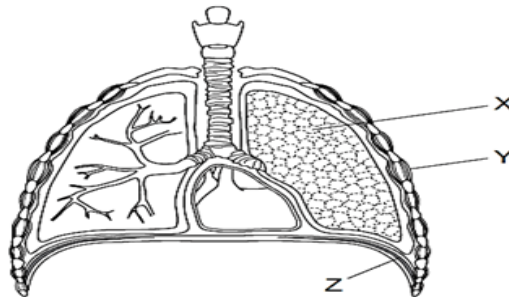
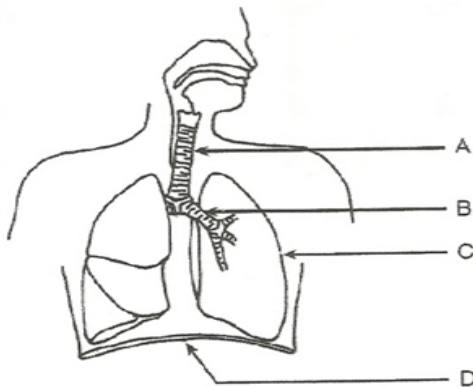




Ombiology Activities

Assignment

BREATHING SYSTEM



AHMED OMAAR

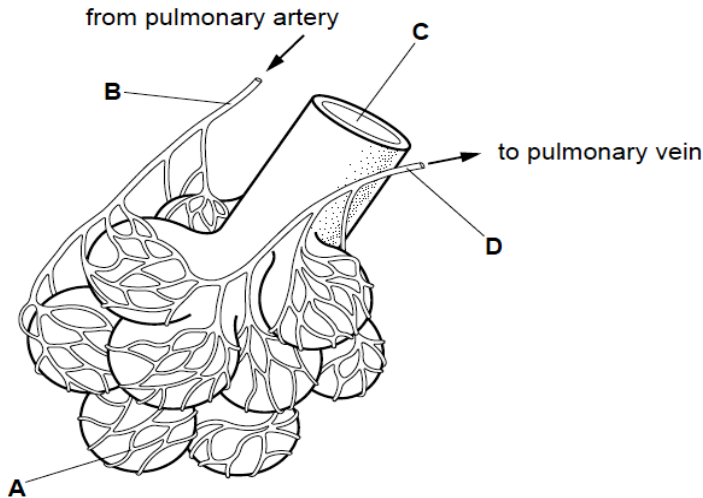
Name: School:

Class: Academic Year:

Section A: Multiple Choice Questions

For each question in this section, circle the correct answer

- The diagram shows some of the structures in a human lung.
Where is the carbon dioxide concentration highest?



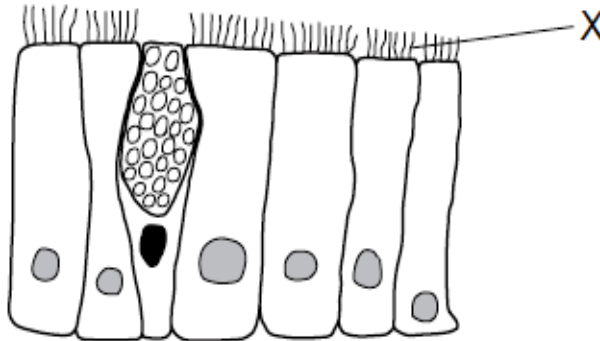
- The diagram shows someone blowing up a balloon.



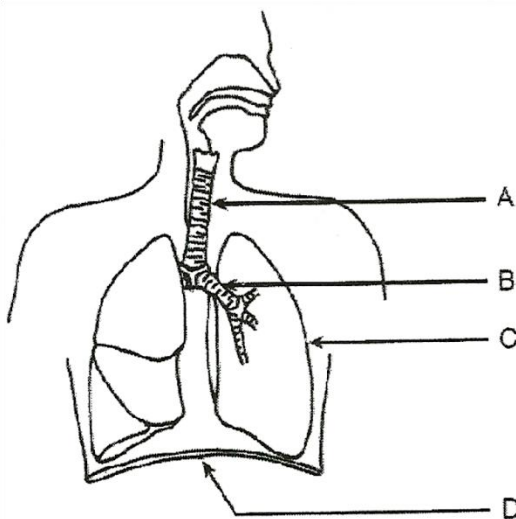
What percentage of the gas in the balloon is carbon dioxide?

- 0.04 %
 - 0.4 %
 - 4.0 %
 - 40 %
- Which one of the following does not happen when one inhales fresh air?
 - The chest and abdomen expand
 - The ribs move out and up
 - The diaphragm moves up
 - The breastbone moves out and up

4. The diagram shows some ciliated cells from the trachea
What is the function of the parts labeled X?



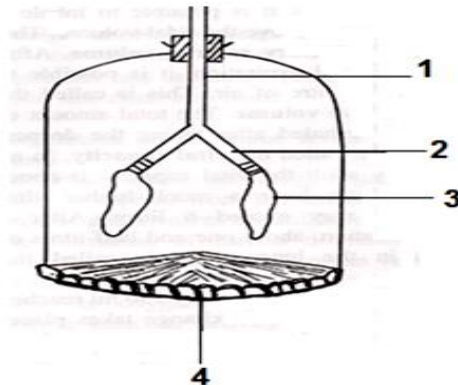
- A. Detecting stimuli
B. Exchanging gases
C. Moving mucus
D. Trapping unwanted gases
5. The outgrowth projections which develop from part of the inner lining epithelial tissue is
- A. Flagella
B. Cilia
C. Pilli
D. Hair
6. All of the following facilitate gas exchange in the lungs, EXCEPT;
- A. Thin alveolar walls
B. Inner surface of the alveoli are moist
C. Alveoli are surrounded by blood capillaries
D. Alveoli contain cilia that trap carbon dioxide
7. Which structure shows in the diagram below contracts causing a pressure change in the chest cavity during breathing?



8. Which of the following is a correct sequence of passageways through which air travels during inhalation?

- A. Pharynx → trachea → bronchioles → bronchi → alveoli
- B. Pharynx → trachea → larynx → bronchi → alveoli
- C. Larynx → pharynx → trachea → bronchi → alveoli
- D. Pharynx → larynx → trachea → bronchi → alveoli

9. The below diagram is about a model showing human breathing system.



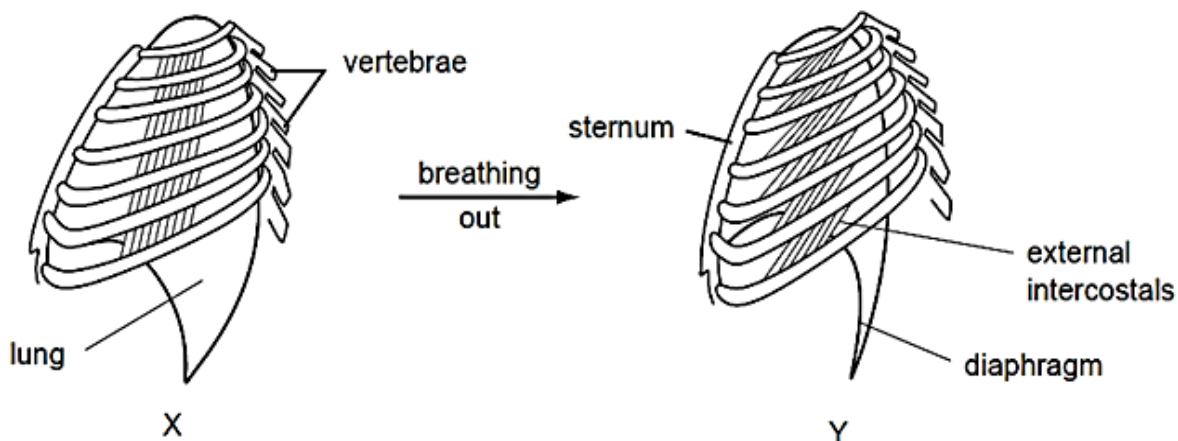
Which labeled structure represents the diaphragm?

- A. 2
 - B. 4
 - C. 1
 - D. 3
10. **C – shaped cartilages** surround and protect the
- A. Esophagus
 - B. Larynx
 - C. Trachea
 - D. Pharynx
11. The process of taking air into the lungs is called
- A. Expiration
 - B. Exhaling
 - C. Inspiration
 - D. Respiration
12. The structure that produces sound is
- A. Trachea
 - B. Bronchus
 - C. Pharynx
 - D. Larynx

13. Which of the following isn't a part of inspiration?

- A. The pressure in the lungs increases
- B. The rib cage moves up and out
- C. The intercostal muscles pull the ribs outward
- D. The diaphragm contracts and moves down

14. The below diagram shows the ribs and some of the muscles used in breathing.



Which muscles relax in moving from position X to position Y?

	diaphragm	external intercostals
A	no	no
B	no	yes
C	yes	no
D	yes	yes

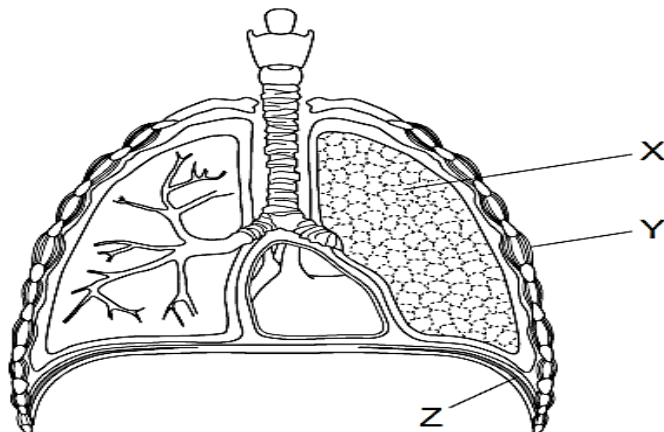
15. Pleura or pleural membrane

- A. The outer membrane of the heart
- B. Surrounds and protects each lung
- C. Surrounds and protects the kidneys
- D. The outer membrane of the alveoli

16. What are the muscles that move the ribs?

- A. Smooth muscles
- B. Intercostal muscles
- C. Cardiac muscles
- D. Neurogenic muscles

17. The diagram represents the human respiratory system.



Which structures contain muscles that contract when breathing in?

- A. X only
- B. X and Y only
- C. Y and Z only
- D. X, Y and Z

18. The diagram shows a section through an alveolus and a capillary

	large total surface area	well-supplied with blood vessels
A	✓	✓
B	✓	x
C	x	✓
D	x	x

Why does carbon dioxide move from X to Y?

- A. Carbon dioxide moves more freely in air than in blood
- B. Carbon dioxide must replace oxygen
- C. Air has a large concentration of carbon dioxide than blood
- D. Diffusion of carbon dioxide can only be out of the blood

19. What helps oxygen to be absorbed rapidly into the blood in the lungs?

- A. Air breathed in has less oxygen than air breathed out
- B. Alveoli have thick walls and a large surface area
- C. Alveoli have thin walls and a large surface area
- D. The concentration of oxygen in the blood is higher than in the alveoli

20. The amount of air a person takes in during normal, restful breathing is called the

- A. Residual volume
- B. Vital capacity
- C. Dead space
- D. Tidal volume

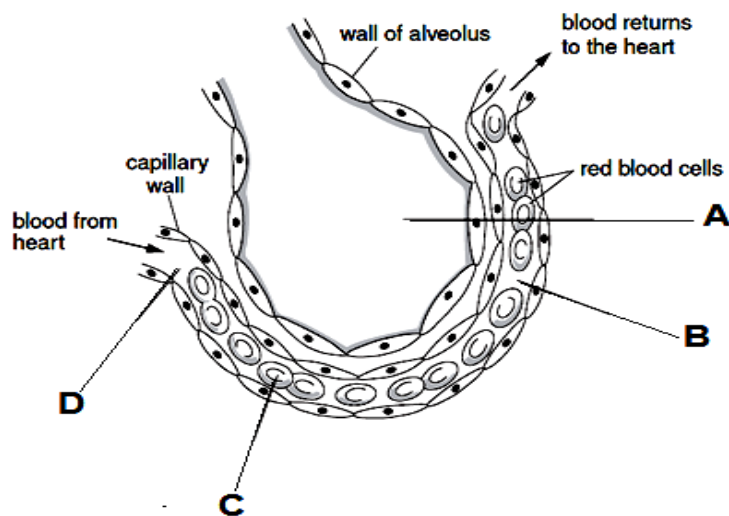
21. The table shows the approximate composition of air breathed out by a mammal

Gas	Air breathed out %
nitrogen	80
oxygen	16
carbon dioxide	4

Where does the **nitrogen** in the air breathed out come from?

- A. It is a product of proteins broken down in the mammal
- B. It is a product of respiration
- C. It is exchanged for oxygen which is taken into the blood
- D. It is in the air that was breathed in

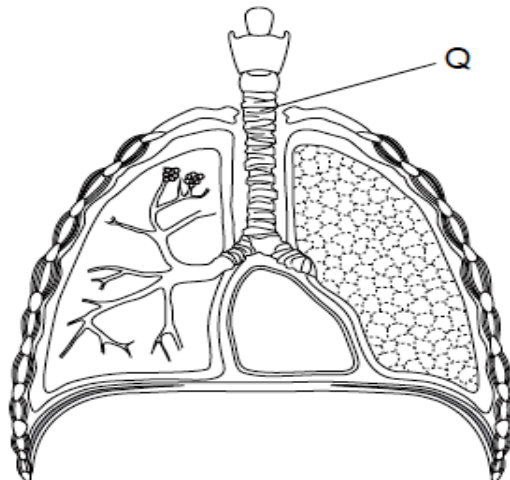
22. The diagram below shows a section through an alveolus and associated blood capillary. Which labeled part contains highest oxygen concentration?



23. What makes alveoli suitable as a gas exchange surface?

	large total surface area	well-supplied with blood vessels
A	✓	✓
B	✓	x
C	x	✓
D	x	x

24. The diagram shows some structures in the human neck and thorax.



The lining of tube **Q** has cilia. What is an important function of the cilia?

- A. To help in the exchange of gases
 - B. To increase the internal surface area of tube **Q**
 - C. To moisten the air entering and leaving the lungs
 - D. To move mucus towards the throat
25. The nose serves all the following functions, EXCEPT;
- A. Warming and humidifying the air
 - B. Cleansing the air
 - C. As a passageway for air movement
 - D. Initiator of the cough reflex
26. Amount of air in the lungs that remains after deep breathing is called _____
- A. Dead space
 - B. Vital capacity
 - C. Ventilation rate
 - D. Residual volume
27. Which features are present in gaseous exchange surfaces?

	large surface area	moist	thick walls
A	✓	✓	x
B	✓	x	✓
C	x	✓	✓
D	✓	✓	✓

key

✓ = present

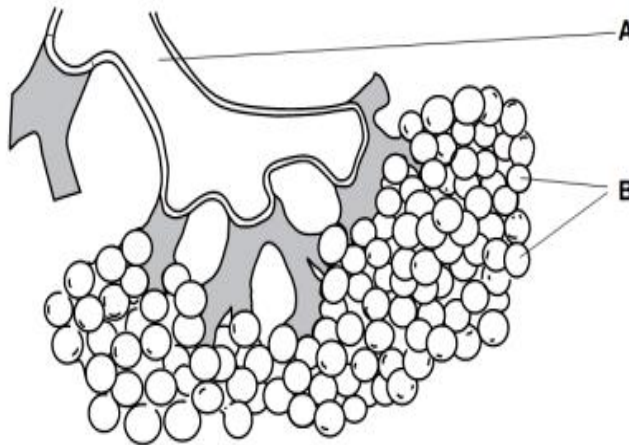
x = not present

Section B: Structured Questions

Answer all the questions below as fully as possible.

Question 1

The below diagram shows a section of the lung



(a) Name the structures labeled **A** and **B**

A **B**

(b) State **two** features of the structures labeled **B** that enable efficient gaseous exchange

.....
.....

Question 2

(a) During inspiration, air moves from the atmosphere into the lungs.

Describe the mechanism of inspiration

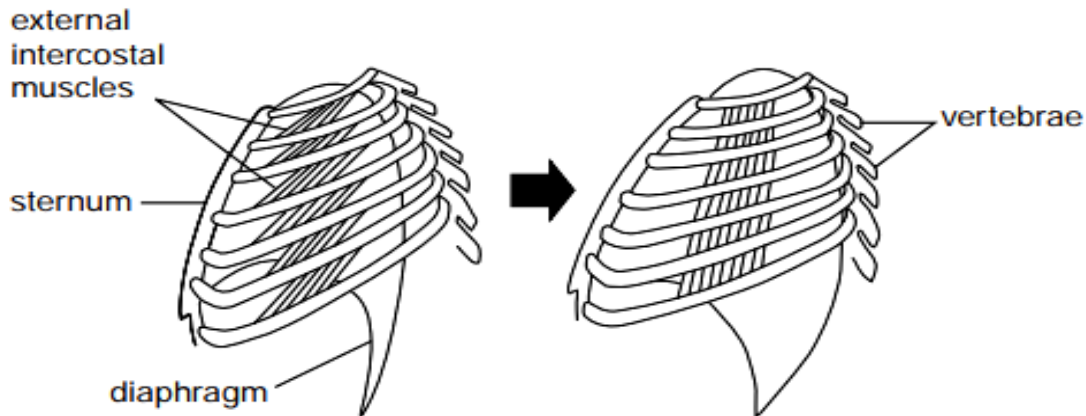
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(b) Name **one** gas that is found in a higher concentration in expired air than in inspired air.

.....

Question 3:

The below diagram shows the movement of the ribs and the diaphragm during breathing in



(a) State what happens to the following structures during breathing in.

- (i) Diaphragm
- (ii) Ribcage
- (iii) External intercostal muscles

Question 4:

The following structures listed below are the structures of the main air passage of the respiratory tract. Arrange them in the correct order to show how the air enters the respiratory tract from the atmosphere.

Lung, Bronchi, Larynx, Pharynx, Trachea, Nasal cavity (nostrils)

- 1. Nasal cavity (nostrils) 2. 3.
- 4. 5. 6.

Question 5:

(a) How many cells (or walls) does oxygen pass through on its way from the alveoli to red blood cells?

.....

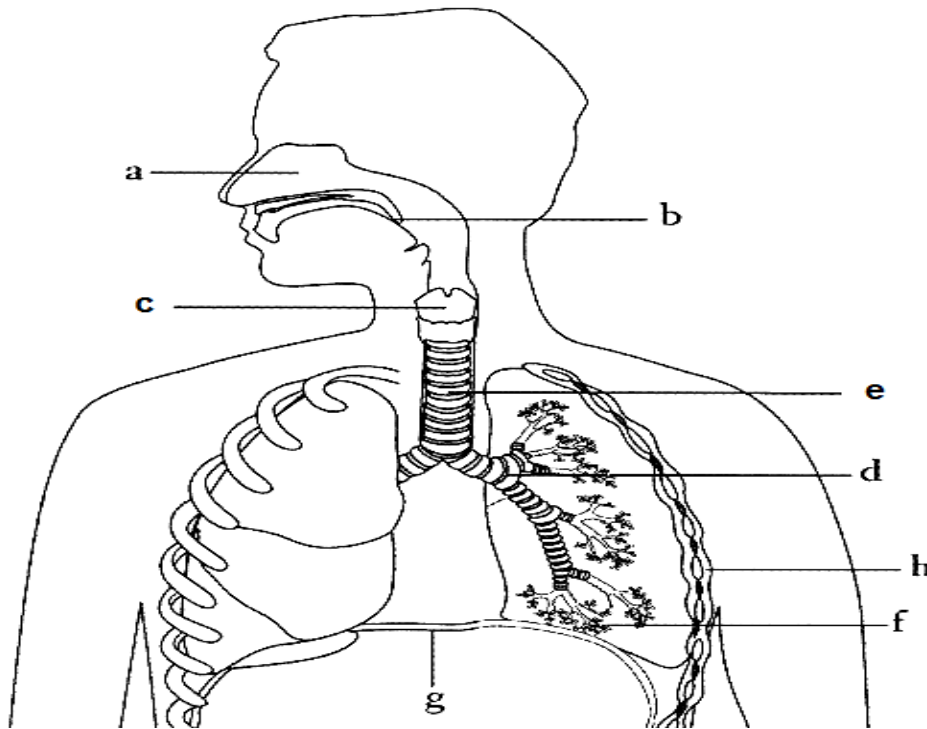
(b) Why is it important for oxygen to have a large concentration gradient between the inside of alveoli and the blood?

.....

.....

Question 6:

Use the diagram below of the human respiratory system to answer the questions that follow



A) Which structures shown (use the letters **a** to **h** to answer)

i. Prevents food from entering the trachea?

.....

ii. Contracts and flattens when you breathe in?

.....

iii. Filters, warms and humidifies air?

.....

iv. Contracts to raise the rib cage when you breathe in?

.....

v. Is the site of gaseous exchange between the lungs and the bloodstream?

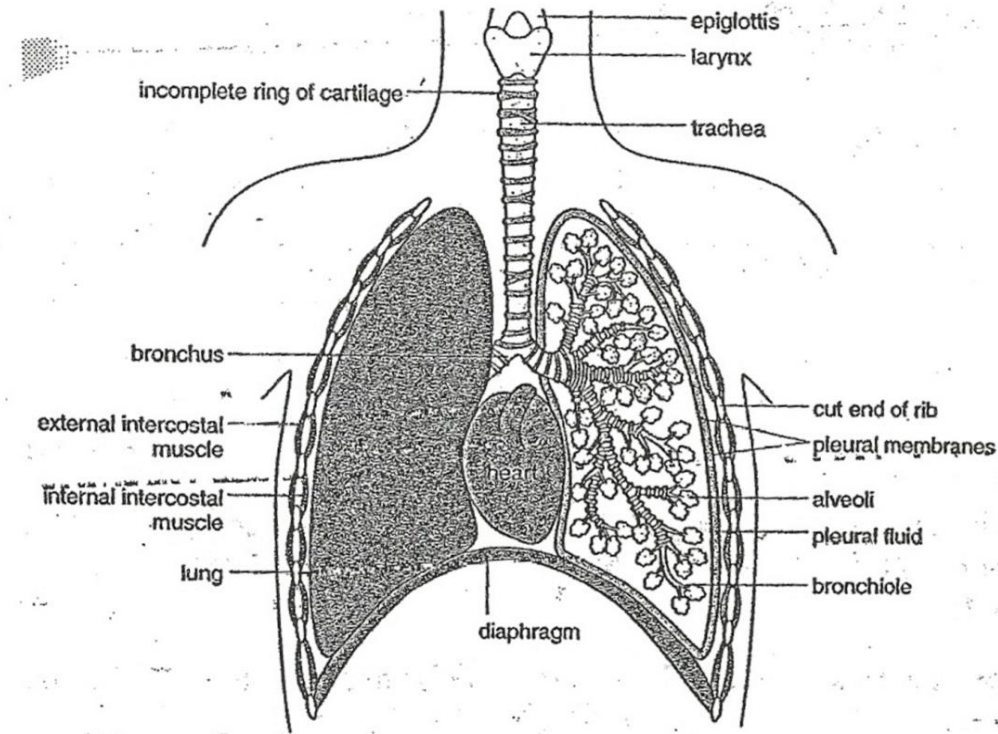
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vi. Is a bronchus?

.....

Question 7:

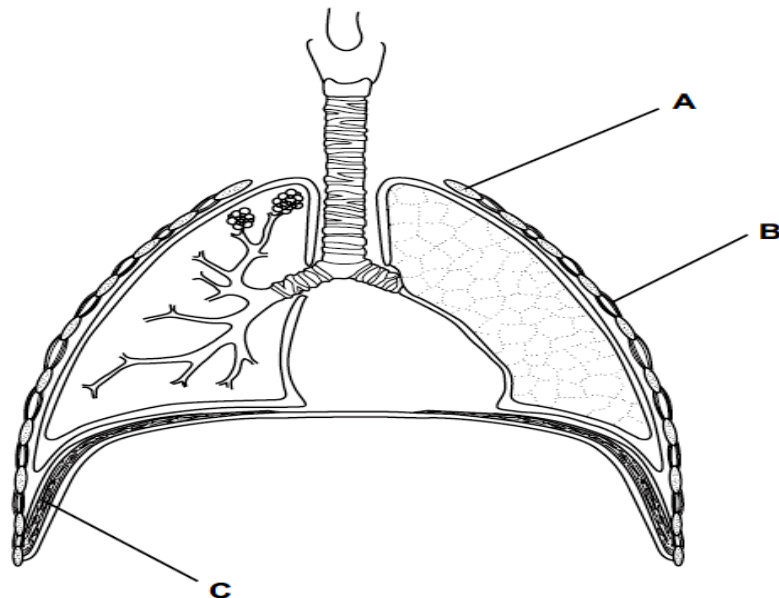
Study the diagram carefully and answer questions below.



- With the help of an arrow, indicate on the diagram above the direction of the air flow during inspiration.
- What happens to the external intercostals muscles?
.....
- What happens to the internal intercostals muscles?
.....
- Does the diaphragm contract or relax?
- In which direction does the diaphragm move?
- What happens to the volume of the thoracic cavity?
- Does the pressure inside the lungs decrease or increase?

Question 8:

The diagram below shows structures in the human thorax



(a) Complete the table by identifying parts **A**, **B** and **C** and describe their roles in breathing in (inspiration)

part	name	role in breathing in
A		
B		
C		