Solutions

2.1

- Metastasis – benign tumours never metastasise ✓.

2.2

- Grade = how the cells LOOK (differentiation); stage = how FAR they have reached (TNM) ✓.

2.3

- Haematogenous (bloodstream) – carcinomas go lymphatic-first ✓.

3.1

- Grade cue: poorly differentiated ✓.
- Stage: muscle invasion (high T), N1 (3/12 nodes), M0 ✓.
- Prognosis follows stage – reach outranks look; grade refines ✓.
- An M1 deposit (distant spread) changes management most ✓.

3.2

- Circulating cells die or fail to colonise: each gate filters – few of 10,000 found a hospitable soil ✓.
- Cascade: detach → MMPs → intravasate → survive → extravasate → colonise ✓.
- Breast carcinoma: lymphatic-first → axillary nodes ✓.
- Osteosarcoma: haematogenous → lung ✓.