Solutions

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

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

2.1

fever: **PGE_2** (or IL-1)

early vasodilation and itch: **histamine**

calling in neutrophils: **C5a** (or IL-8)

2.2

$40 \div 70 = 0.57$

above 0.5, so an **exudate**

2.3

skin epithelium: **labile**

liver cells: **stable**

heart muscle: **permanent**

2.4

epithelioid macrophages and multinucleated giant cells

a ring of lymphocytes around them

3.1

(a) about **10%**

(b) by then the edges are joined, but the scar is weak until collagen is laid down and remodelled

(c) about **80%** of normal skin

(d) new capillaries growing in and fibroblasts making collagen

(e) vitamin C is needed to make strong (cross-linked) collagen

3.2

(a) primary: clean edges are brought together, healing fast with a thin scar; secondary: the gap fills from its base with granulation tissue and contracts, with more scar

(b) poor blood supply; high glucose weakens neutrophils, so infection is common (or nerve damage hides injury)

(c) **myofibroblasts**

3.3

(a) resolution; healing by a scar; an abscess or chronic inflammation

(b) A: **tuberculosis**; B: **sarcoidosis**

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(c) heart muscle cells are permanent and cannot divide; fibroblasts fill the gap with collagen

(d) macrophages in the granulomas make active vitamin D, which raises calcium absorption