Solutions

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

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

2.1

TB: **airborne** (FFP3 mask, negative-pressure room)

influenza: **droplet** (surgical mask)

MRSA: **contact** (gloves and apron)

2.2

any two of: before touching a patient; before a clean or aseptic task; after body fluid exposure; after touching a patient; after touching the patient's surroundings

2.3

1000×0.003

$= \mathbf{3}$

2.4

cleaning removes dirt and many microbes

disinfection kills most microbes, but not all spores

sterilisation kills all microbes, including spores

3.1

(a) let it bleed and wash with soap and water, without scrubbing; report at once to occupational health or the emergency department

(b) as soon as possible, ideally within 1 hour (up to 72 hours)

(c) she was vaccinated, and anti-HBs above 10 IU/L means she has protective antibody

(d) the risk is negligible, so PEP can stop

(e) HIV, hepatitis B (HBsAg) and hepatitis C

3.2

(a) $12 \div 4000 \times 1000 = \mathbf{3}$ per 1000 line-days

(b) any two of: hand hygiene and full sterile barrier at insertion; chlorhexidine skin preparation; daily review and removal of lines not needed; avoid the femoral site

(c) risk grows with how long lines stay in, so this compares units fairly

3.3

(a) **contact precautions**: gloves and apron; a side room with its own toilet

(b) *C. difficile* spores are not killed by alcohol

(c) a **chlorine-based** (sporicidal) product

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(d) broad-spectrum antibiotics such as these kill the normal gut flora, letting *C. difficile* grow and make toxin

(e) to see whether all six have the same strain, which would mean spread on the ward rather than separate cases