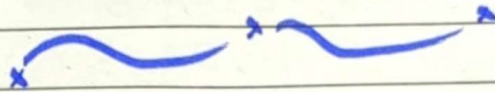


①

DATE: 03/01/2026.

LMS : 38411
NAME : AHMED KHAN.
BATCH : 393
PAPER : GENERAL SCIENCE
AND ABILITY.



SECTION A.

QUESTION NO 2.

A.

THE BIG BANG THEORY.

It is a theory that explains the inception and expansion of universe. According to this theory the universe came into existence via a big bang of a single mass that blasted and started time and space.

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This bang created galaxies of stars. The stars then gave birth to planets hence forming solar systems.

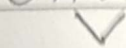
THE EVER-EXPANSION OF UNIVERSE.

According to big bang our universe had started expansion from its birth and is still expanding. Universe will keep expanding forever.

STRUCTURE OF UNIVERSE

According to Big Bang theory Universe is a bubble that expands over time. It has following hierarchy of bodies.

Universe.



Galaxies.



Solar Systems.



planets.

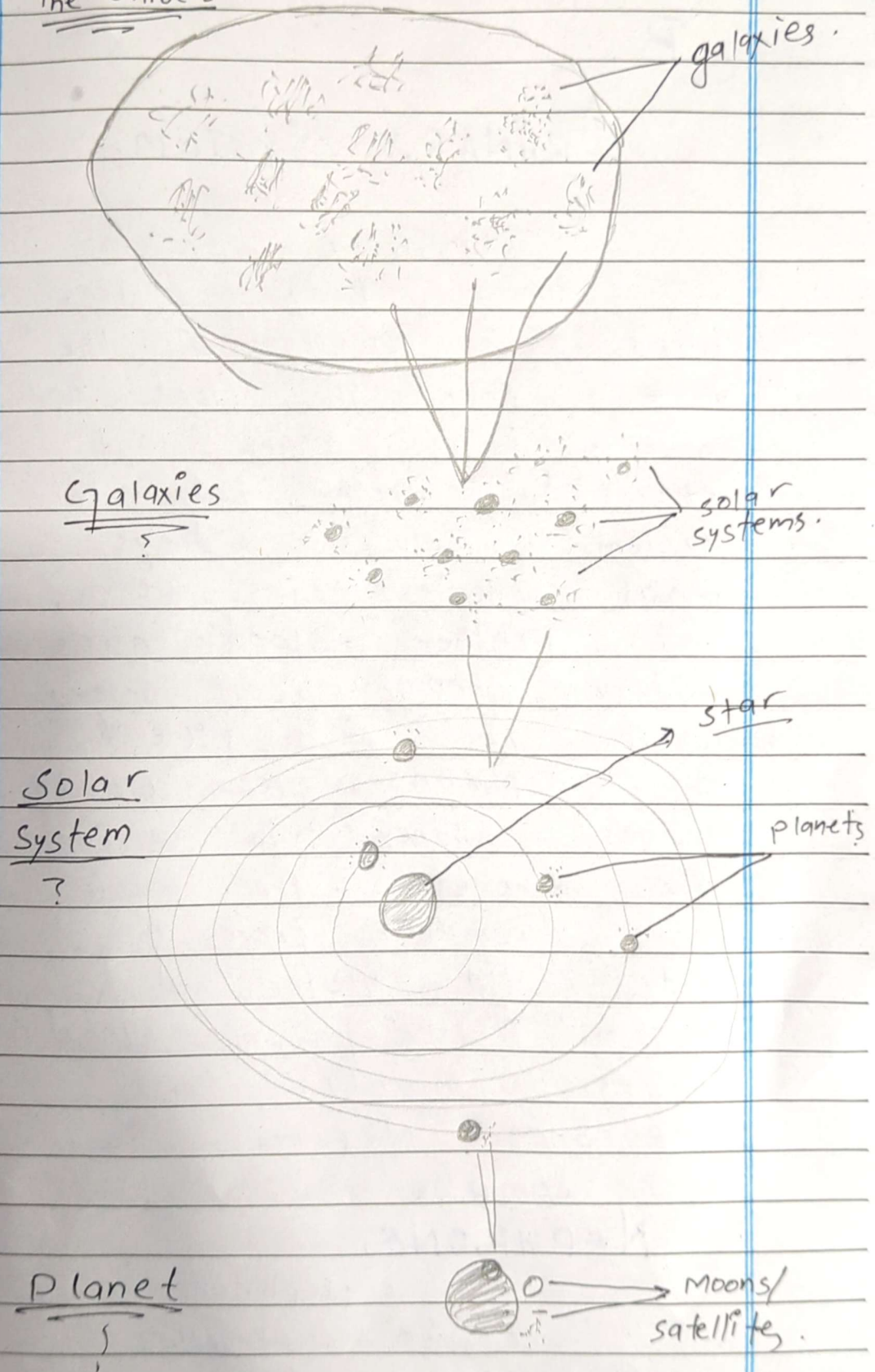


Moons and Satellites.

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The Universe



B.

URINARY SYSTEM.

Urinary system in human body filters blood. It removes all the waste found in blood and converts it to urine that is excreted from body. This system includes kidneys, renal arteries/veins, uretra, and Urether. Blood enters kidney through renal artery where it is filtered in nephrons. Clean blood leaves kidney via renal vein whereas the waste is removed from the body via ureter and Urethra. Filtering of blood occurs mainly in Nephrones. Nephron is a complex

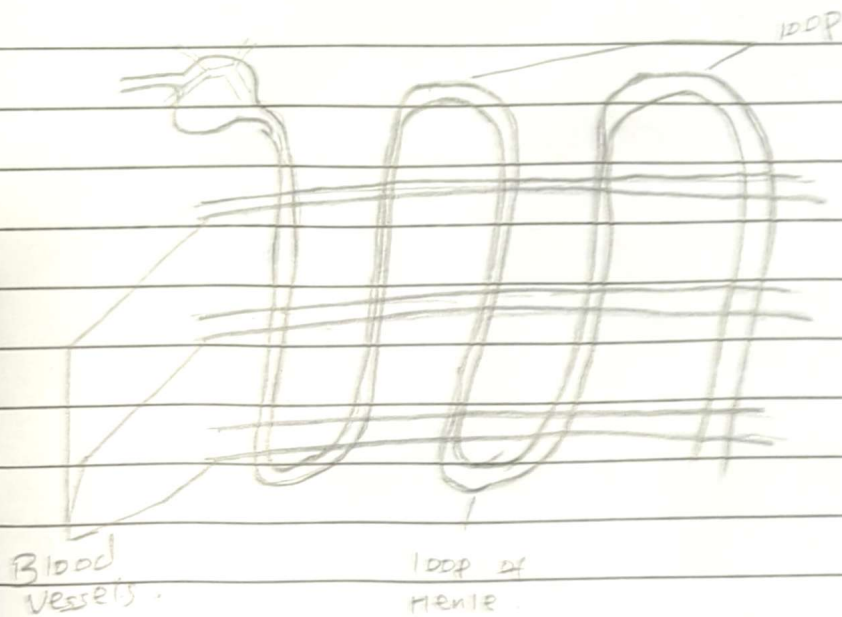
NEPHRONE.

Nephron is a complex structure found in medulla of

(5)

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kidneys. This is where most of the blood filtering takes place.



Nephrons filter blood in steps. Firstly major wastes are filtered in a pouch like structure. Then the blood moves through a looped tube. Each loop filters out various wastes including excess salts and minerals.

→

(b)

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C.

UNBALANCED DIET.

For a human body to function properly a balance in intake of all nutrients is required. The unbalance and mixed intake of nutrients is called unbalanced diet.

A balanced diet must include the required amount of protein, carbohydrates, fats, vitamins, and minerals.

A deficiency in the intake of any of these nutrients will result in unbalanced diet.

EFFECTS OF UNBALANCED DIET.

1- Lack in any nutrient in the body results in unhealthy living.

2- Protein Deficiency will

⑦

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result in weak muscles.

3- Vitamin deficiency will result in overall weakness of the body. Each vitamin helps its corresponding body function without which that function will fail. For example vitamin B-12 is required for proper functioning of eye. Lack of this vitamin may result in weak eye-sight.

4- Minerals are vital for various cellular functions. Potassium and sodium ions regulate cellular intake/outtake. Any deficiency of these ~~ins~~ minerals will result in misfunctions of cells resulting in an unhealthy body.

x — x — x

8

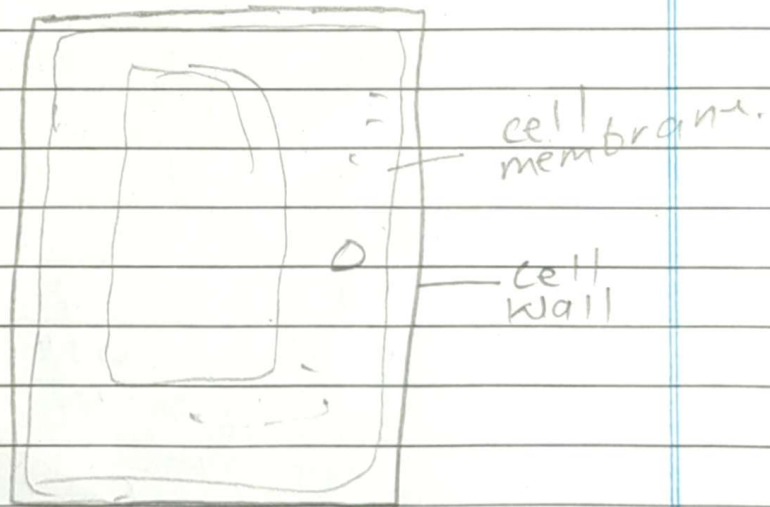
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B.

CELL WALL.

STRUCTURE.

Cell wall is the outer-most layer of plant cells and some fungus cells. Most of the plants' cell walls are made up of cellulose whereas fungi's cell wall is made up of peptidoglycan.



cell wall is a dead membrane that is rigid and permeable.

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FUNCTION.

- 1- It provides rigidity to the cell.
- 2- It keeps the cell in a fixed structure.
- 3- It also provides the cell with a protective layer from harsh outer environment.

CELL MEMBRANE.

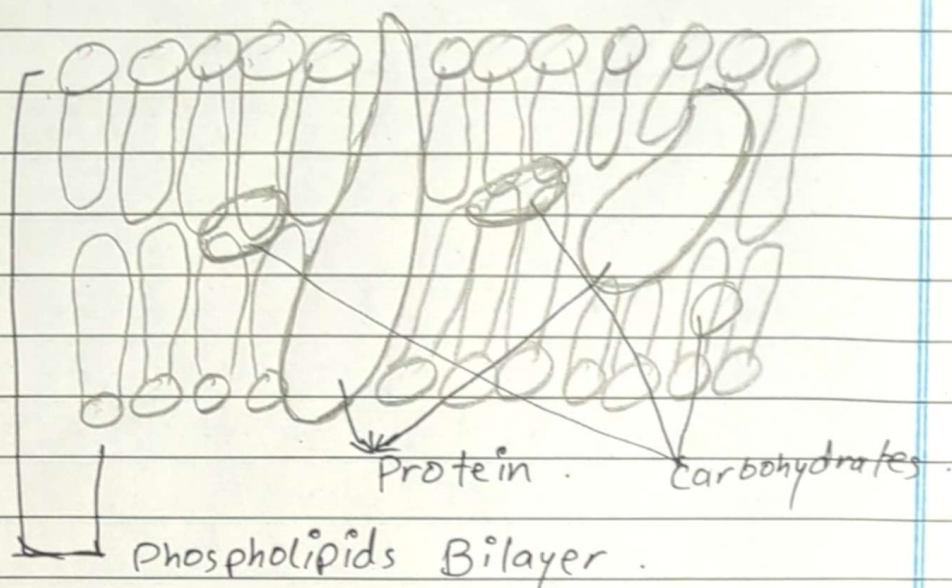
STRUCTURE.

Cell membrane is a semi-permeable outermost membrane of animal cells. It is also present in plant cell after cell wall. Watson and creek have provided a structure for cell membrane.

According to their model cell membrane is made up of phospholipids bi-layer with protein and carbohydrates. ~~empe~~ embedded in this bi-layer.

(10)

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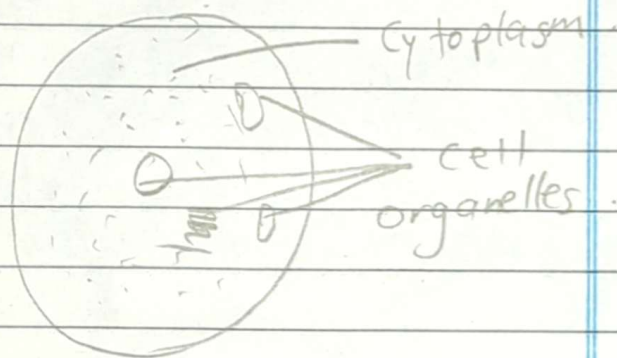
FUNCTION .

- 1- Cell membrane provides shape and structure to most cells .
- 2- It is semi-permeable membrane which only allows passing of required elements and nutrients .
- 3- Works as transport for major minerals and wastes in and out of cells .

CYTOPLASM.

STRUCTURE.

Cytoplasm ~~plasm~~ is a fluid-like structure of a cell that houses all of the cell organelles. It is mostly water and some minerals and proteins.



FUNCTION.

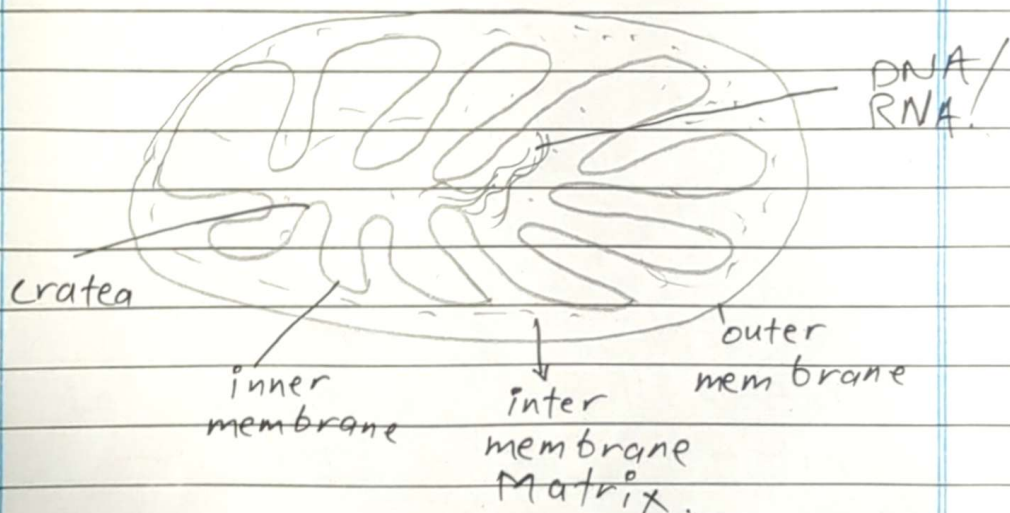
- 1- It houses all the organelles of a cell.
- 2- It also provides a surface ~~of~~ for intra-cellular transport of nutrients and other material.

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MITOCHONDRIA.

STRUCTURE.

Mitochondria are bi-layered membranes. The inner layer has protrusions. The space between the two layers is filled with fluid. The inner protrusions have crista that process energy. Inside the inner membrane is DNA and some RNA helpful for protein synthesis.



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FUNCTION.

- 1- The most important function of mitochondria is to provide the cell with energy.
- 2- Mitochondria creates protein as well.

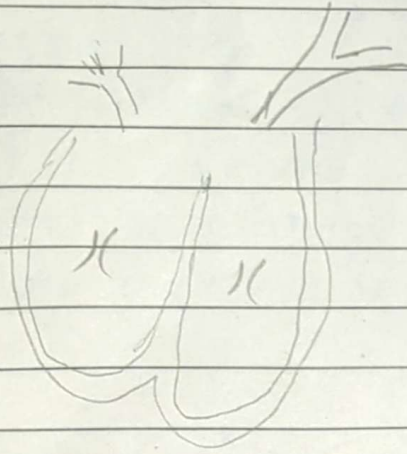


QUESTION NO 4.

A.

Blood circulation system is one of the crucial and sophisticated system in a human body. It covers the entire body and provides it with necessary nutrients and oxygen. Heart is at the center of it all and blood vessels cover the entirety of body.

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HEART.

Human is a muscular organ about the size of a fist. It has four chambers. left and right atria and left and right ventricles. The heart pumps blood throughout the body. It receives deoxygenated blood from the body via Superior and Inferior Vena Cava. This deoxygenated blood is pumped towards lungs to receive oxygen via pulmonary artery. The pulmonary vein brings oxygenated blood to the heart. From there the

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clean blood is transported all over the body via Aorta and arteries.

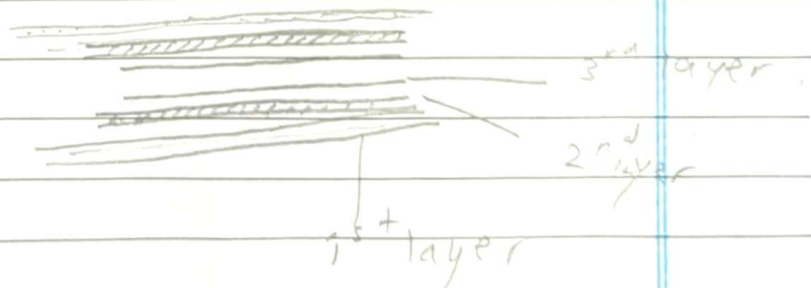
BLOOD VESSELS.

Blood vessels carry all sorts of blood to and from heart. Humans have 3 types of blood vessels.

- 1- Arteries.
- 2- Veins.
- 3- Capillaries.

i- Arteries.

Arteries carry oxygenated blood except for pulmonary artery. These vessels carry blood away from the heart. These have high blood pressure and have thick tri-layer structure to sustain this high pressure.



(16)

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ii- Veins.

These carry deoxygenated blood ~~and~~ towards heart except pulmonary vein. These have low blood pressure. Veins have double layered structure.

iii- Capillaries.

Capillaries are single-celled vessels that carry both oxygenated and deoxygenated blood. Capillaries ~~or~~ are in contact with cells and transfers nutrients / ~~and~~ oxygen / wastes with the cell.

x — x — x

B-

CYCLONE.

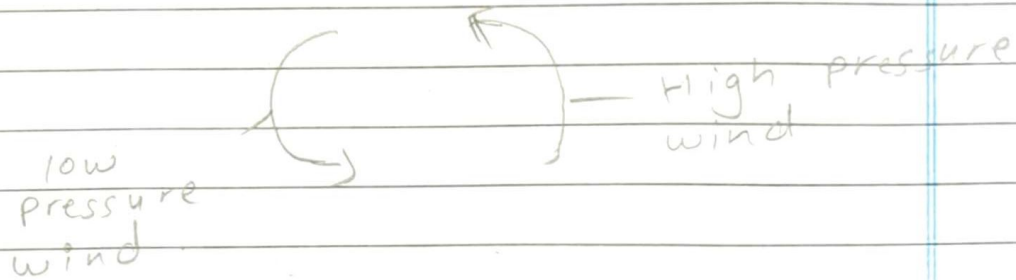
Cyclone is a highspeed whirl of wind. Winds collide with each other to form it. Speed of wind

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circulation can reach
hundreds of km/h.

Formation of Cyclone.
When winds
of varying air pressure
and opposite directions
collide with each other
they form cyclone.



x — x — x

C.

Carbohydrates.

carbohydrates are
a quick source of
energy for the body.

Protein.

Proteins form
body muscles and are

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necessary for muscle survival. Proteins can also be a source of energy.

Fats.

Fats are a stored source of energy for body. They can also provide a cushion layer between stiff body parts and environment.

Calcium.

calcium is a necessary mineral for human body. It provides strength to the bones.

Iron.

Iron is another necessary mineral that helps with the oxygenation process. It is a necessary part of blood in the form of Haemoglobin.

x — x

SECTION-B.

QUESTION No 6.

A.

The woman is Ahsan's "Mother" as he points out that she is the grandmother of ~~his~~ ~~bro~~ his niece hence ~~is~~ the mother of his brother hence his mother.

x — y

B.

Length : Breadth = 3:2
 speed of cycling = 12 km/h
 = 20 m/min
 time taken = 8 m.

if the cyclist covers the entire area in 8 min with a speed of 20 m per min the total area traveled will

(20)

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be

$$= 20 \times 8$$

$$= 160 \text{ meters.}$$

The ratio b/w length
and breadth = 3:2.

160 in this ratio
would be

107 m length
53 m breadth.

$$\text{Total area} = l^a \times b^a$$

$$= 107 \times 53$$

$$= 5671 \text{ meter squared.}$$

x — x

QUESTION No 8.

A.

D must be in
the middle.

C E D B A.

x — x

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B -

How many kms are you
from the place you started?

1 km.

In which direction will you
be running while finishing?

Towards North.

After taking the second
direction turn, in which
direction will you be running?

Towards South.

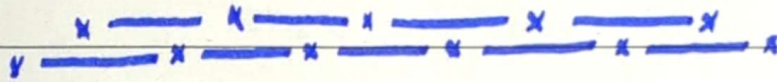
From the finishing point if
you've to reach the
point from where you
started, in which direction
will you have to run?

To reach the
starting point from
finishing point I will
have to run towards
west.

x — x

D-

A total of 26
 twenty six (26) triangles
 can be found in the
 given diagram.



THE END.