

Question 34 (Answer: **D**)

- Squamous epithelium is extremely thin, which suits the alveoli where gases must diffuse quickly.
- Ciliated epithelium lines the airways, where it sweeps mucus upwards.
- So match the flat thin cell to the alveolus and the ciliated cell to the bronchi.

Question 35 (Answer: **C**)

- The trachea wall contains both elastic fibres, which let it stretch and recoil, and smooth muscle, which alters its diameter.
- Cartilage rings hold it open, but the question asks only about these two tissues.
- Both are present.

Question 36 (Answer: **A**)

- Follow the airway inwards: trachea, bronchus, bronchiole, alveolus.
- Cartilage rings hold the trachea and bronchi open but disappear in the bronchioles.
- Ciliated and goblet cells line the airways, while alveoli have thin squamous epithelium.

Question 37 (Answer: **C**)

- The lining of an airway is *epithelium*; endothelium lines blood vessels.
- Below it sits smooth muscle, which alters the airway diameter.
- Any small tube with a lining of its own and blood inside is a blood vessel, not a bronchiole.

Question 34 (Answer: **D**)

- The bronchus wall has a lining epithelium, then smooth muscle, then cartilage plates.
- Cartilage stains differently and sits as irregular blocks towards the outside.
- It is there to hold the airway open, so look for the outermost supporting tissue.

Question 35 (Answer: **B**)

- A goblet cell is shaped like a wine glass and stains for the mucus it holds.
- It secretes the mucus that traps particles.
- The ciliated cells then sweep that mucus away – trapping and sweeping are different jobs.

6(a)(i)	gene ;
6(a)(ii)	transcribed / template, strand ;
6(a)(iii)	ribosome ; 1 70S / 80S
6(a)(iv)	weakens / AW, bacterial <u>cell wall</u> ; cell cannot maintain turgor / AW ; leads to (osmotic) lysis / AW ;
6(b)(i)	flattened cells / AW ; short diffusion distance, (for gas exchange / described) ;
6(b)(ii)	stretch / expand, on inhalation, to prevent alveoli bursting / rupturing / overstretching ; recoil on exhalation to help expel air from the lungs ; <i>if no marks gained, allow one mark for stretch and recoil</i>

4(a)	bronchus ;
4(b)(i)	alveolus ; A alveolar sac / alveolar duct
4(b)(ii)	<u>smooth muscle</u> (cell) ;
4(b)(iii)	<i>any three from:</i> no cartilage ; A no, cartilage rings / C-shaped cartilage A no, irregular cartilage / cartilage plates few / no, goblet cells ; ora trachea / bronchus, have (more) goblet cells thin layer / patches / areas, of smooth muscle ; ecf from (b)(ii) A idea of quantity of smooth muscle less (than in, trachea / bronchus) thin(ner) wall ; (more) convoluted / wavy, lumen lining ; AW e.g. folded / curvy A lumen lining not smooth less, elastic, tissue / fibres, (than, trachea / bronchus) ; AVP ; e.g. ciliated epithelium not, pseudostratified / layered appearance <i>in context of the trachea / larger bronchi</i> no mucous glands present
4(c)	<i>any two from:</i> <i>allow O₂ for oxygen and CO₂ for carbon dioxide</i> systemic circulation (needed) to bring, oxygen / glucose, <u>and</u> pulmonary circulation brings deoxygenated blood ; <i>idea that</i> lungs are location, of gas exchange (surface) / where absorption of oxygen occurs / where excretion of carbon dioxide occurs or pulmonary circulation for, oxygen uptake / carbon dioxide excretion ; cells need, oxygen / glucose, for (aerobic) respiration / for cell metabolism / AW ; R body cells