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Batch 902

_ GSA

Subjective type

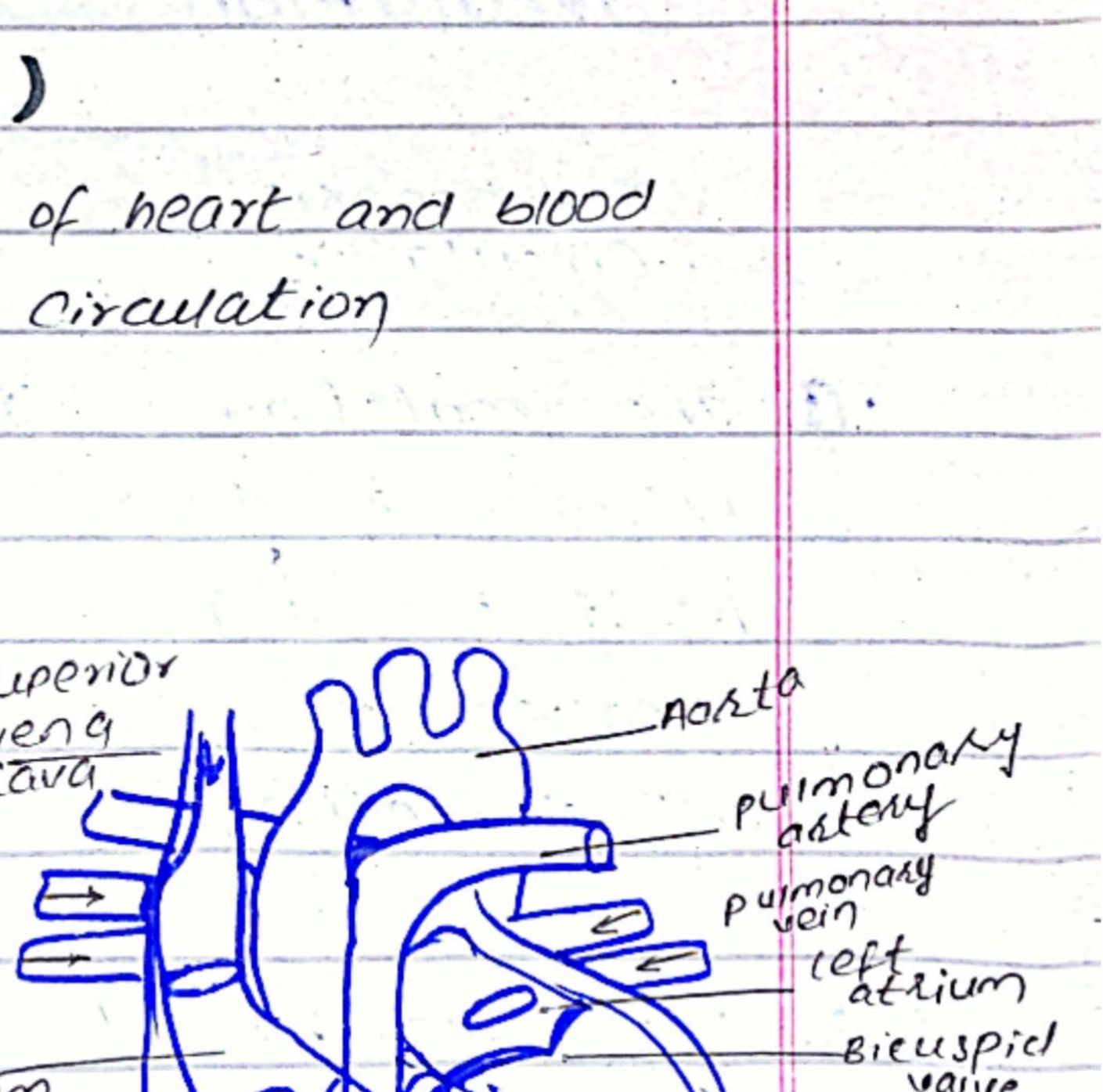
QNO. 1

(4) (A)

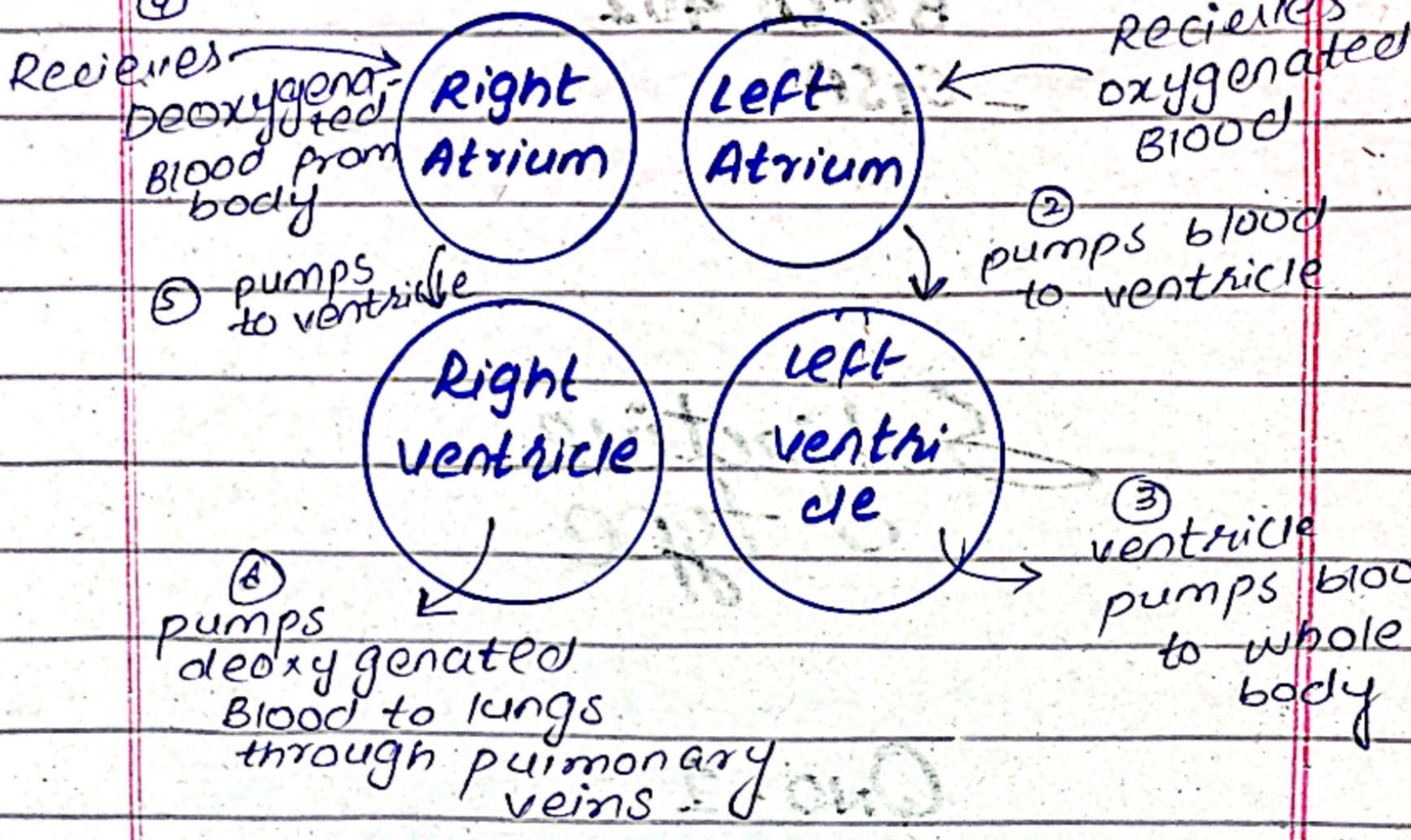
Explain the role of heart and blood vessels in the circulation

Heart:

Heart is the most sensitive and important organ of body. Just like hydral motor, it pumps blood through out human body.



Chambers



Circulation

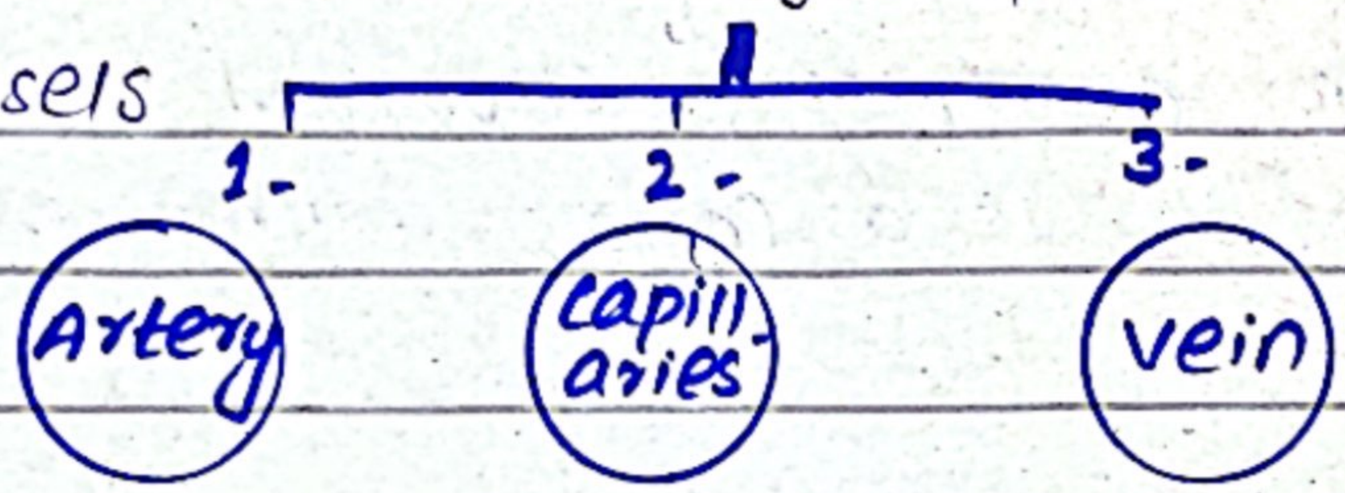
	Pulmonary Circulation	Systemic circulation
1.	The circulation between ~~body~~ heart and lungs is called pulmonary circulation.	The circulation between body and heart is called systemic circulation.
2.	Oxygenated blood from lungs enter left atrium via pulmonary veins	Oxygenated blood from from heart is pumped to whole body via Aorta.
3.	Deoxygenated blood	

34. from heart is pumped toward lungs via pulmonary artery

deoxygenated blood from whole body is carried via superior and inferior vena cava to heart.

Blood vessels

there are three type of blood vessels



Arteries:

Arteries are the blood vessels that carry blood away from heart.

They are much more flexible than other types of blood vessels.

Major examples:

aorta, pulmonary artery

capillaries:

capillaries are the smallest blood vessels whose wall is much thinner. It is made up of sigle layer of squamous epithelium

It is the place where oxygenation takes place. The exchange of oxygen and carbon dioxide.

Veins:

Veins are the blood vessels that carry blood from different body organs toward heart. They contain valves in them to prevent backflow.

Major examples: Superior & inferior vena cava, pulmonary vein.

(B)

What is cyclone? Describe formation of cyclone.

Cyclone:

It is the large mass of air which is formed due to change in pressure and coriolis effect due to spin motion of earth.

Three components:

(1) **Eye** The central point is called eye. The low pressure core.

(2) **Eyewall**

Radius of 15-30 km

the area around eye

Much more destructive

(3) **Ring shaped Region**

The outmost circular part, which is the outer rim around eyewall.

Formation

CHANGE OF PRESSURE :

There must be a water body

i.e. Ocean, Lake, River

Water evaporates

The vapours move above

At certain altitude temprature decreases.

Due to process of condensation

vapours ⟶ Liquid

When air moves above

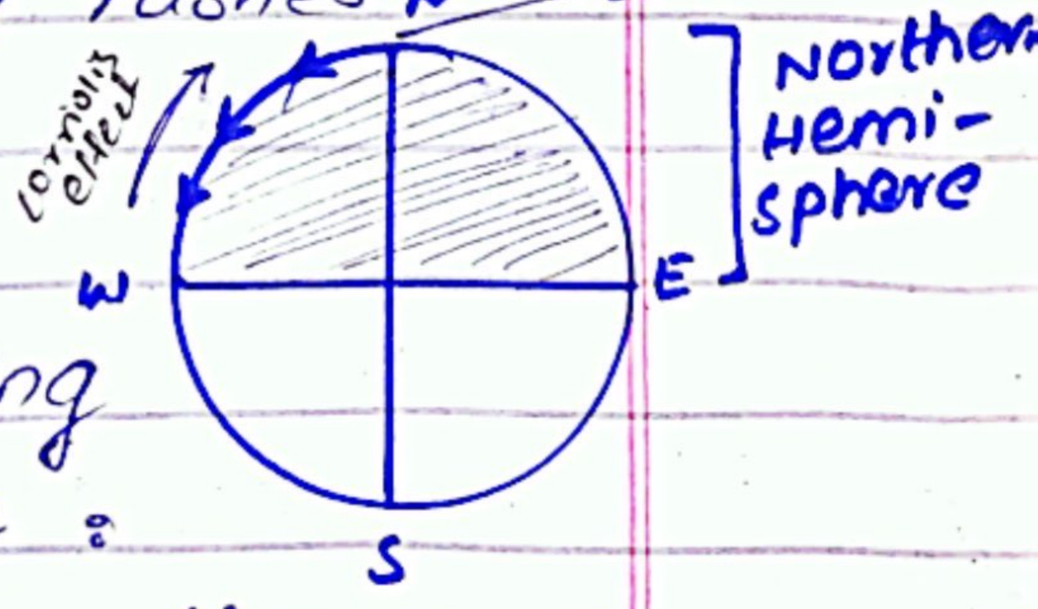
Air from surrounding rushes to take its place

Pressure Gradient

Winds start rotating

Northern Hemisphere :

- Winds rotate in anticlockwise direction



(C)

Enlist the functions of following.

Carbohydrates :

There are different types of carbohydrates :

Monosaccharide , Disacchanide, poly saccharide

- They are all sources of energy
- Metabolic cycles of glucose release large amount of ATP

proteins :

proteins are crucial for building and repairing tissue

They are enzymes that catalyse a reaction

They are hormones that are responsible many balances in body

- Antibodies support immune functions

Fat :

Fat stores energy.

It provides insulation and protection to body organs

They are vital building block of

cell membrane, nerve tissue, and hormones etc

Calcium:

Calcium provides strength to bones.

It involves in muscle contraction including heart.

It also involves in blood clotting and hormone release

Iron:

Iron is vital mineral in body It carrys oxygen through out body via hemoglobin in red blood cells.

It is crucial for DNA synthesis, immune functions and hormone production

(D)

Remote Sensing for environmental purpose

" A science to gather information about any geographical area using sensors. "

Environmental use :

1- Remoting sensing can be used to determine macro patterns located at any geographical area

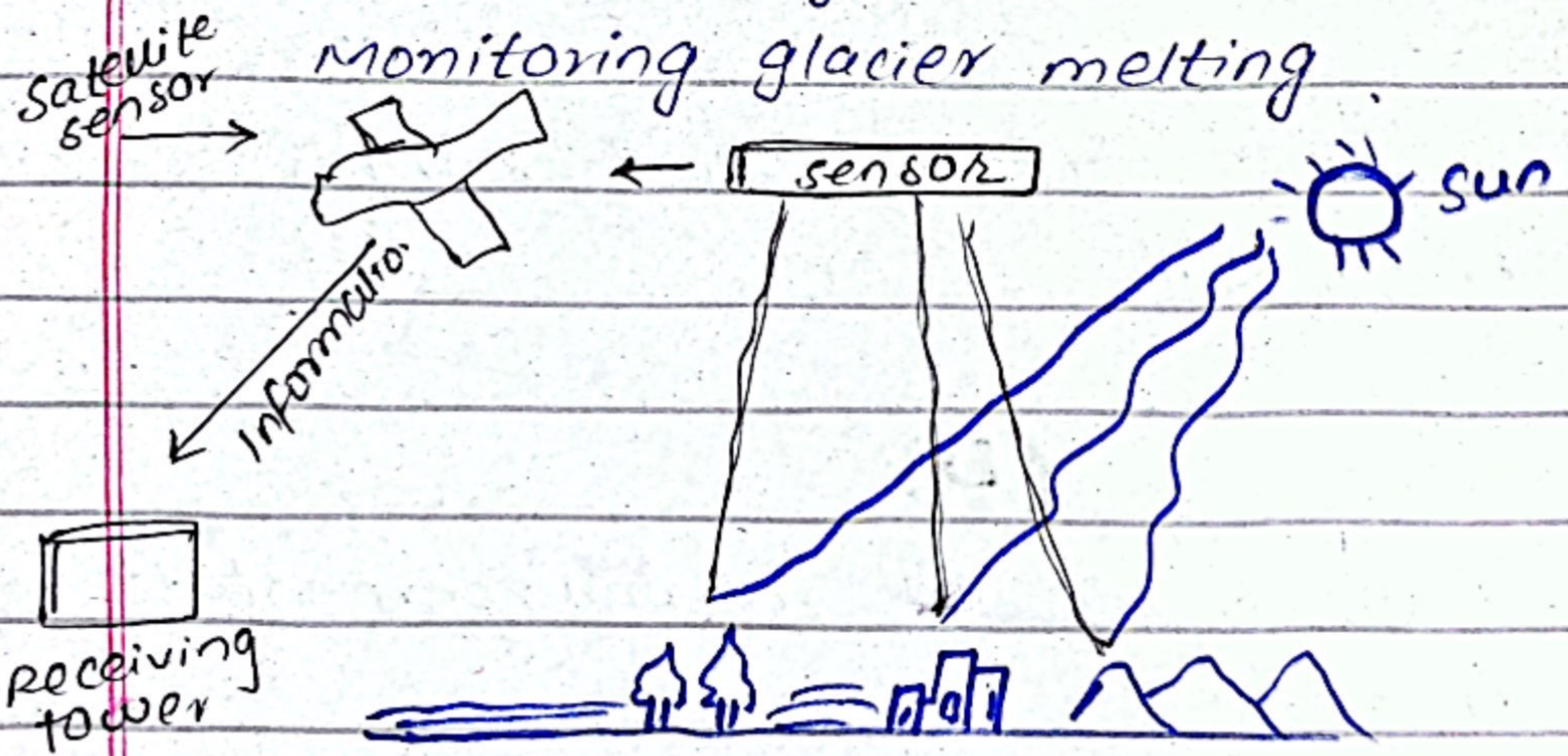
2. It can be used to detect disaster chances and can release warning before disaster.

3. It can be used for management of pollution by detecting the main source of pollution

4. Helps in environmental monitoring system :

Forest management

Monitoring glacier melting



QNO.2

(A)

How Global warming can be reversed ?

Global warming :

" Global warming is the heating or warming of global surface temprature. due to large amount of green house gases in atmosphere that trap radiations emitted from earth's surface ".

Reverse Global warming

Global warming can be reversed by controlling the factors that are causing it.

:

It can be reversed by

1- controlling emission of green house gas - **kyoto protocol.**

2- Shifting to renewable energy sources i.e. solar energy, wind energy. CO_2

3- Using public transport or electric vehicles

4- Abandoning use of ozone depleting substances such as Chlorofluoro carbons

5- Applying filters to industrial emissions.

(B)

Define ceramics. Give properties and applications of ceramics

Ceramics:

'These are hard, brittle, inorganic material made from clay at a very high temprature'

Properties:

They are very strong,

(2) Durable (covalent and ionic bonds)

(3) Inert (chemically)

(4) Heat resistant

(5) corrosion resistant

(6) Electrical insulators (but they do have some properties like conductivity and superconductivity)

Applications:

They are used in

1. Electronics
2. fiber optics
3. Artificial joints
4. Bricks, Tiles
5. Race car brakes
6. Body armer
7. Utensils
8. Dental crowns
9. catalytic converters

(C)

Explain the working of fibre optics and mobile phones

~~Fibre~~ Optics Fibers :

"It is a technology that transmit data as light impulses through thin stands of glass or plastic."

It transmit data over large distances.

Forms back-bone of modern internet, telecom, and data networks.

Working of Mobile Phone and Optic fiber

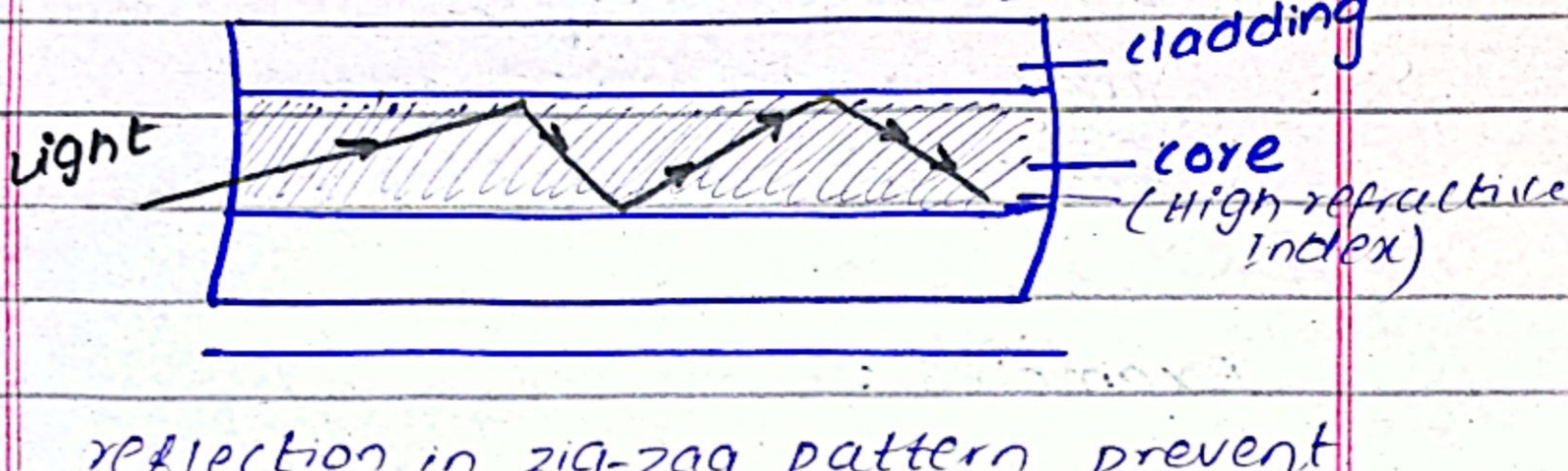
mobile data such as video, call, text is first converted to binary data 1 and 0

This binary data is then converted to radio waves and they travel to nearest cell tower.

The cell tower convert these radio signals into light pulses

and send them to fiber optic network for long distance transmission

The light pulses travel down the thin hair like glass fibers the fiber has a core and cladding. The light travel by total internal reflection. The



reflection in zig-zag pattern prevent loss of signal.

Signal travel long distance, many repeaters are required to boost signal strength.

At destination an optical network terminal convert light into radio waves

These signals are then received by receipient and convert back to information

(D)

Define the following and give examples.

Food additives:

These are edible liquid, powder or any form of material that is added to food to make it attractive and tasty.

They may be added colours or nutrients

Examples:

Natural ⟹ Salt, Fruit juices, Real vanilla, vinegar

Artificial ⟹ Artificial vanilla, Food colour, yeast, Beta carotene, ascorbic acid.

Food preservatives:

These are the substances that are added in food to

increase its shelf-life by inhibiting microbial growth and preventing spoilage, oxidation.

Examples :

Natural ⇨ salt, sugar, vinegar, wood smoke, spice, ascorbic acid (vitamin C)

Artificial ⇨ Benzoates, Sorbates, Sulfits, Nitrates

Food Adulteration :

The intentional degradation of food quality by adding inferior or harmful substances, removing valuable constitutes, or miss-representing the product mainly for economic gain

Examples :

Washing soda and chalkpowder in jaggery

Coaltar dye in jams and juices

Food contamination:

The presence of harmful agents in food such as microbes, physical or chemical agents, making it unsafe to eat is called food contamination

Examples:

presence of E.coli in food pesticides, cleaning agents, heavy metals, insects, hair, plastic:, undeclared allergens.

Q NO-3

Ability portion

Q NO.6

(A)

(1)

Ahsan pointed → Women 's

(2)

(3) ← Grand-daughter

Daughter of Ahsan's Brother

As Daughter's father and Ahsan are brother, so the woman is mother of Ahsan

(B)

L : B = 3 : 2 L = 3x B = 2x

Speed of man = 12 kmh^{-1}

Time to complete one round = 8 min

Area of rectangular park = ?

Conversion of higher units into lower

$12\ Kmh^{-1} = 12000 \div 60 = \overset{200}{\cancel{600}}\ m/min$

Time = 8 min

Distance = speed x time

$= 200 \times 8 = 1600$

perimeter :

$= 2(L+B)$

$= 2(3x+2x)$

$= 10x$

$10x = 1600$

$x = 160$

Dimensions :

Length $3x = 3(160) = 480$

Breadth $2x = 2(160) = 320$

Area $= L \times B$

$= 480 \times 320$

$= 153,600\ sq\ m$

(D)

LCM of two digit number is 48

Ratio of numbers 2 : 3

LCM $(2x \cdot 3x) = 6x$

$6x = 48$

$x = 48/6 = 8$

one number

$2(x) = 2(8) = 16$

Other number

$3(x) = 3(8) = 24$

Sum of two

$16 + 24 = \boxed{40}$

Q NO. 4

(8) (A)

five different houses

A to E in a row

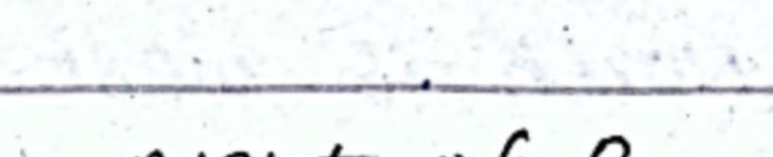
A is to Right of B

E is left of C & Right of A

B is Right of D

find middle one

(1)



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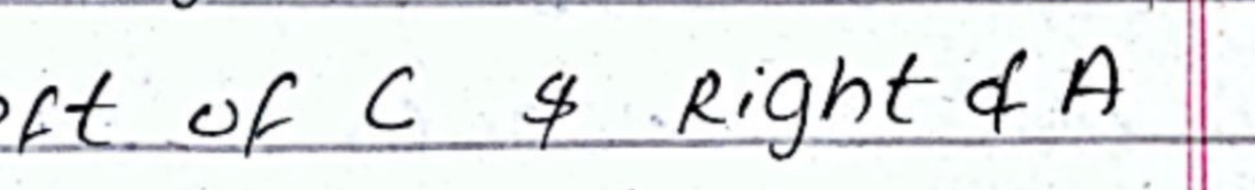
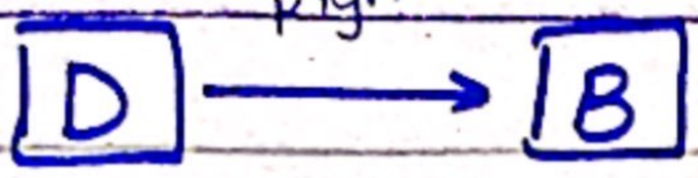
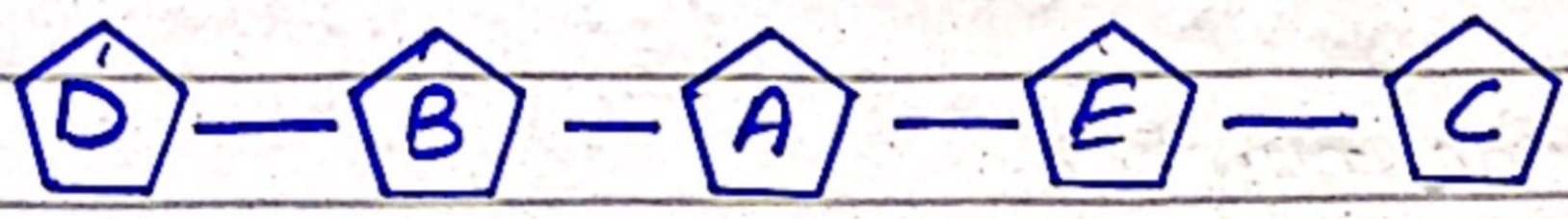


(3) 

so,



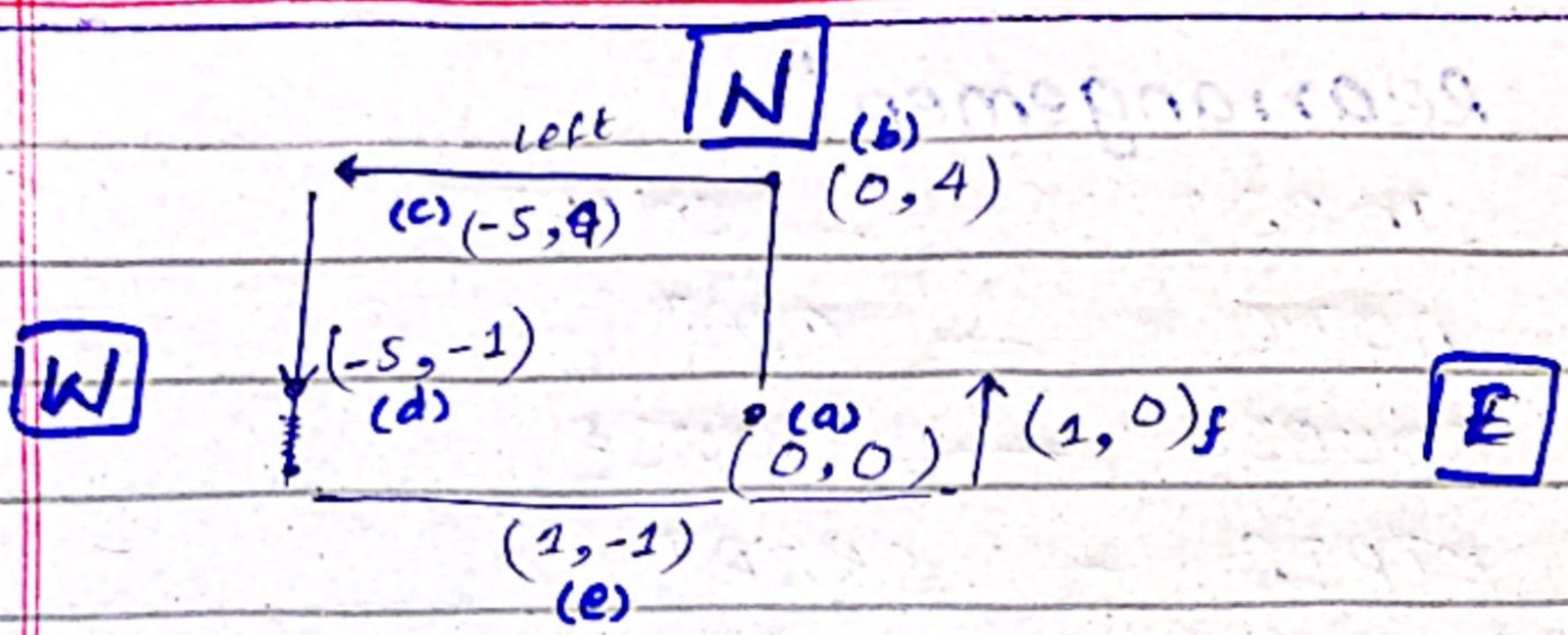
House A is the middle house

(B)

Starting from a point towards North after 4 Km turn to left and run 5Km and then again start to left and run 5Km, turn to left and run 6Km before finishing left turn and run 1 Km

Toward North	4 Km
Left to North is west	5Km
left to west is South	5Km
left to wSouth is East	6Km
left to East is North	1Km

How many Km from starting place ?



Starting - a = 0,0

Ending f = 1,0

Distance from starting point is 1 km

Direction of running while finishing (0)

~ North

From finishing point if you have to reach starting point the direction will be

~ Toward west

(c)

Find the odd man out in the following anagrams

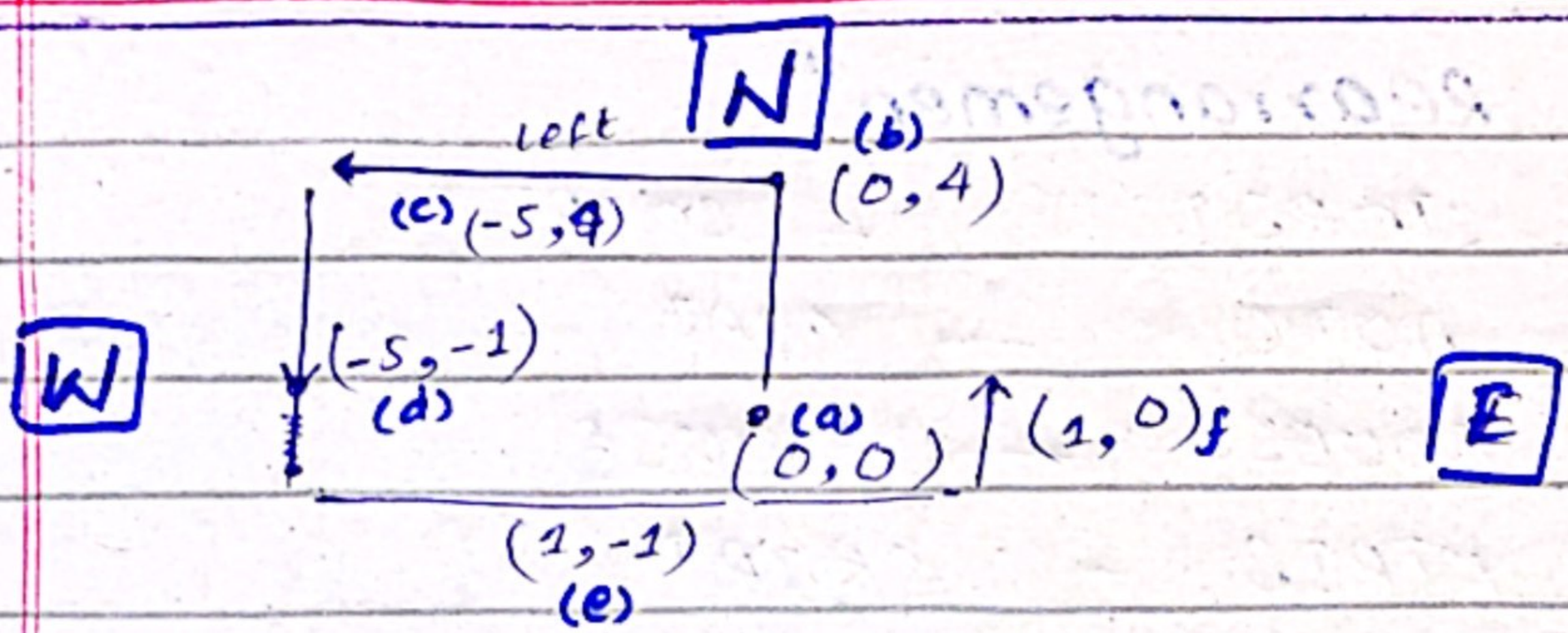
(a) THRSI

(b) AOTC

(c) GOUBSL

(d) KTRIS

(e) RETAEWS



Starting - a = 0,0

Ending f = 1,0

Distance from starting point is 1 km

Direction of running while finishing (b)

~ North

From finishing point if you have to reach starting point the direction will be

~ toward west

(c)

Find the odd man out in the following anagrams

(a) THRSI

(b) AOTC

(c) GOUBSL

(d) KTRIS

(e) RETAFWS

Rearrangement

ThRSI — SHIRT

AOTC — COAT

EOUBSL — BLOUSE

KTRIS — SKIRT

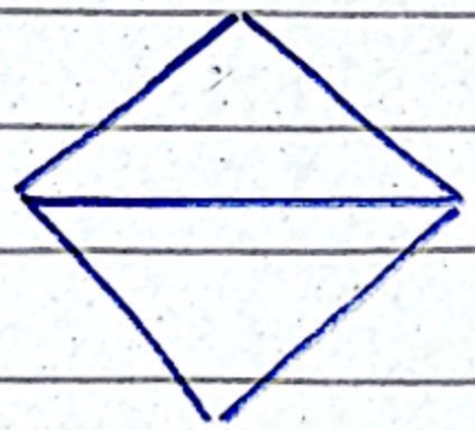
RETAEWS — SWEATER

SKIRT is odd among all because it is for lowes body clothing while all other are upper body clothing

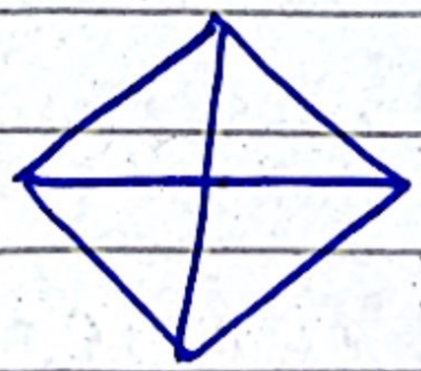
(D)

Number of Triangles.

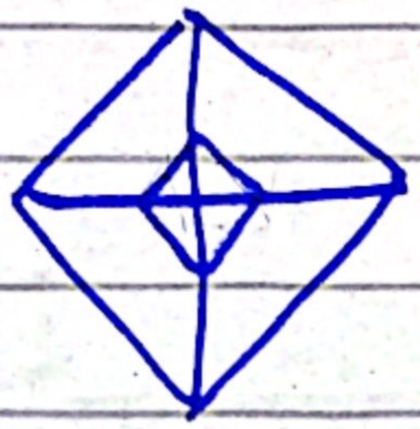
There are 34 Tsicngles



⇨ 2 △



⇨ 8 △



→ 16 △

Two such shapes 16 × 2 = 32

Two Small Triangles formed

by merging two shapes

32 + 2 = 34 △