Unit 18 · Respiratory System

WORKSHEET

Full marks 32

Name _____ Class _____ Roll no. _____ Date _____ Marks _____ / 32

1 Key words [4]

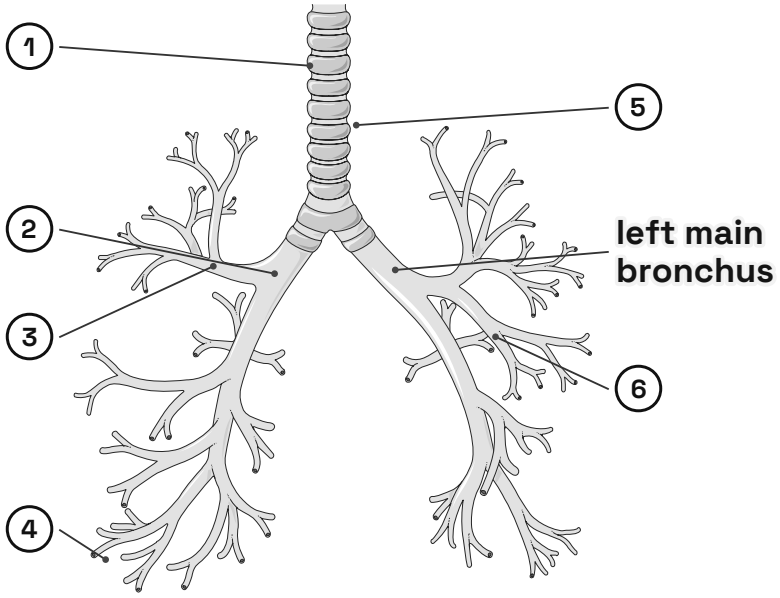
Fill in the blanks with words from the box. Two words in the box are not needed. Each blank carries 0.5 mark.

arytenoid	**Bohr effect**	**carbaminohemoglobin**	**carbonic anhydrase**	**carboxyhemoglobin**
chloride shift	**conchae**	**cricoid**	**pleura**	**surfactant**

The curled shelves of bone in the respiratory region of the nose are the nasal _____. The only complete ring of cartilage in the airway is the _____ cartilage. The double membrane round each lung is the _____. Type II pneumocytes secrete _____, which lowers the surface tension in the alveoli. The enzyme in red blood cells that joins carbon dioxide and water into carbonic acid is _____. As bicarbonate ions leave a red cell, chloride ions move in: the _____. Carbon dioxide joined to the amino groups of hemoglobin forms _____. The shift of the oxygen–hemoglobin curve to the right where carbon dioxide is high is the _____.

2 Label the diagram [3]

The diagram shows the trachea and the bronchial tree from the front. Write the names of the parts 1 to 6. Each carries 0.5 mark.



1. _____ **2.** _____

3. _____ **4.** _____

5. _____ **6.** _____

3 Multiple choice [5]

Choose the correct option for each of the following questions.

i. Which of the following cartilages of the larynx is unpaired? [1]

a. arytenoid
b. corniculate
c. cuneiform
d. cricoid

ii. The open part of the C-shaped cartilage rings of the trachea is on its [1]

a. anterior surface
b. lateral surface
c. posterior surface
d. inferior surface

iii. What makes air flow into the lungs during inspiration? [1]

a. the lungs suck it in by contracting
b. the diaphragm pushes it in
c. the chest grows, so the pressure in the lungs falls below the air's
d. the pressure in the lungs rises above the air's

iv. Which statement best describes the role of surfactant in the lungs? [1]

a. it increases surface tension in the alveoli to prevent collapse
b. it increases the airway's resistance to infection
c. it helps in the exchange of gases
d. it reduces surface tension in the alveoli, making them easier to expand during inhalation

v. Why does a peanut breathed in by mistake usually go into the right bronchus rather than the left? [1]

a. the right lung is smaller
b. the right bronchus is wider and more nearly vertical
c. the left bronchus has no cartilage
d. the esophagus opens into the left bronchus

4 Short answers [9]

Write short answers to the following questions.

a. Name the four pairs of paranasal sinuses. Write one function of the sinuses. [2]

b. Why is quiet expiration called a passive process, while forced expiration is active? [2]

c. Nearly every winter in Nepal, people die in their sleep in a closed room warmed by a charcoal fire. Explain why. **[2]**

d. What is the respiratory membrane? Why is gas exchange across it so fast? **[3]**

5 Long answers **[8]**

Write long answers to the following questions.

a. Explain how inspiration and expiration take place in quiet breathing. **[4]**

b. How is carbon dioxide carried from the tissues to the lungs? **[4]**

6 Think [3]

Blood leaves a resting muscle still holding most of its oxygen, but a hard-working muscle takes far more of the oxygen from the same blood. Explain this with the oxygen–hemoglobin dissociation curve.

7 Activity: Count your breaths (not marked)

Sit quietly for two minutes, then count your breaths for one minute (a partner can watch your chest). Run on the spot for two minutes, and count again at once, and every minute until you are back to your resting rate.

When	Breaths in a minute	Deep or shallow?
at rest		
just after running		
1 minute later		
2 minutes later		

Why did your breathing change after running?