Solutions

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

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

2.1

full blood count: **purple (EDTA)**

INR: **light blue (citrate)**

glucose: **grey (fluoride)**

2.2

5% are outside each range: 20×0.05

about **1** test

2.3

A: red cells leaked K^+ while the sample stood (or haemolysis)

B: the sample was diluted by the drip fluid

C: EDTA from the purple tube got into the sample: it binds calcium and contains potassium

2.4

any two of: whether a lump is cancer; whether the margins are clear; whether a lymph node has cancer in it

3.1

(a) invasive ductal carcinoma, **grade 2**

(b) 0.5 mm is very close (not clearly clear), so more tissue may be removed (re-excision)

(c) 14 lymph nodes were found and 2 had cancer in them

(d) ER positive means the tumour grows with oestrogen, so hormone treatment such as tamoxifen will help

(e) by **immunohistochemistry**

3.2

(a) sodium was measured in many healthy people, and the middle 95% (mean $\pm$ 2 SD) was taken

(b) mean = 140; 2 SD = 5, so SD = **2.5**

(c) not necessarily: 1 in 40 healthy people is above the range, so repeat and look at the whole picture

3.3

(a) A: **fine-needle aspirate cytology**; B: **immunohistochemistry** (e.g. TTF-1); C: a **smear** (liquid-based cytology)

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(b) it looks only at single cells, so it cannot show invasion through the tissue

(c) enough formalin is needed to fix all the tissue before it decays

(d) there is too much citrate for the blood, so the clotting time is falsely long