

3-4
A

Land pollution also known as solid waste, it is the waste which contains solid and semi solid materials, they are usually non-soluble in nature.

Causes of Land Pollution.

1. Bio-degradable material waste.

This includes kitchen waste, plant matter and certain inorganic materials that bacteria can break down.

2. Inert Waste

This is a waste which is not liable to decompose such as, construction waste, sand, rocks, dirt debris.

3. Electronic Waste,

E-waste refers to discarded electrical devices. This includes items that are no longer of value to their users or no longer serve their original purpose. These items are electronic appliances,

4. Hospital Waste,

It is the waste that contains infectious or potentially infectious materials, produced by health care facilities like hospitals, clinics and laboratories.

These items are blood filled bandages, syringes, plastics, etc.

Domestic Waste

It is produced from everyday home activities. It can be categorized into organic (kitchen waste), toxic (old batteries), recyclable (paper, glass) and solid (used napkins).

B Main Goals of COP-17

1. **Dedication Fund for loss and damage:**
A fund was established to provide financial aid to countries suffering from climate disasters.
2. **Intention to keep 1.5° within Reach:**
The conference emphasized the need for global greenhouse gas emissions to peak before 2025 and be reduced by 43% by 2030.
3. **Accountability of Business and Institutions**
The conference focused on holding sectors, businesses, and institutions accountable for their commitments.
4. **Financial Support for Developing Countries**
The conference stressed the importance of sufficient funding for mitigation, adaptation, loss and damage, and climate technology.

Pivot Towards Implementation:

The Conference called for aligning all human activities with the 1.5°C goal.

C Role of GIS in Environmental Science

- 1 Organizing Data: GIS helps to organize, manage, and visualize geospatial data for environment analysis.
- 2 Addressing Environmental Problems: It can be used to tackle a wide range of environmental issues such as pollution, water resource management, and climate change impacts.
- 3 Predicting Environmental Outcomes: GIS can manage large database and predict environmental outcomes based on different scenarios.
- 4 Facilitating Sustainable Development: GIS aids in environmental management for sustainable development.
- 5 Coordinating Conservation Efforts: GIS can be used to coordinate conservation efforts across national borders.

D Fundamentals of Artificial Intelligence

- 1 Learning: A.I. systems have the ability to learn and adapt from their experiences.
- 2 Reasoning: A.I. system can solve problems by reasoning similar to humans.

Problem Solving:

A.I system can solve complex problems and make decisions on the data they have.

4 Perception:

A.I system can perceive their environment for example, recognising speech or understanding images.

5 Language understanding:

A.I systems have the ability to understand and generate human language, enabling them to interact with humans in a more natural way.

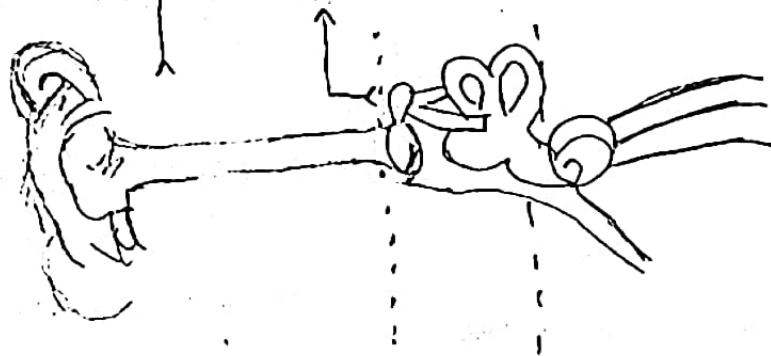
Q no 5
A

Structure and Function of Human Ear.

Ear is the organ which gives us the sense of hearing. It has 2 functions hearing and maintaining balance of the body.

Structure of Ear.

Outer Ear ← Middle Ear, Outer Ear.



5
Each ear has three parts

1 Outer Ear:

Outer ear consists of pinna (the part we see), ear canal and ear drum. The function of the pinna is to collect sound waves and pass it on to ear drum via ear canal. When sound waves strike ear drum, it vibrates.

2 Middle Ear:

It consists of 3 bones - Incus, malleus and staples. Vibration from ear drum are passed on to these tiny bones (staples is the smallest bone of human body).

3 Inner Ear:

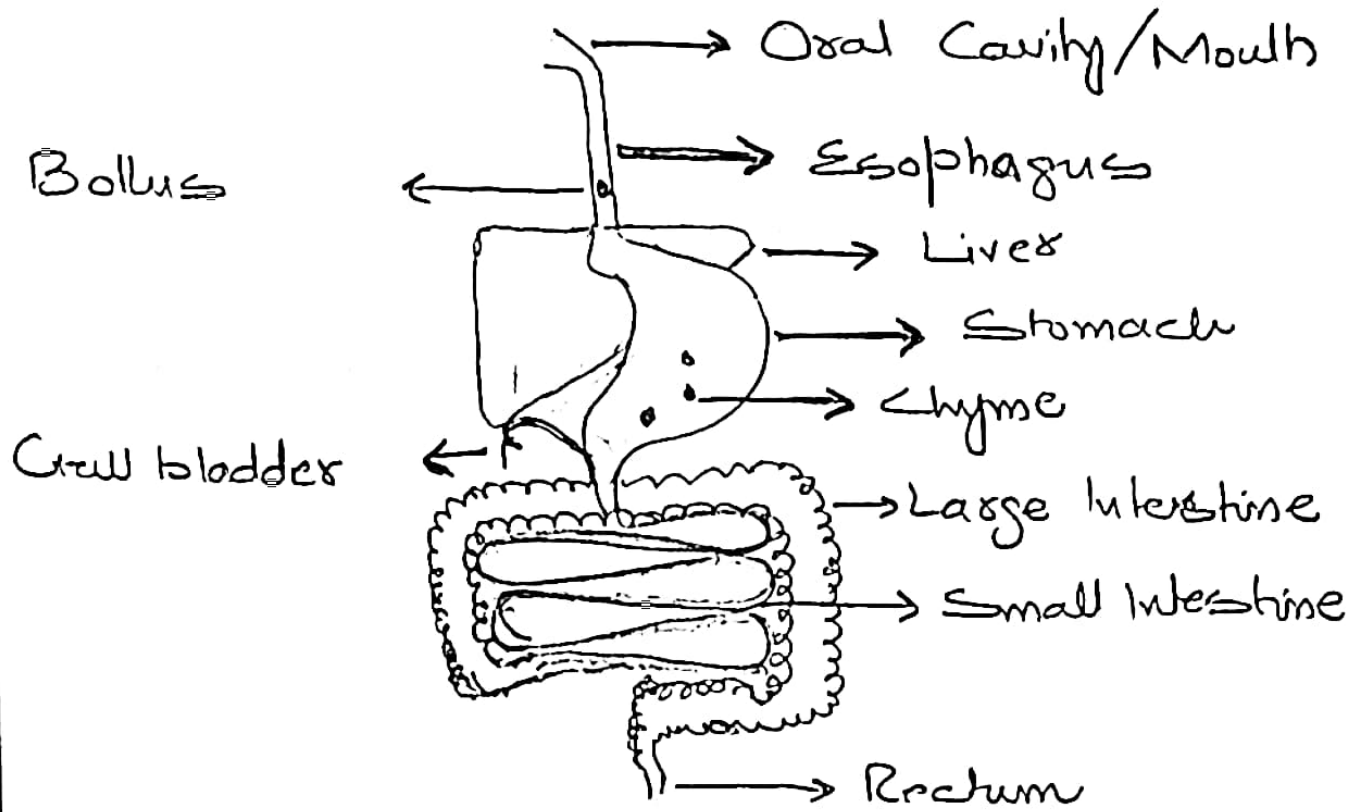
It consists of 3 semi-circular canals, cochlea, vestibular and cochlea nerves. Vibration from the bones is transferred to the inner ear from where information is sent to the brain via cochlea nerve.

(The vestibular nerve maintains balance of the body.)

B

Digestive System

It is a system through which complex molecules of food are broken down into simpler molecules, that are capable of cellular absorption.



Components of Digestive System

1. Oral Cavity / Mouth
Chewing and grinding of food.
2. Stomach
Digestion of Proteins
3. Small Intestine
4. Large Intestine
→ Reabsorption
5. Rectum
Storage of waste.

Role of Small Intestine in digestive System.

In small intestine digestive system completes, because food doesn't break down further from here. 90% of digestion of food takes place in small intestine.

Small Intestine is divided into 3 parts

1. Duodenum

Its length is 22-25 cm. Chyme (food) enters duodenum from stomach. In duodenum pancreas releases 3 essential enzymes:

- i - Amylase:
Formation of maltose
- ii - Lipase:
Reacts on lipids and convert them into fatty acids
- iii - Sodium Bicarbonate:
To balance acidity in stomach.

In duodenum liver secretes special product known as "Bile". Bile reacts on lipids and convert them into fatty acids.

2. Jejunum:

Second part of small intestine where digestion completes. Jejunum secretes different enzymes (intestine juices).

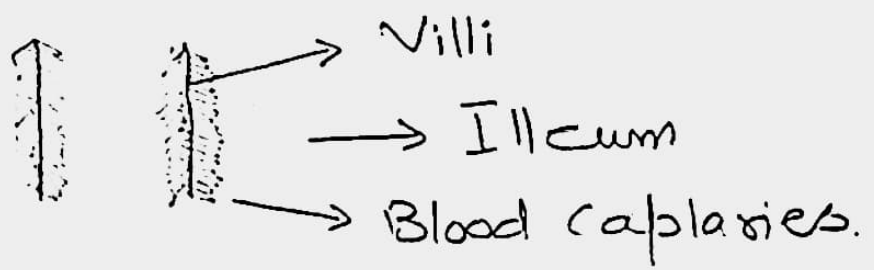
- a - Amino Peptidase;
It converts polypeptides into de-peptides
- b - Trypsin;
It converts de-peptides into amino acids
- c - Lipase;
It converts lipids into fatty acids
- d - Maltase;
It converts maltose into glucose

Lactase

It converts lactose into glucose.

3 Ileum

It is 3rd portion of small intestine. Absorption of food starts from here. Villi absorb all digestive food.



Through blood capillaries it reaches into blood and all over the body, giving energy.

C Short Note on Vitamins.

Vitamins are organic compounds that are required in tiny amount to complete many biochemical relations. There are 2 kinds of vitamins

1 Fat Soluble Vitamins

Fat soluble vitamins stay inside a body for long period of time, so they should not be consumed at higher level.

2 Water Soluble Vitamins

Water soluble vitamins should be consumed daily.

Fat Soluble Vitamins Characteristics 9

- 1 Vitamin A (Retinol)
 - Available in Carrots, Fresh Fruits, Raw vegetables.
 - Deficiency can cause night blindness and dryness of skins
- 2 Vitamin D (Cholecalciferol)
 - Available in Dairy Products
 - Deficiency can cause Rickets (deformation of bones), Osteomalacia (bone ailments).
- 3 Vitamin E (Tocopherol)
 - Available in Iron rich food and green leafy vegetables
 - Deficiency can cause Infertility.
- 4 Vitamin K (Phylloquinone)
 - Available in green leafy vegetables
 - In deficiency blood does not clot.

Water Soluble Vitamins

- 1 Vitamin B1 (Thiamine)
 - Available in liver, heart, kidney, Mutton, Milk
 - Deficiency can cause beriberi and paralysis
- 2 Vitamin B2 (Riboflavin)
 - Available in liver, heart, kidney, Mutton, Milk
 - Deficiency can cause dryness of mouth.

- 10 of
- 3 Vitamin B3 (Niacin)
- Available in liver, fish, chicken, meat, mutton
 - Deficiency can cause diarrhoea, dementia, dermatitis and death.

4 Vitamin B5 (Pantothenic Acid)

- Available in liver, heart, chicken, meat, mutton
- Deficiency can cause fatigue, skin rashes

5 Vitamin B6 (Pyridoxine)

- Available in wheat, corn, olive oil, sunflower oil
- Deficiency can cause Anemia.

6 Vitamin B7 (Biotin)

- Available in fresh fruits and vegetables
- Deficiency can cause skin allergies.

7 Vitamin B9 (Folic Acid)

- Available in iron rich food, green leafy vegetables
- Deficiency can cause infertility.

8 Vitamin B12 (Cobalamin)

- Available in liver, heart, kidney, beef, mutton milk
- Deficiency can cause megaloblastic anemia

9 Vitamin C (Ascorbic-Acid)

- Available in all citrus fruits
- Deficiency can cause scurvy (bleeding gums)

Function of Pituitary Gland:

Glands helps to maintain the personality and balance in the body. They have special chemicals that they secrete into human body that play in important role in the growth of body.

Pituitary Gland:

This gland is located at head near hypothalamus. This is also called master gland and it has 3 parts.

1 Anterior Lobe:

This lobe is responsible to secrete Somato-Tropin Hormone, which is responsible for the growth of body. It is also known as growth Hormone.

Anterior lobe also secrete Adreno-Cortical Tropic Hormone. This is responsible to stimulate the Adrenal Gland.

2 Median Lobe:

Median lobe responsible in secreting Melanophore Stimulating Hormone. This hormone is responsible to maintain the color of skin in whole body.

3 Posterior Lobe:

It does not secrete any hormone, It acts as store house of certain hormones.

Solution:

Accidental Increase = 20%

Price after accidental increase = 80

Actual price before accidental increase = ?

20% of 80 = x

~~20~~/~~100~~ (80) = x

1/5 (80) = x

~~80~~ = x

x = 16

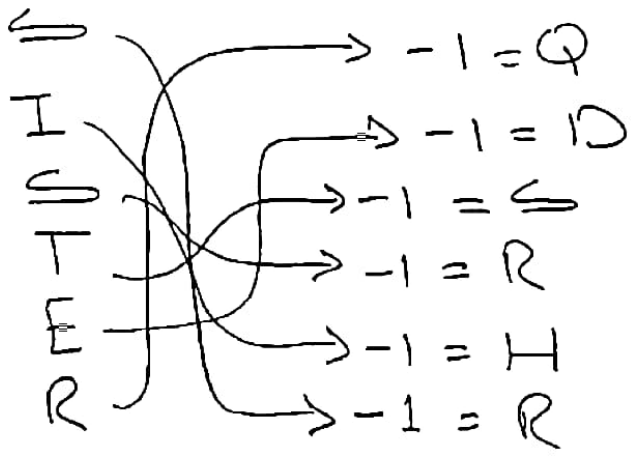
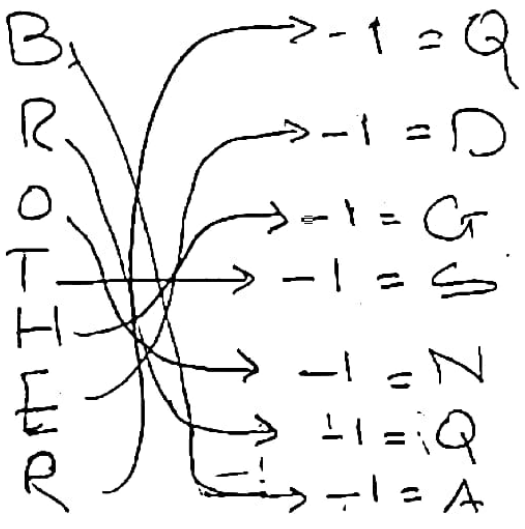
16 is 20% increase.

80 - 16 = 64

64 is actual price.

B Solution

If BROTHER is written as QDGSNQA
SISTER is written as ?



SISTER will be written as QDGRHR

1 Scalene Triangle

It is a triangle having all the sides and angles are unequal.

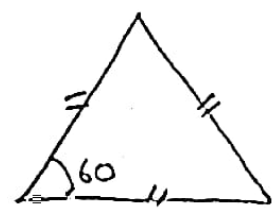
e.g



2 Equilateral Triangle

It is a triangle having all the sides and angles equal.

e.g



3 A Triangle which is Isoscles and Right at the same time.

a Isoscles Triangle

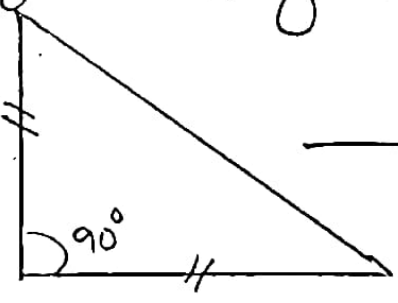
It is a triangle having two sides and two angles equal.

e.g



b Right Triangle

A triangle having one angle of 90°



→ Isoscles triangle and Right triangle

8

Solution =

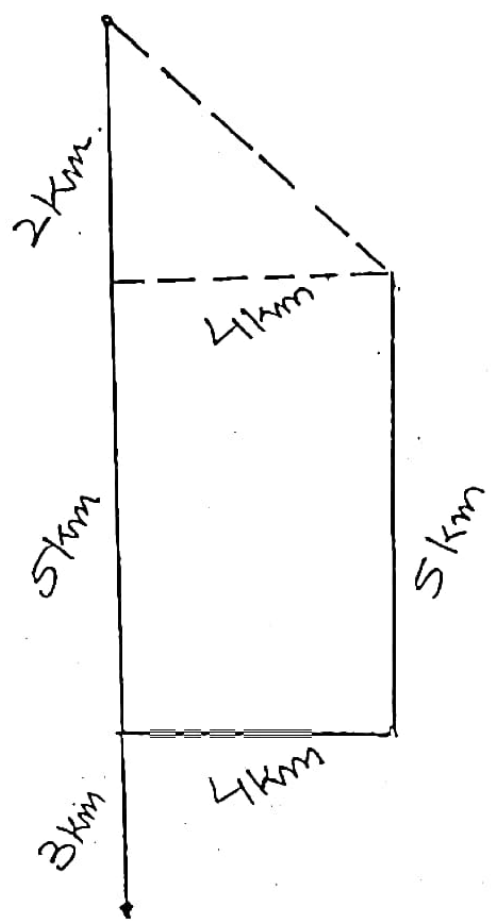
$$\text{Probability} = \frac{\text{no. of ways of occurrence}}{\text{total possible outcomes}}$$

no. of ways of occurrence = 3 slices
 total possible outcomes = 8 slices

$$\text{Probability} = \frac{3}{8} = 0.375$$

0.375 probability is available

Q no. 8
 A



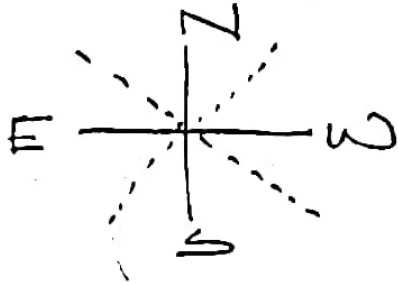
To identify the distance use the Pythagorean theorem

$$\begin{aligned} (\text{Hyp.})^2 &= (\text{Base})^2 + (\text{perp.})^2 \\ \sqrt{(\text{Hyp.})^2} &= \sqrt{(4)^2 + (2)^2} \\ (\text{Hyp.}) &= \sqrt{16 + 4} \end{aligned}$$

$$\text{Hyp} = \sqrt{20}$$

$$\text{Hyp} = 4.472$$

He is 4.472 km. away from home.



He is towards North-East from his home.

B

First 5 prime numbers are

2, 3, 5, 7, 11

to find arithmetic mean

$$= \frac{\text{Sum of numbers}}{\text{total numbers}}$$

$$= \frac{2+3+5+7+11}{5}$$

$$= \frac{28}{5}$$

$$= 5.6$$

5.6 is arithmetic mean.

C

Men	Road	Days
50	20	40
70	20	x

$$\frac{x}{40} = \frac{\cancel{20}}{\cancel{70}} \times \frac{50}{70}$$

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

$$70x = 50(40)$$

$$70x = 2000$$

$$x = \frac{2000}{70}$$

$$x = 28.5$$

70 workers will complete the construction in 29 days

D

Worth of Property = 175000

Debt Payment = (150,000)

Remaining balance = 25000

Son's share = 2/3 ratio

Daughter's share = 1/3 ratio

$$\text{Son's share} = \frac{2}{3} \times 25000$$

$$\text{Son's share} = 16,666.667$$

$$\text{Daughter's share} = \frac{1}{3} \times 25000$$

$$\text{Daughter's share} = 8333.333$$