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 all 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 expressedly asked part/s of the question.

28

(Part-II)

Q 5(c)

Vitamins

Vitamin is any of the organic compound that the body requires in small amounts to maintain health and function properly

Classification

Vitamins are classified into two groups

i) Fat Soluble vitamins

ii) Water Soluble vitamins

Fat Soluble vitamins:

Fat soluble vitamins include vitamin A, D, E and K, which are usually absorbed with the help of food that contain fat.

Vitamin A

Vitamin A is also called Retinol. Its deficiency causes **Night blindness**. They help in the maintenance of epithelial tissue.

Vitamin D

Vitamin D is absorbed by human skin from sunlight. Its deficiency can cause **Rickets**. It helps in calcium absorption and bone formation.

Vitamin E

The second name of Vitamin E is **tocopherol**. Its deficiency can cause **anemia**. It acts as an antioxident.

Vitamin K

Vitamin K is also called as **manadion**. It helps in blood clotting.

Water Soluble Vitamins

These vitamins include vitamin B and vitamin C. Vitamin B is comped of eight vitamis, but they are grouped together as vitamin B complex.

Vitamin C

Vitamic C is also known as **ascorbic acid**. Its deficiency can cause **scurvy**.

It helps in collagen formation in teeth.

Vitamin B Complex

Vitamin B complex has 8 vitamins which are listed below.

i) Vitamin B_1 (Thiamine)
ii) Vitamin B_2 (Riboflavin)
iii) Vitamin B_3 (Nicotinic acid)
iv) Vitamin B_5 (Pantothenic acid)
v) Vitamin B_6 (Pyridoxine)
vi) Vitamin B_7 (Biotin)
vii) Vitamin B_9 (Folic acid)
viii) Vitamin B_{12} (Cobalamin)

(b)

Digestive System:

The System in which breakdown of larger food particales to smaller absorable food particales takes place is called digestive system.

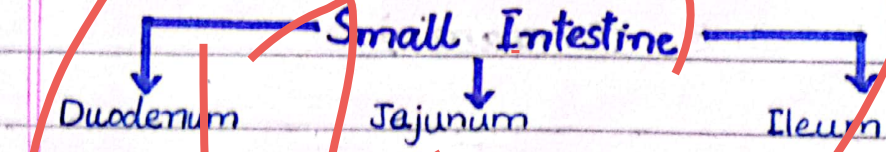
Parts of Digestive System

It consists of following parts.

Oral Cavity
Osophagus
Stomach
Small Intestine
Pancreas
Liver
Large Intestine

Role of Small Intestine

Small intestine is six-meter long. It is further divided into three parts



Duodenum:

It is first part of small intestine. It is 20 to 25 cm long. When food enters into duodenum, it causes the release of secretions from pancreas and liver. Both pancreas and liver pour their secretions into duodenum. It secrets only enzyme called **enterokinase**

which helps in the activation of Trypsinogen into Trypsin.

Jejunum

It is the second part of small intestine. It is 2.4 meter long. Food is completely digested in jejunum. Secretions of jejunum are collectively known as **intestinal juice**. It contains five enzymes.

Add diagram

Amino peptidase

It converts polypeptides into dipeptides.

Erypsin

It converts dipeptide into amino acids

Lipase

It converts fats into fatty acids and glycerol

Maltase

It converts maltose into glucose.

Lactase

It converts lactose into glucose

Ileum

It is third part of small intestine. Absorption of food takes place in Ileum. Internal surface of ileum has finger

like projections called villi. Each villus is richly supplied with blood vessels, which absorb the food from ileum. Undigested food is not absorbed in ileum and is pushed forward into large intestine.

(d)

Pituitary Gland

It is also known as master gland of the body. Its weight is about 0.5gm and its size is equal to the size of seed of pea. It has three lobes anterior, median, and posterior.

Anterior lobe:

It secretes following hormones in the body.

Somatotrophin hormone

It is also known as growth hormone. It controls the growth of body. It is secreted through out the life. Its abnormal secretion involves two problems

(a) Dwarfism (b) Gigantism

Thyroid stimulating hormone

This hormone stimulates the thyroid gland to secret its secretion "thyroxin", when its amount decreases in the blood.

Adreno cortico trophic hormone

This hormone stimulate adrenal gland to secret its secretion "Adrenalin", when its secretion is needed in the body during stress

Ganddotrophic hormone

There are three types of gonadotrophic hormone.

i) Folic stimulating Hormone
ii) Luteinising Hormone
iii) Prolectin Hormone

Diagram missing

Median Lobe

It secrets only one hormone called Melanophore Stimulating hormone.

Melanophore stimulating hormone

It stimulates the melanocytes in skin to produce a brown pigment melanin, which gives colour to skin.

Posterior Lobe

This lobe does not secrets its own hormones. It only acts as store house for the hormones which are secreted by hypothalamus, Antidiuretic hormone and oxytocin.

Antidiuretic hormone

This hormone is secreted when the level of water decreases in blood.

Oxytocin

It causes the contraction and relaxation of the muscles of uterus during child birth. It also cause the ejection of milk from the mammary gland.

(a)

Human Ear:

The ear is the organ of hearing and balance.

Parts of Ear

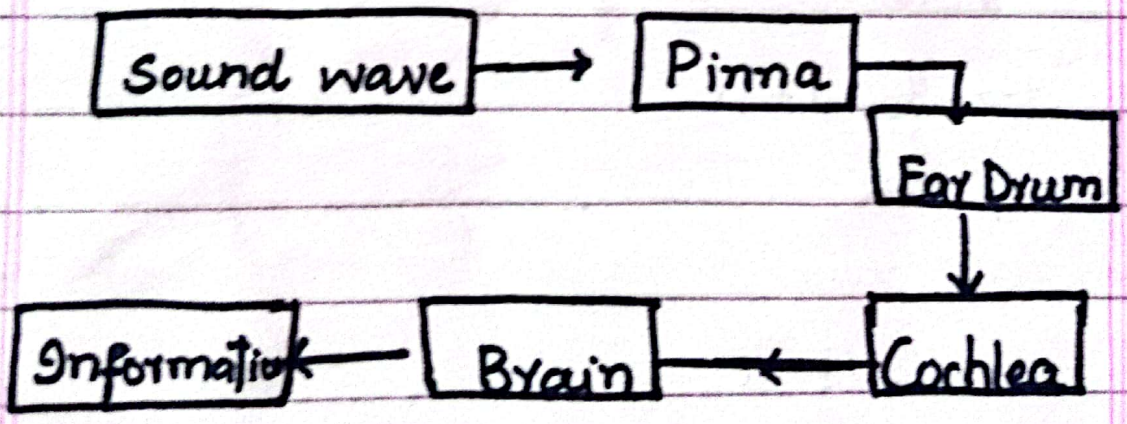
The parts of ear include

(1) External ear
   (a) Pinna
   (b) External auditory canal
   (c) Eardrum
(2) Middle ear
   (a) Ossicles
   (b) Eustachian
(3) Inner ear
   (a) Cochlea
   (b) Vestibule
   (c) Semicircular canal

Function of Ear

When sound waves hit eardrum, a chain reaction is set off. Our eardrum sends the vibrations to the three smallest bones in our body. This stir-up passes

those vibrations along a coiled tube in the inner ear called **Cochlea**, there are thousands of hair-like nerve endings, cilia. When the cochlea vibrates the cilia move. A nerve message generate that is sent to the brain through the auditory nerve. Our brain then translates all that and tells us what we are hearing. Sound waves travel in the following way to send message to brain.



(Section II)

Q.6 (a)

(i)

10, 100, 200, 310, ——

Solution:

Firstly add 90 into 10, it makes 100. Then add 100 into obtained value (100), it makes 200. After a increase of 10 from 100 to 110, adds it to the third obtained value 200, it makes 310. Now add **120** - which is obtained after consecutive increment of 10 into the first taken value of 90 - it will make 430

$10 + 90 = 100$ $100 + 100 = 200$ $110 + 200 = 310$

$120 + 310 = 430$

10, 100, 200, 310, 430

(b)

Given:

Perimeter of rectangle = 111cm

To find:

Area of rectangle = ?

Formula:

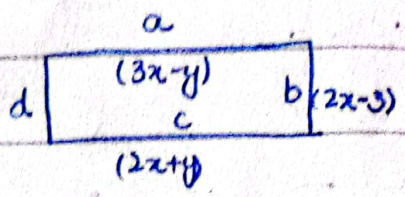
Area = length x width

Solution:

First, we solve the given perimeter to find out the value of length and width of rectangle.

As we know that Perimeter is sum of all sides.

According to given rectangle



Perimeter = 2[

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

$= 2[9x-6]$

$114 = 18x-12$

$114+12 = 18x \Rightarrow 18x = 126 \Rightarrow x = 126/18 = 7$

By putting this value in (3x-y)

$3(7)-y=0 \Rightarrow 21-y=0 \Rightarrow y=21$

So, the Area of rectangle will be

Area = $21 \times 7 = 147cm$

(d)

Given:

Oranges = 210

Apples = 252

Pears = 294

To find:

Biggest possible Number = ?

Solution:

H.C.F = $2 \times 3 \times 7 = 42$

So, the biggest possible number is **42**

2	210 · 252 · 294
3	105 · 126 · 147
7	35 · 42 · 49
5	5 · 6 · 7
6	1 · 6 · 7
7	1 · 1 · 7
	1 · 1 · 1

Q.7(b)

BROTHER → QDGSNQA

SISTER → QDSRHR

Explain rhe reasoning in more detail

The sequence follows one letter back in opposite direction such as before B there comes A which is put under R.

Q.7 (d)

Given

Pizza is divided in 8 parts/slices

3 slices have raisin

To find:

Probability of picked slice which has raisin

Formula:

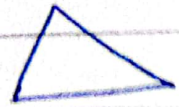
$$\text{Probability} = \frac{\text{No of possible outcomes}}{\text{No of event to be occurred}}$$

$$\text{Probability} = \frac{3}{8}$$

(C)

Scalene Triangle:

A triangle with different lengths of all sides is called scalene triangle



Equilateral Triangle

Angles?

A triangle which has all sides of equal length is called equilateral triangle.

A triangle which is Isosceles and Right at the Same time:

A triangle with two sides of equal length and one side of different length is called Isosceles triangle.

A right triangle is a triangle which is isosceles and right at the same time.