Solutions

Marking: **M1** a correct method, **A1** the correct answer, **B1** an independent mark.

Each answer shows the steps, then the **result**.

2.1

B → D → A → C

2.2

$2.4 \div 2.6 = 0.92$, not below 0.7

with low volumes: **restrictive**

2.3

neutrophils: **1–3 days**

macrophages: **3–7 days**

firm scar: **more than 2 months**

2.4

it has a thin cap over a large lipid core, so it breaks more easily

a break exposes the core, and a clot forms that can block the artery

3.1

(a) $1.4 \div 3.2 =$ **0.44**

(b) **B**: FEV_1 rises by 0.6 L (about 38%), so it is reversible; A rises by only 0.1 L

(c) **α_1-antitrypsin deficiency**: too little antiprotease, so neutrophil elastase destroys alveolar walls

(d) **eosinophils**

(e) it keeps pressure in the airways so they do not collapse, letting more air out

3.2

(a) the ventricle wall **ruptured**, causing tamponade

(b) at 3–7 days macrophages clear the dead muscle, before scar has formed, so the wall is at its weakest

(c) **neutrophils**

(d) the blood presses on the heart so it cannot fill

3.3

(a) A: **squamous cell carcinoma**; B: **small cell carcinoma**; C: **adenocarcinoma**

(b) the tumour makes ADH, so the kidney keeps too much water, diluting the sodium

(c) the tumour makes PTHrP, which acts like parathyroid hormone

exercises.lol exercises.com.cn

(d) it grows fast and has usually spread by diagnosis, and it responds well to chemotherapy at first