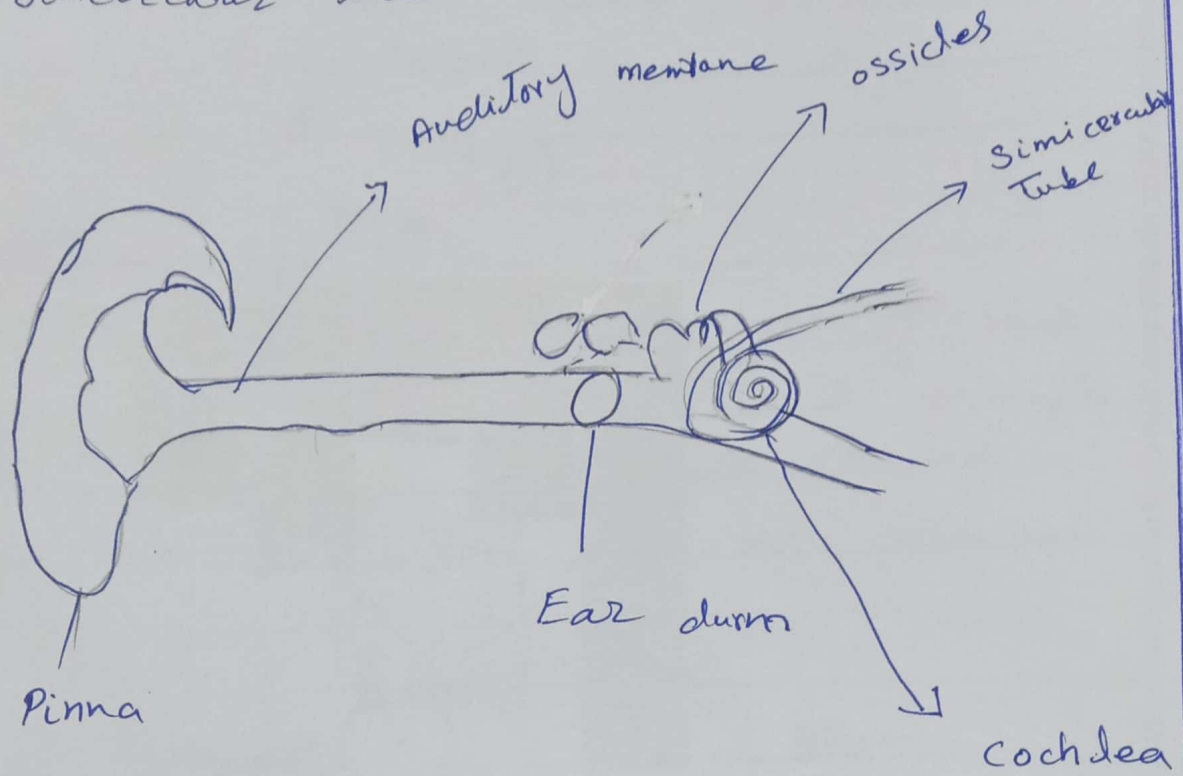
It is a Tube which links middle ear with back of nose. It's also equalized the pressure in middle ear, for balanced sound transfer

Inner Ear:-

It has three part which are following

- i) Cochlea
- ii) Vestibule

3) Semicircular Tube



Cochlea

AS per its name it is called like snail. It has thousand fiber like long structure which is help for sending sound to brain.

How to work:-

in First step The sound enter through out ear in the ear. After it sound strike the eardrum. It send to cochlea which has fiber that are vibrate with sound and converted in to electronic waves which are send

it to brain and brain translate it
in to actual sound

(b) Digestive system:-

The process of break down food by mechanical and enzymatic action in stomach and into intestine in to substances that can be absorbed.

It consist following parts

- 1) Oral cavity, Esophagus
- 2) Stomach
- 3) Small intestine
- 4) Liver, Pancreas
- 5) Large intestine

Small intestine:-

Small intestine play an important role in digestion of food. It has three parts

- a) Duodenum
- b) jejunum
- c) ileum

a) Duodenum:-

It is the largest

Part of the large intestine. It is 20-25 cm long. Secretion of liver and pancreas secreted here. The function of duodenum is produce enzyme which is enterokinases, activate the trypsinogen in to trypsin.

Jejunum:-

It is the 2nd largest part of the small intestine, and 2.4 cm long. The digestion process is complete here. Jejunum ~~perked~~ different enzymes function

- a) lipase → convert fat into amino acid
- b) maltase → convert into glucose
- c) lactase → convert into glucose

Ileum:-

The smallest and last part of small intestine. The food absorbed here and then send forward to large intestine.