3.1 Anatomical language, planes and imaging

Name: _____ Class: _____ Date: _____ **Total: 23 marks**

KEY WORDS sagittal plane

Objective

Use directional terms and planes unambiguously, and apply the axial display convention.

1 Key knowledge and worked examples

■ **The grammar**

Superior/inferior, anterior/posterior, proximal/distal, lateral/medial. Planes: sagittal (right/left), coronal (front/back), transverse (cross-section). Axial display: patient's RIGHT on image LEFT.

■ **Worked example: the drill**

Elbow distal to shoulder, proximal to wrist ✓; sternum anterior to heart anterior to oesophagus ✓ – each pair replaces a sentence.

2 Practice

2.1 Name the plane that separates the eyes from the back of the head. [3]

2.2 The knee is _____ to the hip and _____ to the ankle. [3]

2.3 On an axial brain scan, the patient's left occipital lobe appears on which side of the image? [3]

3 Exam-style questions

3.1 A surgeon describes a lesion as ”right upper lobe, anterior segment, 3 cm from the pleural surface”.

State the plane in which the anterior/posterior distinction is made. Explain the display convention that lets two readers agree on “right” without seeing the patient. Explain why side is always stated first in procedures. [7]

3.2 A midline sagittal MRI is requested.

State what “midline sagittal” cuts and what remains visible in one half. Explain why sagittal views show the spinal canal end-to-end while coronal views do not. State one structure best seen on each of the three planes. [7]

Solutions

2.1

- Coronal (front/back division).

2.2

- Distal to the hip, proximal to the ankle ✓.

2.3

- Right of image (patient's left displayed on image right; the convention mirrors patient right to image left).

3.1

- The coronal plane separates anterior from posterior.
- Axial images display as viewed from the feet: patient right = image left, applied consistently.
- Side first because it is the single highest-stakes ambiguity; grammar is the safety system (fictional drain-site vignette).

3.2

- Midline sagittal cuts the body into equal right and left halves; midline structures (cord, sternum, aorta) visible in both.
- The canal runs superior-inferior in the sagittal plane's long axis; coronal and transverse cut across it.
- Examples: sagittal = spinal canal; coronal = lungs/kidneys paired; transverse = a cross-section level e.g. C7/T1 disc.