

1. Fig. 15.1 shows simplified models of two alveoli after exhalation is complete. One shows an alveolus from a non-smoker and the other shows the alveolus from a smoker. X is a tissue found in the lungs. Questions 15 and 16 both refer to this figure.

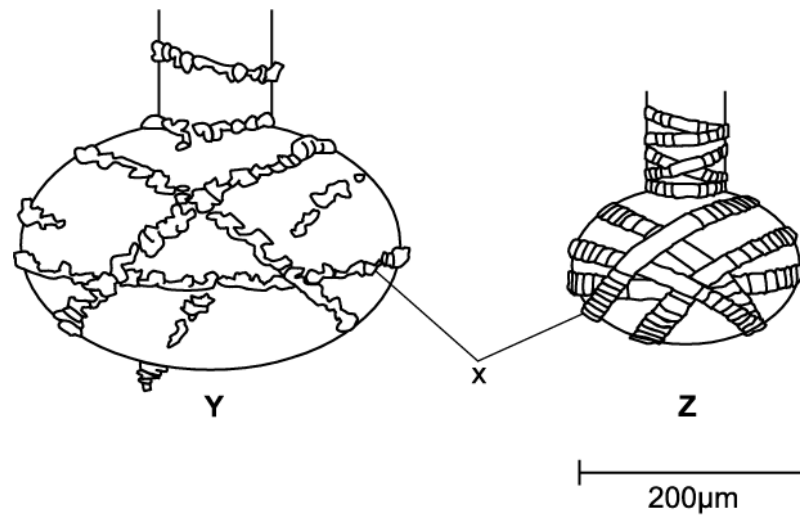


Fig. 15.1

Which of the following statements is correct:

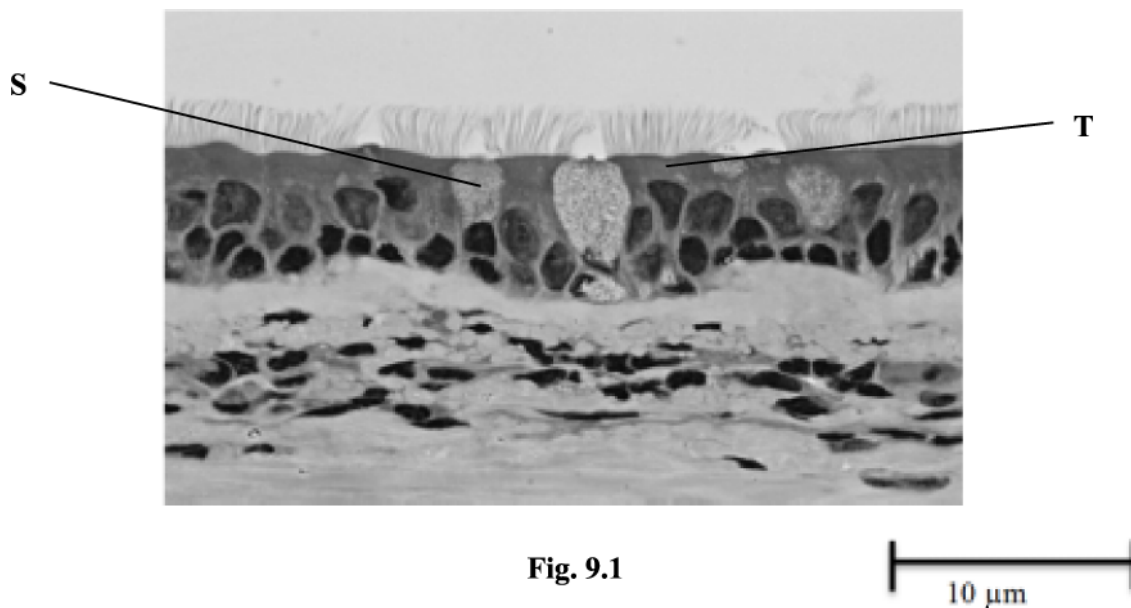
- A Y is from a non-smoker and X labels cartilage rings.
- B Z is from a non-smoker and X labels cartilage rings.
- C Y is from a non-smoker and X labels elastic fibres.
- D Z is from a non-smoker and X labels elastic fibres.

Your answer

[1]

2. The statements below refer to the location of cells S and T and the effect of the pollutants in tobacco smoke on these cells.

Fig. 9.1 shows a photomicrograph of a tissue found in the human gas exchange system. This tissue will be exposed to any pollutants present in inhaled air.



Which of the following statements are correct?

- Statement 1:** Cell S is a goblet cell and is stimulated by pollutants.
Statement 2: Cell T is a ciliated cell and is damaged by pollutants.
Statement 3: Cell S and T are found in the bronchi, bronchioles and alveoli.

- A 1, 2 and 3
B Only 1 and 2
C Only 2 and 3
D Only 1

Your answer

[1]

3. The statements below refer to the tissue shown in Fig. 9.1 and the magnification.

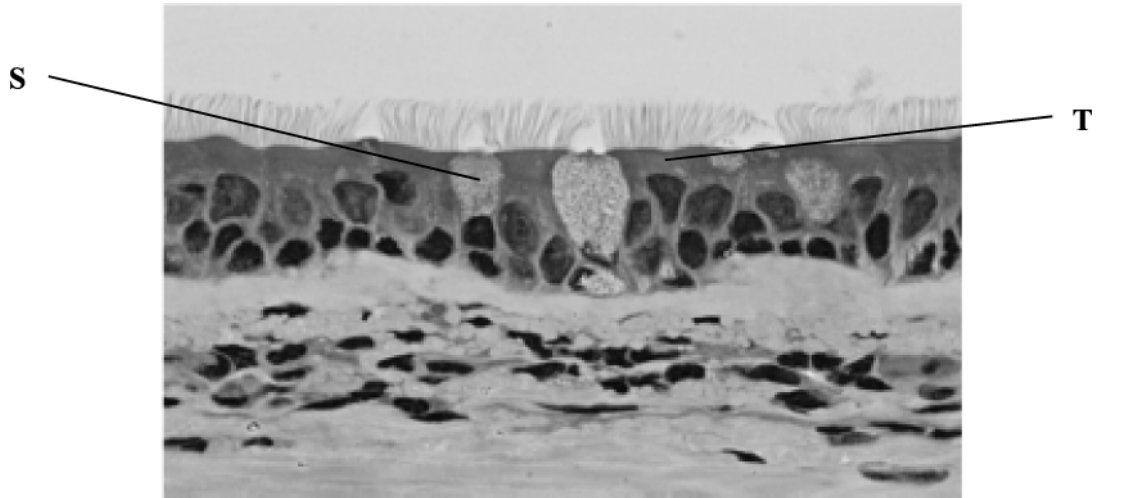
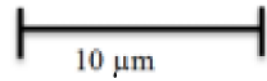


Fig. 9.1



Which of the following statements is / are true?

- Statement 1:** The magnification of this image is $\times 300$.
Statement 2: The tissue shown is epithelial tissue.
Statement 3: Cells S and T will be replaced from stem cells.

- A 1, 2 and 3
B Only 1 and 2
C Only 2 and 3
D Only 1

Your answer

[1]

4. The following statement describes a clinical trial that reached completion in 2009.

The trial was a randomised, single-blind trial which aimed to compare a new drug, ustekinumab, with the standard-of-care drug, etanercept, for the treatment of a skin disease.

Which of the following statements is / are correct?

Statement 1: The doctors, but not the patients, knew which patient received which drug.

Statement 2: The trial was in phase 3.

Statement 3: Ustekinumab was given to patients over a range of doses in order to determine the safest dose.

- A 1, 2 and 3 are correct
- B Only 1 and 2 are correct
- C Only 2 and 3 are correct
- D Only 1 is correct

Your answer

[1]

5. The statements below relate to the causes and effects of emphysema.

Which of the following statements is/are correct?

- 1 Ventilation is impaired due to the destruction of elastic lung tissue.
- 2 The partial pressure of oxygen in the blood is decreased.
- 3 Tissue destruction is mediated by monocytes.
- A 1, 2 and 3 are correct
- B Only 1 and 2 are correct
- C Only 2 and 3 are correct
- D Only 1 is correct

Your answer

[1]

6. Which of the options, **A** to **D**, accurately describes a clinical trial in which neither the patients nor the scientists know which treatment is being issued?

- A placebo
- B double-blind
- C randomised
- D blind

Your answer

[1]

7. The table below shows the results of a survey investigating asthma in children from an urban population of China in 2010.

	Males	Females
Number in population	6096	5986
Number with asthma	352	199

Which of the options, A to D, is the correctly calculated percentage prevalence rate of asthma in this population of children?

A 5.7%

B 3.3%

C 5.5%

D 4.6%

Your answer

[1]

END OF QUESTION PAPER

Mark Scheme

Question			Answer/Indicative content	Marks	Guidance
1			D	1	
			Total	1	
2			B	1	
			Total	1	
3			C	1	
			Total	1	
4			B	1	
			Total	1	
5			B ✓	1	Examiner's Comments Candidates found this question very difficult with most students opting for response A.
			Total	1	
6			B	1	Examiner's Comments The majority of candidates offered the correct option here for a double-blind clinical trial and there were few incorrect responses.
			Total	1	
7			D	1	Examiner's Comments Candidates did have to process some information from a table in this question and choose appropriate values to perform a percentage prevalence calculation. Whilst candidates often struggle with such calculations in section B, this posed little problem for 80% of candidates who identified the correct response.
			Total	1	