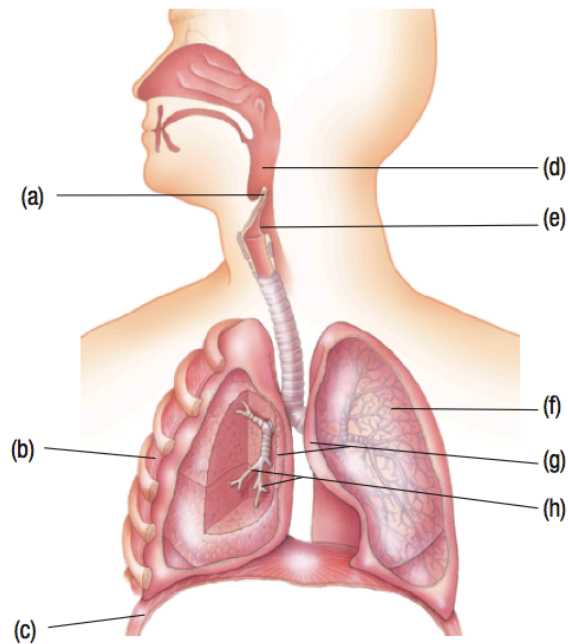


G11 Biology: Class 12 Homework

1. Describe two safety features and explain how they protect the lungs from foreign matter. **[4 marks]**
2. What physical characteristics of the alveoli make them ideal structures for gas exchange? **[3 marks]**
3. Describe how inhalation and exhalation is related to atmospheric pressure. **[3 marks]**
4. Compare and contrast internal respiration and external respiration. **[3 marks]**
5. How does the respiratory system respond when carbon dioxide levels are too high in the tissues? How does the circulatory system respond? **[4 marks]**

6. Label the following diagram of the respiratory system. **[8 marks]**



Label	Structure
A	
B	
C	
D	
E	
F	
G	
H	

7. The partial pressure of oxygen in capillary A is 5.33kPa. The partial pressure of oxygen in capillary B is 13.33 kPa.

- Which capillary is approaching the lungs? **[1 mark]**
- Which capillary is approaching body tissues? **[1 mark]**

8. Describe the changes that occur in each structure during inhalation and exhalation stages of breathing. **[8 marks]**

	Inhalation	Exhalation
Diaphragm		
External Intercostal Muscles		
Lungs		
Thoracic Cavity		

9. An athlete trains at an altitude of 2000m for several weeks.

- a) What substance is likely to increase in the athlete's blood? **[1 mark]**
- b) What will be the effect of the increase of this substance? **[1 mark]**
- c) How will the change in the athlete's blood composition change his performance? **[2 marks]**

10. In what three ways is carbon dioxide transported through the blood? **[3 marks]**

11. In what two ways is oxygen transported through the blood? **[2 marks]**

12. Samples of a runner's blood are taken continuously during an extended run on a treadmill. Measurements of oxygen level, breathing rate, heart rate and carbon dioxide levels are taken.

- a) Which substance would you expect to build up in the blood as time passes? **[1 mark]**
- b) Which substance would you expect to decrease in the blood as time passes? **[1 mark]**
- c) How would you expect the heart rate and breathing to change as a result of these changes in blood composition? **[2 marks]**
- d) How would you expect the pH of the blood to change as time passes? Why does it change? **[2 marks]**
- e) Where is this pH change detected in the body? **[3 marks]**
- f) How is the pH change counteracted in the body? **[2 marks]**

13. A 10-year old girl has been diagnosed with asthma.

- a) What are some environmental stimuli of asthma? **[3 marks]**
- b) What symptoms result from the body's response to the stimuli? **[2 marks]**
- c) What medications can relieve the symptoms of asthma? **[2 marks]**