

# GSA PAPER

Date \_\_\_\_\_

Dos and Don'ts for General Science & Ability Paper  
Hi there, you've done well. Know that acquiring knowledge is one thing and reproducing it in paper according to what's asked is another. There are a few things I would like to highlight.

1. A 5 marks part requires 2 sides (not more than that) of a paper. Know that there can be two or three parts of a question and their marks are divided accordingly. So, address all of them in a just manner.

2. Focus on time management. You get 35 minutes to solve one question and about 8 minutes per 5 mark part. Manage your time accordingly.

3. You need to understand that your paper is supposed to look more scientific than theoretical. So, add flowcharts and diagrams where required.

4. Your handwriting and neatness can be really impactful. Avoid cutting and overwriting.

5. Focus on your spellings and your grammar. Here, in GSA there's no deduction in marks but your expression will definitely create an impact.

6. In ability portion, give explanation for analytical ability question in words. You need to understand that a 5 mark part requires all steps written and explained.

Good luck for CSS 2025. You're gonna rock in sha Allah. :)

Global warming is the rise in the average temp of the earth's atmosphere. It has a havoc on the environment by bringing severe and sudden climate change all around the globe. It is caused by the over usage of fossil fuels and other forms of non-renewable energy resources, along with an inefficient and wasteful usage of renewable energy resources.

Ans:

Global Warming:

rest



What measures should be taken to counter to it in COP-29?

## COP-29

The 2024 United Nations Climate Change Conference or Conference of the Parties of the UNFCCC commonly known as COP-29 will be the 29th United Nations Climate Change conference. It will be held in Baku, Azerbaijan. Mukhtar Babayev will preside COP-29.

## Measures:

(a) Setting Ambitious Emissions

### Reduction Targets:

Countries need to agree on more ambitious targets to reduce greenhouse gas emissions, building upon the commitments made in previous COP meetings like COP-26.



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## (b) Promoting Renewable Energy Adoption:

Encouraging the transition to renewable energy sources such as solar, wind, and hydroelectric power can significantly reduce reliance on fossil fuels and lower emissions.

## (c) Enhancing Global Cooperation on Climate Action:

Strengthening international cooperation and collaboration is crucial for effectively addressing climate change. This involves sharing knowledge, technology, and resources to support mitigation and adaptation efforts globally.

## (d) Protecting and Supporting Restoring Ecosystems

It is important to protect and restore ecosystems, like forests, wetlands, and other ecosystems w/c can help sequester



Carbon dioxide from the atmosphere and mitigate the impacts of climate change.

(e) Investing in Research and Innovation:-

Continued investment in research and innovation is necessary to develop new technologies and solutions for mitigating and adapting to climate change effectively.

(b) Describe the functions of arteries, veins and capillaries.

Ans  
11) Arteries:-

(a) Transport Oxygenated Blood:

Arteries carry oxygen-rich blood away from the heart to various parts of the body, delivering oxygen and nutrients to tissues and organs.



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## (a) High Pressure Conduit:

Arteries have thick, elastic walls that enable them to withstand the high pressure generated by the heart's pumping action, ensuring efficient blood flow throughout the body.

## (b) Regulate Blood Pressure:

Arteries help regulate blood pressure by dilating or constricting in response to hormonal and neural signals, maintaining adequate perfusion to tissues.

## Veins:

### (a) Return Deoxygenated Blood:

Veins transport deoxygenated blood from the body's tissues back to the heart, where it is pumped to the lungs for oxygenation.

### (b) Low Pressure Conduit:

Unlike arteries, veins have thinner walls and less muscle tissue.



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allowing them to accommodate larger volumes of blood at lower pressures.

### (c) Contain Valves:

Veins contain one-way valves that prevent the backward flow of blood, assisting in the return of blood to the heart against gravity, especially in the limbs.

Good!

### (3) Capillaries:

#### (a) Site of Exchange:

Capillaries are the smallest and most numerous blood vessels, where the exchange of gases, nutrients, and waste products occurs between the ~~blood~~ and surrounding tissues.

#### (b) Thin-walled and Permeable:

Capillary walls are thin and highly permeable, allowing for the diffusion of substances such as ~~oxygen~~, carbon dioxide, glucose, and hormones b/w blood stream and tissues.



## Conclusion:

three types of blood vessels together, those work in coordination to maintain proper circulation and ensure the delivery of oxygen and nutrients to cells while removing metabolic waste products.

Q Why do atoms form chemical bonds? Explain structure of water.

Q Why do atoms form bonds?

Atoms form bonds because

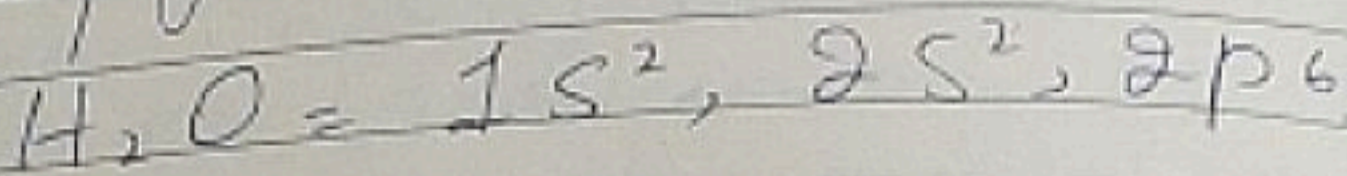
a) They always trying to reach the most stable (lowest energy) state via donating, accepting, or sharing of electrons.

b) Atoms are only satisfied when they fill their valence shell with electrons and satisfy the octet rule by having eight valence electrons.

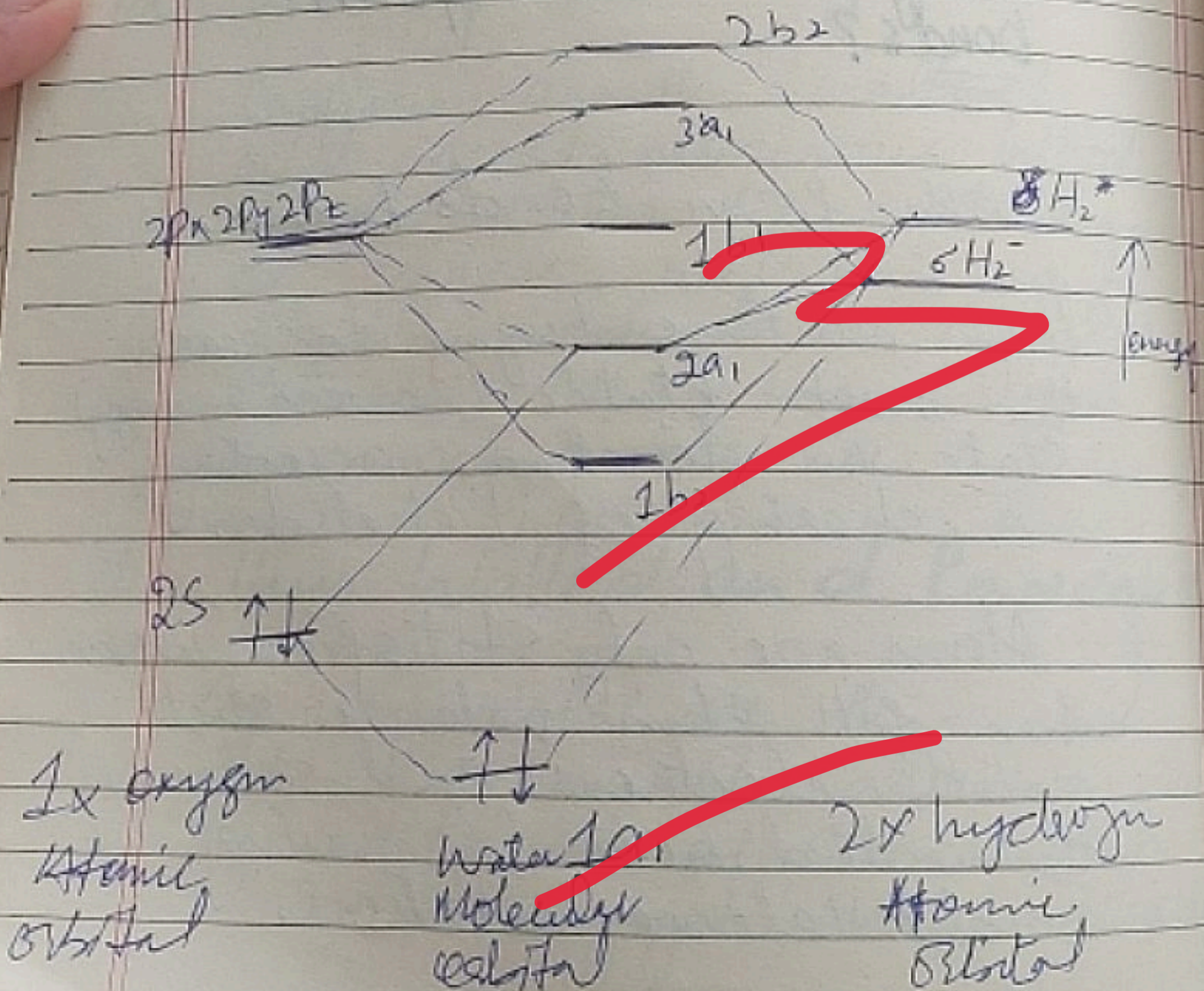


# Molecular Orbital Structure of $H_2O$ :

The water molecule has 10 electrons and 10 protons; thus, its electronic configuration is



The water molecule has a bent or angular shape with two lone pairs and two bond pairs of electrons.





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What are conductors, semiconductors, metals, plastics, and ceramics? Give an example of each.

## ① Conductors :-

Conductors are materials that allow the flow of electrical current through them with minimal resistance.

### Examples:

1. Copper
2. Iron
3. Silver etc.

## ② Semi-Conductors :-

Semi-conductors are materials that have electrical conductivity less than that of conductors and insulators.

### Examples:

- ① Silicon
- ② Germanium
- ③ Selenium etc.



### (3) Metals:-

Metals are a class of elements characterized by their properties including high electrical and thermal conductivity, luster or shine, malleability, ductility, and typically high density. They are typically ~~solid~~ at room temp and have a crystalline structure.

#### Examples:

- ① Iron
- ② Copper
- ③ Aluminium etc

### (4) Plastics:-

Plastics are synthetic materials made from polymers, which are large molecules composed of repeating structural units known as monomers.

#### Examples:

- ① Polypropylene
- ② Teflon etc



# Ceramics :

Ceramics are inorganic, non-metallic materials typically made from clay and other minerals, which are shaped and then fired at high temperatures to create a hard, brittle, and often durable product.

① Pottery and Porcelain

② Refractory ceramics etc.





## SECTION II

(a)  
Q7 Define I.Q., what are factors which affect I.Q?

Ans Definition of I.Q :-

IQ stands for intelligence quotient, a measure used to assess an individual's cognitive abilities relative to others.

Factors affecting IQ :-

Factors affecting I.Q include

- 1) Genetics
- 2) Environment
- 3) Education
- 4) Nutrition
- 5) Socioeconomic status
- 6) Access to resources and opportunities.
- 7) Prenatal care
- 8) Early childhood experiences
- 9) Cultural influences

(b) What is circumference of a circle with radius  $4\text{cm}$ ?

Ans Circumference of a circle =  $2\pi r$   $\rightarrow$  40



We have radius  $r = 4 \text{ cm}$

Put  $r = 4 \text{ cm}$  in eq (1)

$$2\pi r = 2\pi(4 \text{ cm})$$

$$= 2 \times 3.14 \times 4 \text{ cm}$$

$$= 25.12 \text{ cm}$$

$$\pi = 3.14$$

$$\approx \frac{22}{7}$$

Ans

$$8 \times 3.14$$

$$\textcircled{1} \quad \textcircled{2}$$

$$3.14$$

$$\frac{8}{25.12}$$

(1)

Age of 5-Students is

20, 22, 21, 21, 23.

Find, mean, median, mode and range.

Ans

Mean

Age of 5-Students is

20, 22, 21, 21, 23

(2)

20, 21, 21, 22, 23

$$\text{Mean} = \frac{20 + 21 + 21 + 22 + 23}{5}$$

5

As

Mean =

Sum of observations

No of observations



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$$= \frac{107}{5} = 21.4 \text{ Am}$$

**Median:-**

A statistical term used to represent the mid value in the arranged data.

Data: 20, 21, 21, 22, 23

Median is 21

**Mode:**

Use. to represent the most repeated value

Mode is 21

**Range:**

Difference of maximum and minimum data value in the given data.

20, 21, 21, 22, 23.

Min value = 20

& Max value = 23

So  $23 - 20 = 3$  Ans



Tahis started a business with a capital of RS. 15,000. After 5 months Umar also joined him with an investment of RS. 30,000. At the start of 9th month, Usman joined them by investing RS. 45,000. At the end of the year they earned a profit of RS. 406,000. Find the share of each one.

Ans Tahis's total investment in

$$1 \text{ year} = 15000 \times 12$$

$$= 180,000 \text{ Rs}$$

Umar's total investment in

$$1 \text{ year} = 30,000 \times 7$$

$$= 210,000 \text{ Rs}$$

Usman's total investment in 1 year

~~$$= 45,000 \times 4$$

$$= 180,000 \text{ Rs}$$~~

So, the profit earned at the end will be shared in the

Ratio

$$180,000 : 210,000 : 180,000$$

$$18 : 21 : 18 = 6 : 7 : 6$$



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$$\text{Total Share} = 6 + 7 + 6 = 19$$

Now in question

$$\text{Profit earned in a year} \\ = 406,000$$

So,

$$\text{Share of a person} = \frac{\text{Profit earned}}{\text{total Share}}$$

$\times$  Share of that Person

So

Share of Tahir

$$= \frac{406,000}{19 \times 6} = 128,210.5 \text{ RS}$$

$$\text{Share of Umar} = \frac{406,000}{19 \times 7}$$

$$= 149,579 \text{ RS} \quad \underline{\text{Ans}}$$

$$\text{Share of Usman} = \frac{406,000}{19 \times 6}$$

$$= 128,210.5 \text{ RS} \quad \underline{\text{Ans}}$$

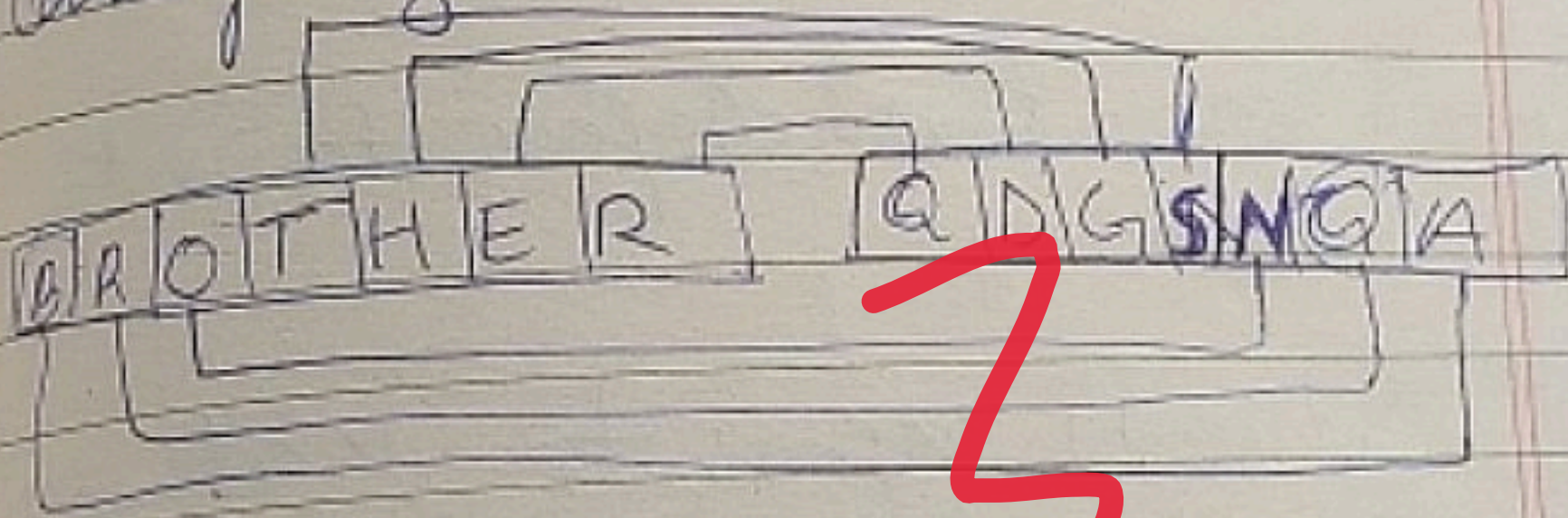


Q:8

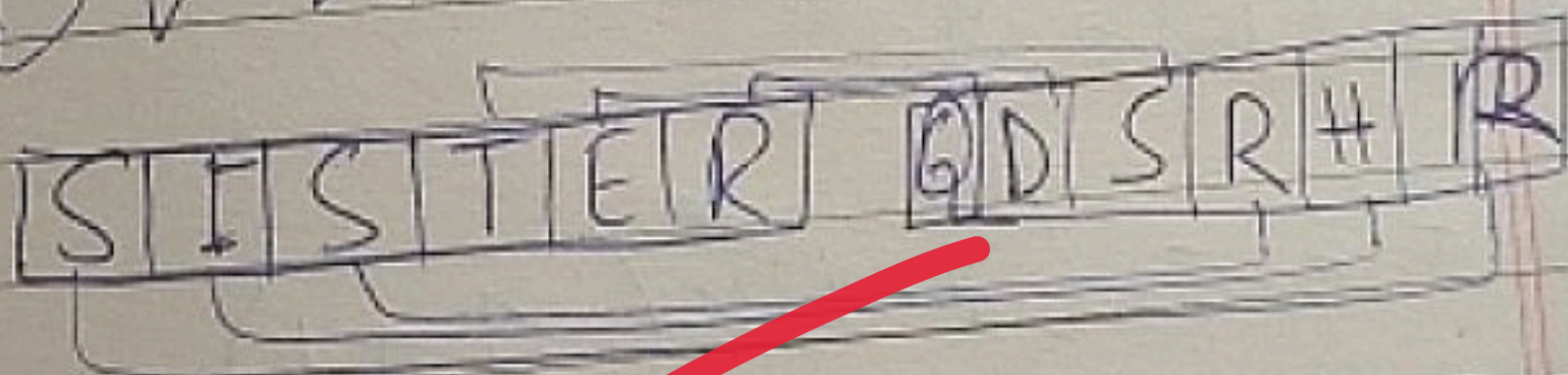
If brother BROTHER is written as @DGSNQA. How Sister will be coded?

Ans

In language, a letter that comes first in the word BROTHER has to be compared to the last letter of the word in language @DGNQA.



A B C D E F G H I J  
 K L M N O P Q R S T  
 U V W X Y Z



So code for SISTER

is @DSRHR Ans



⑥ Identify the missing terms:  
1, 2, 6, 21, \_\_\_\_\_

Ans.

Term	Difference
1	<del>2 - 1 = 1</del>
2	<del>6 - 2 = 4</del>
6	<del>21 - 6 = 15</del>
21	<del>n - 21 =</del>
n	

We see

$$t(n) = (n-1) \times (s(n-1) + 1)$$

→ Where  $t(n)$  refers to  $n$ th term

→  $s(n-1)$  refers to value of previous term.

Consider, now

$$* t(1) = 1$$

$$* t(2) = (2-1) \times (1+1) = 1 \times 2 = 2$$

$$* t(3) = (3-1) \times (2+1) = 2 \times 3 = 6$$

$$* t(4) = (4-1) \times (6+1) = (3 \times 7) = 21$$

$$* t(5) = (5-1) \times (21+1) = 4 \times 22 = 88$$



So the missing term  
is 88.  
An

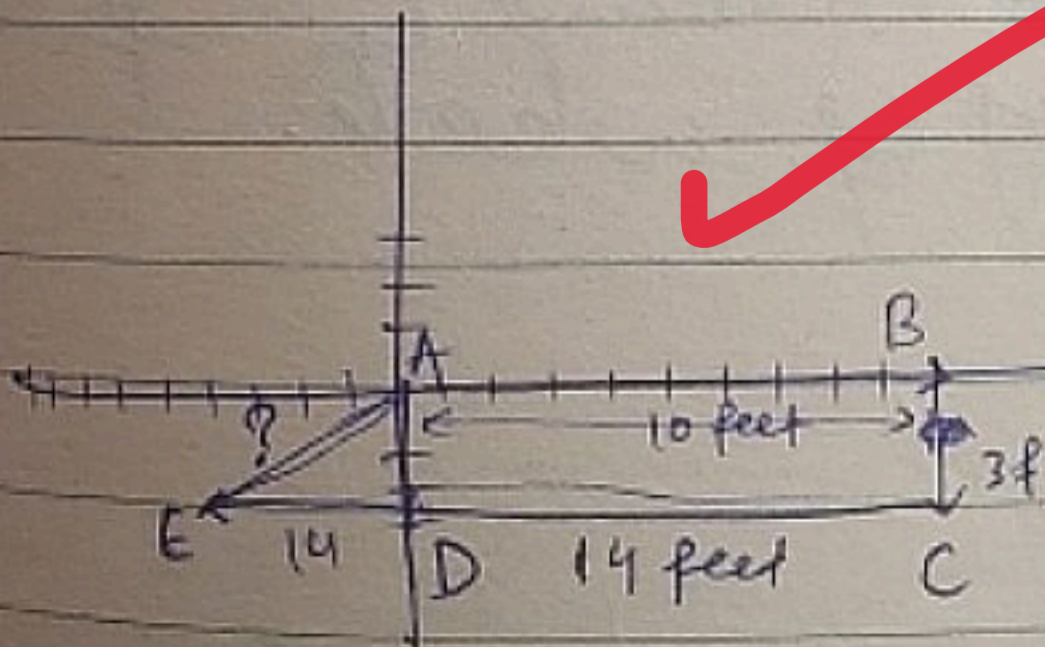
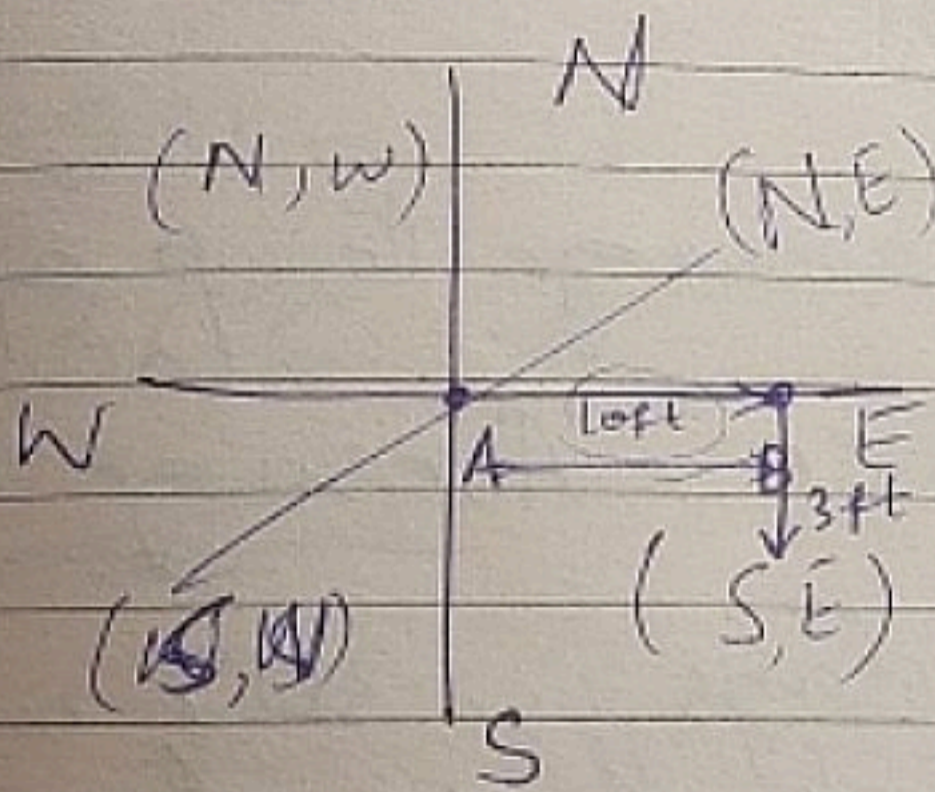
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(c) Naseer walked from A to B in the East 10 feet. then he turned to the right and walked 3 feet. Again he turned to the right and walked 14 feet. How far is he from A?

Ans



General Directions



x2  
= 21  
= 88



By using Pythagorean theorem

$$H^2 = B^2 + P^2$$

$$(AE)^2 = (AD)^2 + (DB)^2$$

$$(AE)^2 = (3)^2 + (4)^2$$

$$\sqrt{(AE)^2} = \sqrt{9 + 16}$$

$$\sqrt{25}$$

$$AE = 5 \text{ feet.}$$

So Naseer is 5 feet far from initial point.



(d)

The average temp of a week

is  $33^\circ\text{C}$ . Average of first

three days is  $30^\circ\text{C}$  while of

the last three days is  $35^\circ\text{C}$ .

What is temp on fourth day of week.



Sol  
 $3x =$  first 3 days of average  
 temp =  $30^{\circ}\text{C}$

$z =$  last 3 days " " =  $35^{\circ}\text{C}$

$y =$  4th day's temp = ?

Q0

$$(3x + y + 3z)$$

$$\frac{\quad}{7} = 33^{\circ}\text{C}$$

2

33

7

231

$$30 \times 3 + y + 3 \times 35 = 231$$

$$90 + y + 105 = 231$$

$$y = 231 - 195$$

$$y = 36^{\circ}\text{C} \text{ Ans}$$

