Solutions

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

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

2.1

12-hour flight: **stasis**

hip surgery: **vessel wall injury**

oestrogen pill: **hypercoagulability**

2.2

$60 + \frac{120-60}{3}$

$=$ **80 mmHg**

2.3

heart failure: raised **venous (hydrostatic) pressure**

nephrotic syndrome: low albumin, so low **oncotic pressure**

cellulitis: **leaky capillaries**

2.4

the lung has a second blood supply (bronchial arteries) that bleeds into the dead area

kidney arteries are end arteries, so the dead area gets no blood

3.1

(a) a deep vein thrombosis in the left leg, through the right side of the heart to the pulmonary arteries

(b) $120 \div 90 =$ **1.3** (above 1)

(c) **obstructive**

(d) it is very sensitive, so a normal result makes a clot unlikely; it also rises after surgery, infection and cancer, so a high result proves nothing

3.2

(a) the atria do not contract properly, so blood is still, especially in the left atrial appendage

(b) to the **brain** (stroke) (or other arteries of the body)

(c) they block clotting factors, such as factor Xa or the vitamin K-dependent factors, so less fibrin forms

3.3

(a) $35 - 25 = +10$: fluid moves **out**

(b) $15 - 25 = -10$: fluid moves **in**

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(c) $15 - 15 = 0$; fluid no longer returns at the venous end, so it builds up: oedema

(d) into the **lymphatics**

(e) gravity raises the pressure in the lowest veins, so fluid collects in the lowest part of the body

(f) liver cirrhosis, malnutrition or protein loss from the gut