

General Science and Ability

21/9/2023

General Instructions

Section - 1

36

4/2

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 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.
11. Avoid writing wrong references.
12. Give more weightage to expressly asked parts of the question.

Cause:

The causes of land pollution are may be divided starting from natural wrath to human negligence and incompetent measures and policies of govt. However, the main and obvious causes of land pollution are:



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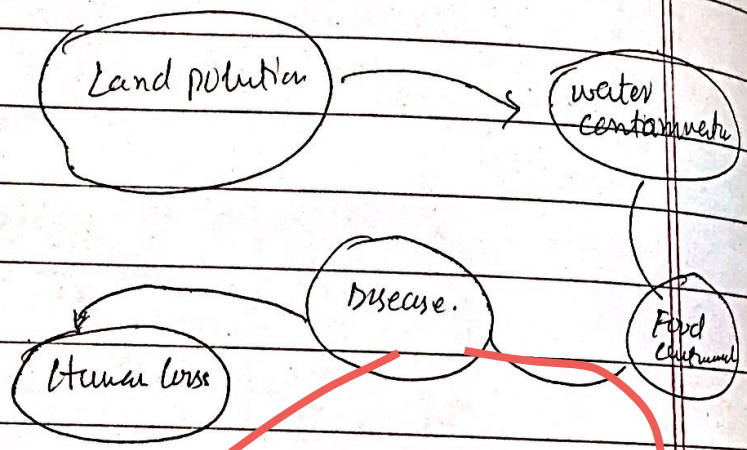
Expand a bit

Day: \_\_\_\_\_

- a. Waste disposal: the disposal of waste and irregular waste
- b. Urbanization and construction: construction of houses
- c. Mining and Extraction
- d. Litter: the negligence of people in disposing wastes on roads and everywhere

consequences:

Land pollution causes soil erosion, habitat loss, contamination of water and food.



b. What are the main goals of the COP-27?

Ans:

COP 27

COP 27 is the conference of conference of members of United Nations regarding climate change. The recent conference of the parties



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was held in Egypt in November, 2022.  
The objective of the conference was to operationalize a loss and damage fund.

The UN Secretary General remarks regarding climate change and alarming situation of global warming with rise in temperature was:

"we can and must win the battle of our lives"

### Goals of COP-27:

the meeting resulted in the following goals

1. **Mitigation:** The aim of meeting was to take measures like countries will have to increase their unconditional contributions to reduce the temperature (globe) by 5% to 10% <sup>NDCs</sup>
2. **Adaptation:** the countries have to adopt certain rigorous measures to cope with disaster instead of waiting to SDGs goals of 2030.
3. **Finance:** the developed countries have to support the vulnerable countries to climate financially. 100 \$bn were made promise at cop16.



Date \_\_\_\_\_

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#### 4. collaboration:

The meeting called for collaboration in every sector like government, civil society and private sector to collaborate and coordinate in tandem to bring about rapid change.

But unfortunately most of the countries do not contribute to preventive measures of carbon emission and hydrocarbon consumption.

#### C. what is the role of GIS in environmental Science?

Ans

GIS: GIS stands for Geographic Information System

The role of GIS in environmental Science is multi-faceted, as Environmental Science is a broad area of Science ranging from, lands, forest, Disaster, pollution, soil, and much more. The whole ecosystem of man is called environment and the study and analysis of that system is environmental Science.



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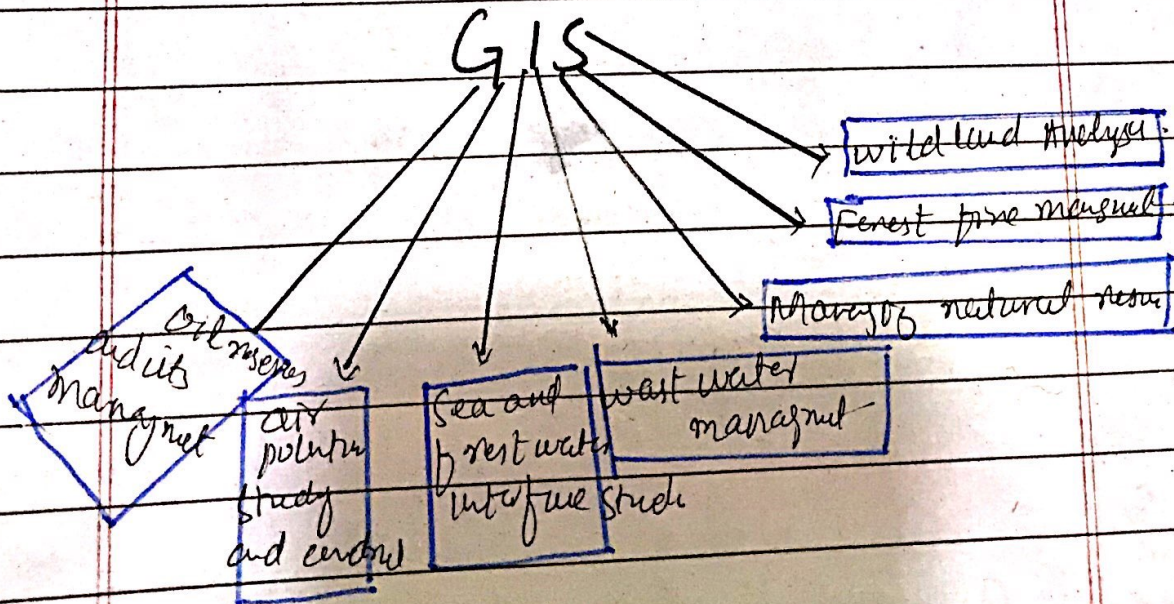
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Day. \_\_\_\_\_

GIS is applicable in the areas of:

- ① wild land analysis
- ② Forest fire management
- ③ Managing natural resources
- ④ waste water management
- ⑤ Sea and fresh water interface studies
- ⑥ Air pollution study and control
- ⑦ Oil reserves and its management

Environmental Science



Q. What are the fundamentals of Artificial Intelligence:



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Ans: 4 (D)

## Fundamentals of Artificial Intelligence

→ Artificial intelligence is the art of creating machines that perform functions like humans with intelligence.

It is that branch of computer which deals with automation of intelligent behaviour.

The fundamentals in which an AI works are:

- ① Act Humanly : Intelligence like human.
- ② Think Humanly : Cognitive Science
- ③ Act Rationally - Doing the right thing
- ④ Think rationally, - Logistics, the role of logic

Sy Q

a. Give Structure and Function of Human Ear.

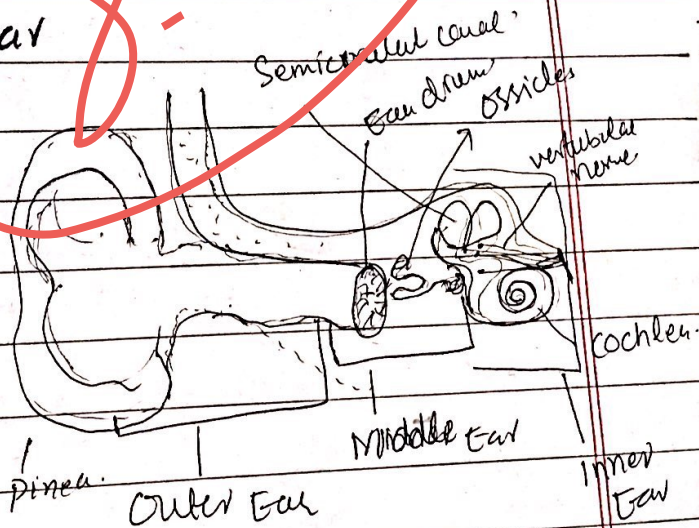
Ear, the part and sensory organ of human body responsible for



hearing and balance. The sound is received by the outer ear and when the eardrum vibrates, the ossicles balance the sound by amplification and transmit to inner ear.

Structure:

1. Outer Ear : Pinna (pinna → tragus, helix, lobule)
2. Middle Ear, Ossicles + Eardrum.
3. Inner Ear



Inner Ear consist of Cochlea, vestibular nerve, semicircular canals.

Functions:

Ear is called the organ of hearing and equilibrium.

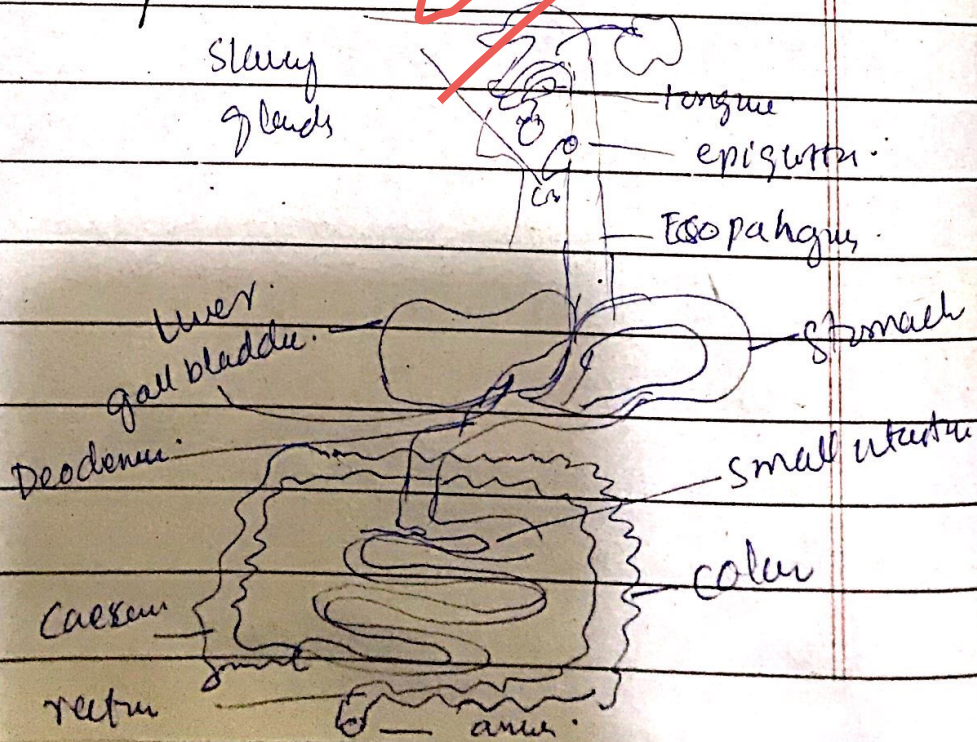
- ① the detection of sound



- ① Analysis of sound by transduction  
↳ converting into impulses.
- ② Maintaining balance, or equilibrium
- ③ What is Digestive System? what is the role of Small intestine in Digestion?

### Digestive System:

Digestive System is the system that breaks down the food into nutrients such as carbohydrates, fats and proteins. They are absorbed into the blood stream and is used as energy for growth and repair.





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The role of small intestine:

- ① Breaks down food.
- ② Absorb nutrients needed for body.
- ③ Get rid rid of unnecessary components.

Too short. Detail?

c. write a short note on vitamins.

**vitamins:** vitamins are substances that are essential for the proper function and development of body. They are necessary for normal growth, good health, good vision proper digestion. They do not provide energy to the body but help in proper functions of body.

**Kinds:** A, B, C, D, E, and K.

They can be soluble or insoluble as they are organic substances.

They store up bones, bolster muscle and proper growth of hair, nails body skin and, much more.

Vitamin B can also have.

B<sub>12</sub>, B<sub>6</sub> folic acid and biotin.



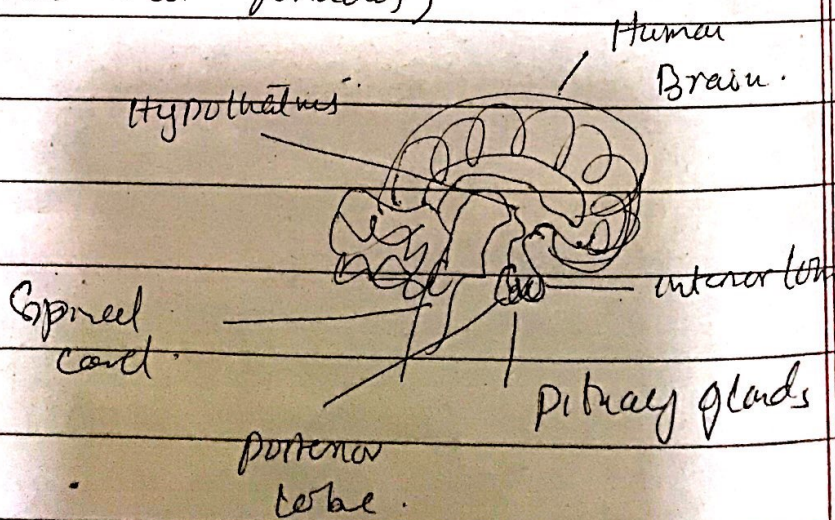
d. Describe the function of pituitary glands.

Ans

### Pituitary Glands:

It is the major endocrine gland. Its size looks like a pea attached to the base of the brain.

**Function:** The main function of pituitary glands is to produce and release several hormones that help carry out some functions of body like: growth. It is considered as the master gland as it monitors regulation and growth functions of body. It also control the function of many other endocrine glands like Thyroid gland, Adrenal glands and gonades)





### Section II

Q: a. Identify the series.

(i) 10, 100, 200, 310 430

Solution: Addition

$$10 + 90 = 100$$

$$100 + 100 = 200$$

$$200 + 110 = 310$$

$$310 + 120 = 430$$

(ii) 3, 7, 23, 95 479

Solution: Both Multiplication and Addition

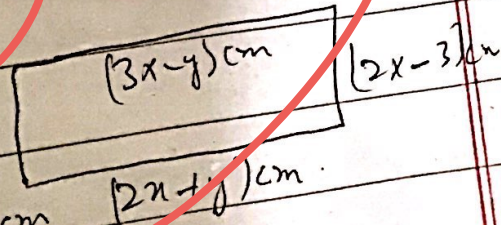
$$3 \times 2 + 1 = 7$$

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

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

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

(b) The perimeter of a triangle is given below 114 cm. Find the area of rectangle.



Ans:

Perimeter of  $\square = 114 \text{ cm}$

Area = ?

As Area of a rectangle is  $A = WL$



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$$\text{or } A = L \times b$$

L = length

B = Breadth / width.

As perimeter is given so,

$$A = LW$$

$$P = 2L + 2W$$

So

Q.

C. Nisha is 15 years old to Romi -----

Nisha's age?

Solun.

$$\text{Nisha's age} = N = R + 15$$

$$\text{Romi's age} = R$$

$$\text{Nisha's age 5 years ago} = (R + 15 - 5) =$$

$$\text{Nisha's age} = R + 15 - 5 = R + 10$$

$$\text{Romi's age 5 years ago} = (R - 5) =$$

As she was 3 times older so

$$R + 10 = 3(R - 5) = 2R = 25$$

$$R = 12.5$$



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As Romi's age is 12.5

So Nisha's age =  $(R+15)$

$$N = 12.5 + 15 = \boxed{27.5 \text{ years}}$$

C. 210 oranges ---- cartons needed?

Solution:

$$\text{Oranges} = 210$$

$$\text{apples} = 252$$

$$\text{pears} = 294$$

possible no. of cartons = ?

let calculate the common factors.

$$\text{Oranges} = 210 = 2 \times 3 \times 5 \times 7$$

$$\text{Apples} = 252 = 2 \times 2 \times 7 \times 7$$

$$\text{Pears} = 294 = 2 \times 3 \times 7 \times 7$$

Common factors

$$2 \times 3 \times 7$$

$$= 42 \text{ — so } 42 \text{ no. of cartons}$$