OCR AS/A-level Year 1 Biology A exam practice answers

**8 Exchange surfaces**

**1** The correct answer is row B. [1]

**2 (a)** It has a small surface area to volume ratio. Activity requires a lot of oxygen for aerobic respiration. Diffusion is too slow. [3]

**(b) (i)**  [2]



**(ii)** As size increases, the surface area to volume ration decreases, from 1.5 : 1 at   
radius 2 cm to 0.3 : 1 at radius 10 cm. [2]

**3 (a)** Elastic tissue causes recoil.

Ciliated epithelium traps and removes foreign bodies.

Smooth muscle contracts to constrict the lumen. [3]

**(b)** The goblet cells secrete mucus, which traps pathogens that may cause disease.   
The cilia move the mucus up towards the throat. [3]

**(c)** Damaged elastic fibres could not cause recoil and are less able to expel air.   
The alveoli may burst. [2]

**(d)** It ismore difficult to move air along the airways, which causes breathlessness. [2]

**4 (a)** Thesubject breathes normally with a nose clip to ensure all air is taken from the chamber. Measure the difference in height between peak and trough on the trace. Measure three peaks and calculate a mean. [3]

**(b)** Air contains only 20% oxygen, which will run out quickly. [2]

**(c)** The subject must be healthy. Sterilise the mouthpiece before use. Ensure the   
soda lime is working to remove carbon dioxide. [2]