10.7 Laboratory medicine and the pathology report

Name: _____ Class: _____ Date: _____ **Total: 24 marks**

KEY WORDS reference interval • haemolysis

Objective

Read an interval; suspect the tube before the patient.

1 Key knowledge and worked examples

■ The number and its tube

Reference interval = central 95 % of healthy (2.5th–97.5th); 2.5 % of healthy outside by definition ✓. Report stations: specimen → gross → microscopy → diagnosis (+ grade/stage) → comment.

■ Worked example: three impossible results

Haemolysis → K^+ falsely high; EDTA tube → $K^+\uparrow$ $Ca^{2+}\downarrow$; glucose falls ~5–7 mg/dL per hour unspun ✓. Units: glucose mmol/L × 18 = mg/dL.

2 Practice

2.1 What share of healthy people sits inside a reference interval? [3]

2.2 Name the five report stations in order. [3]

2.3 Glucose 5.5 mmol/L in mg/dL? [3]

3 Exam-style questions

3.1 A fictional laboratory panic list: K^+ 8.2 with a calm ECG (shaken tube); calcium 1.9 from an EDTA tube; glucose 2.8 after a 3-hour unspun delay.

For each, name the pre-analytical mechanism and the fix (re-draw unhaemolysed; re-draw in the correct tube; separate cells promptly) ✓. State the rule the three share (the analyser reports the TUBE faithfully – sample questions precede patient questions) ✓. [8]

3.2 A fictional structured report reads: specimen, core biopsy; gross, 1.8 cm firm white focus; microscopy, infiltrating glands, poorly differentiated; diagnosis, adenocarcinoma grade 3 (Gleason 8), pT3 N1 M0.

Walk the five stations and identify where grade (Gleason 8 – appearance) and stage (pT3 N1 M0 – reach) live ✓. Explain what the comment station should add (limits of sampling, special tests pending) ✓. [7]

Solutions

2.1

- The central 95 % (2.5 % outside at each end) ✓.

2.2

- Specimen, gross, microscopy, diagnosis, comment ✓.

2.3

- ≈ 99 mg/dL (× 18) ✓.

3.1

- K^+ 8.2: haemolysis burst red cells – re-draw gently ✓.
- Ca^{2+} 1.9: EDTA chelates calcium – chemistry needs the correct tube ✓.
- Glucose 2.8: cells consumed ~5–7 mg/dL/h unspun – separate promptly ✓.
- Shared rule: the analyser reports the tube; ask how the sample travelled first ✓.

3.2

- Stations: specimen (core) → gross (1.8 cm focus) → microscopy (infiltrating glands) → diagnosis → comment ✓.
- Grade = Gleason 8 (appearance); stage = pT3 N1 M0 (extent) – two axes ✓.
- Comment adds: sampling limits, special stains or tests pending ✓.

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