

FExNet 2026

Collated SAQs: Orthopaedics

QUESTION BOOKLET

20 short-answer questions covering the ACEM Fellowship orthopaedic emergency curriculum — limb fractures (clavicle, humerus, forearm, wrist, hand, hip, tibia, ankle, foot); paediatric considerations (supracondylar, both-bone forearm, ossification centres CRITOL, SUFE, septic arthritis); compartment syndrome; shoulder dislocations; tendon injuries; gout; periprosthetic fractures; pulled elbow; open fractures (Gustilo-Anderson). Stems are written in detailed prose with abbreviations spelt out in full; sub-questions labelled a) b) c) state the required number of responses. **This booklet contains embedded radiographs** extracted from the 2022 source materials with patient identifiers cropped out.

20 questions • 209 marks

ACEM-aligned format. Sub-questions labelled a) b) c). Mark allocations indicative; references cited in the Answer Booklet. Question and answer indexes are clickable.

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Question 1 | Ankle Trauma — Ottawa Ankle Rules (11 marks)

A 23-year-old woman is brought to your emergency department after falling 5 metres from a balcony. She landed on her feet and is complaining of severe right-ankle pain and inability to weight-bear. She denies hip, knee, or back pain. On examination, there is bruising and tenderness over the lateral malleolus with deformity. A lateral X-ray of the right ankle is shown.



IMAGE — Lateral right ankle X-ray

- a)** List the 3 indications for an ankle X-ray AND 3 indications for a foot X-ray per the Ottawa rules. (3 marks)

- b)** Describe 2 abnormalities on the radiograph above AND state the diagnosis. (3 marks)

- c)** List 5 other injuries to actively exclude in a patient who has fallen 5 metres landing on feet. (5 marks)

Question 2 | Mid-Shaft Clavicle Fracture (10 marks)

A 16-year-old male presents to your emergency department after falling from his pushbike and landing on his outstretched right shoulder. He has a sore right shoulder but no other injuries. His X-ray of the right clavicle is shown.



IMAGE — Right shoulder / clavicle X-ray

a) Describe 3 features of the fracture on the X-ray. (3 marks)

b) List 3 absolute AND 3 relative indications for operative fixation of mid-shaft clavicle fractures. (4 marks)

c) List 3 complications of mid-shaft clavicle fractures. (3 marks)

Question 3 | Paediatric Supracondylar Fracture (13 marks)

A 7-year-old boy presents to your emergency department with a deformed and swollen right elbow after a fall from monkey bars 1 hour ago, landing on his outstretched right hand. He is in significant distress. On examination, the right elbow is obviously deformed with marked swelling. The radial pulse is reduced compared with the contralateral side. Lateral and AP X-rays of the right elbow are shown.



IMAGE — Lateral X-ray of the right elbow



IMAGE — AP X-ray of the right elbow

a) Describe 3 radiographic findings. (3 marks)

b) List 3 immediate clinical concerns / complications. (3 marks)

c) Describe the order of ossification of the paediatric elbow (CRITOL mnemonic) AND state the typical age of appearance. (4 marks)

d) State 3 management priorities. (3 marks)

Question 4 | Paediatric Both-Bone Forearm Fracture (10 marks)

A 6-year-old girl is brought to your emergency department by her mother after falling from a trampoline 2 hours ago. She is supporting her right forearm and is in pain. Lateral and AP X-rays of the right forearm are shown.

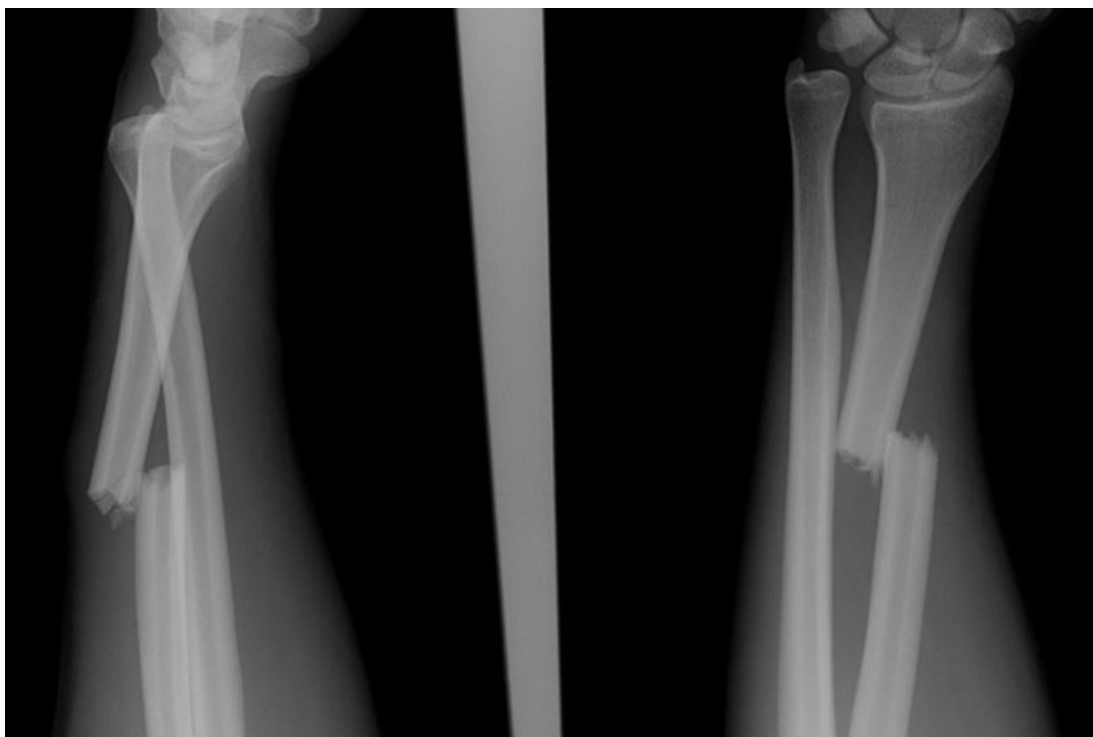


IMAGE — Right forearm X-rays — lateral and AP views

a) Describe 3 radiographic findings. (3 marks)

b) Describe the Salter-Harris classification of physeal (growth-plate) injuries. (4 marks)

c) State 3 management priorities. (3 marks)

Question 5 | Wrist Injury — Perilunate Dislocation (11 marks)

A 22-year-old male presents to your emergency department after coming off a motorbike at approximately 60 km/h. He landed on his outstretched left hand with the wrist hyper-extended. He has severe left wrist pain, swelling, and reduced range of motion. He is otherwise uninjured. Lateral and AP X-rays of the left wrist are shown.

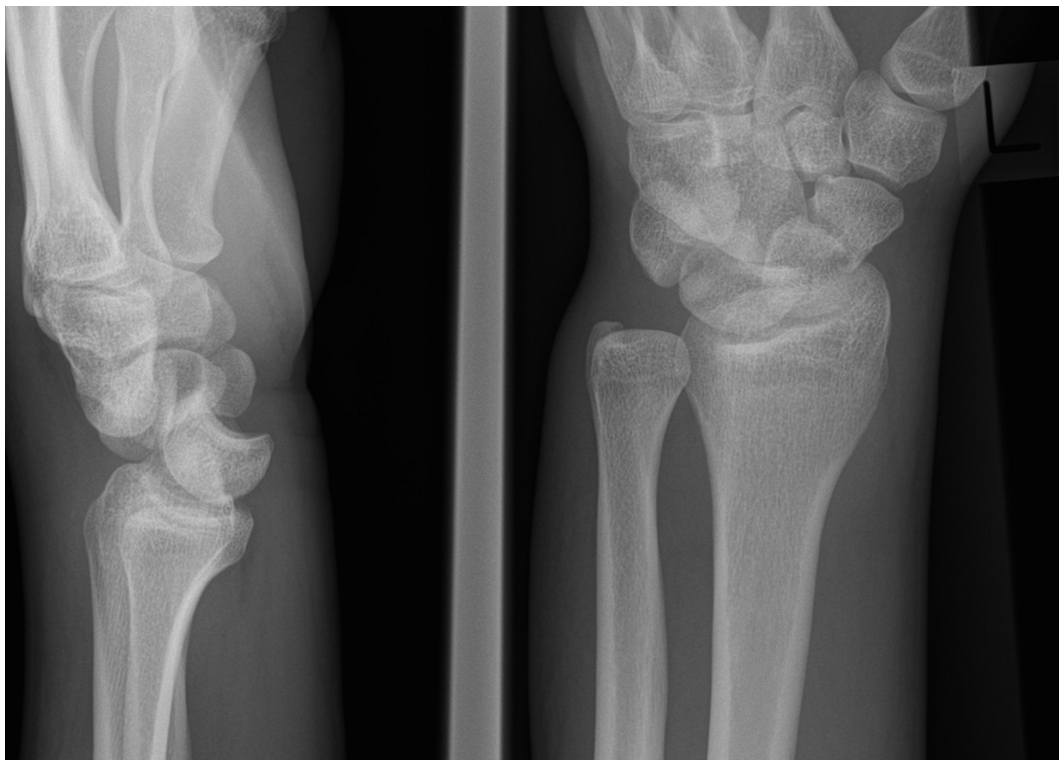


IMAGE — Wrist X-rays — lateral and AP views

a) Describe 3 radiographic findings on the lateral view AND state the diagnosis. (4 marks)

b) List 4 short-term and 4 long-term complications of perilunate dislocation. (4 marks)

c) State 3 management priorities. (3 marks)

Question 6 | Hip and Pelvic Fracture (12 marks)

A 47-year-old man was enjoying his daughter's birthday party at a trampoline park when he fell awkwardly onto his right knee, with a transmitted axial force up his femur. He has been brought to your emergency department complaining of severe right hip pain and inability to weight-bear. His AP pelvic X-ray is shown.

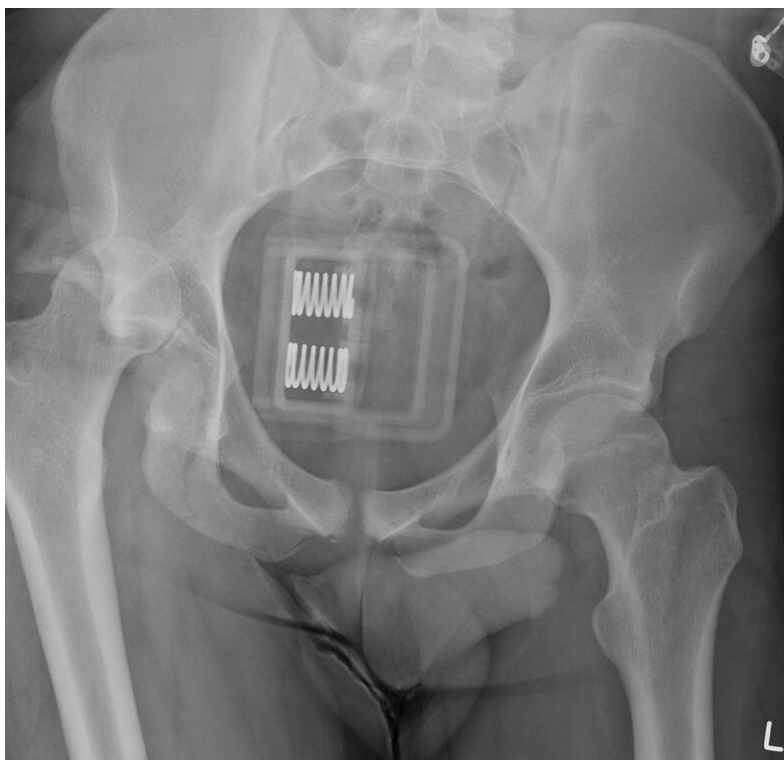


IMAGE — AP pelvic X-ray

a) Describe 4 radiographic findings. (4 marks)

b) Describe the Garden classification of intracapsular femoral neck fractures. (4 marks)

c) State 4 ED management priorities for this patient. (4 marks)

Question 7 | Patella Fracture (9 marks)

A 23-year-old man comes to your emergency department after a direct blow to the right knee (struck by a car door) approximately 2 hours ago. He has significant right knee pain and is unable to actively extend the knee. There is a palpable gap over the patella. The lateral X-ray of the right knee is shown.



IMAGE — Lateral X-ray of right knee

a) Describe 3 radiographic findings. (3 marks)

b) List 3 indications for operative fixation of patella fracture. (3 marks)

c) State 3 ED management priorities. (3 marks)

Question 8 | Tibial Shaft Fracture with Compartment Syndrome (13 marks)

A 28-year-old male was a motorcycle rider involved in a high-speed crash. He presents with a closed left lower-leg injury. Initial X-ray of the left tibia and fibula is shown. He has been placed in an above-knee cast (split laterally) and is awaiting orthopaedic admission. After 4 hours, the nurses are concerned about increasing pain and distress. The orthopaedic registrar has been delayed in theatre. On your assessment, the patient has severe pain disproportionate to the visible injury, tightly tense calf, and pain on passive dorsiflexion of the toes.



IMAGE — Initial X-ray of left tibia and fibula (prior to immobilisation)

a) Describe 4 radiographic findings. (4 marks)

b) List the 5 P's of compartment syndrome AND state which is the most reliable. (5 marks)

c) State 4 immediate management priorities given the orthopaedic registrar is unavailable. (4 marks)

Question 9 | Lisfranc Injury (Tarsometatarsal Dislocation) (11 marks)

A 35-year-old male presents to your emergency department after his right foot was crushed by a heavy object that fell on it during a workplace accident 1 hour ago. He has severe midfoot pain and is unable to weight-bear. There is significant swelling and bruising over the dorsum of the foot, with bruising visible on the plantar surface. AP X-ray of the right foot is shown.



IMAGE — AP X-ray of right foot

a) Describe 3 features supporting Lisfranc injury on imaging. (3 marks)

b) List 4 management priorities. (4 marks)

c) List 4 long-term complications. (4 marks)

Question 10 | Septic Arthritis (12 marks)

A 6-year-old girl is brought to your emergency department by her parents with a 2-day history of right knee pain and refusal to weight-bear. She has had a low-grade fever (38.2 degrees Celsius) and appears unwell. On examination, the right knee is warm, swollen, and acutely tender; there is significant restriction of range of motion. Her vital signs: heart rate 130 beats per minute, blood pressure 100/60 millimetres of mercury, respiratory rate 28 breaths per minute, temperature 38.6 degrees Celsius. Joint aspiration of synovial fluid microscopy is shown.

CELL COUNT / WET PREPARATION (per HPF)		
White Cells	137200	$\times 10^6/L$
Red Cells	140	$\times 10^6/L$
Polarized Film	+ Urate crystals	
GRAM STAIN (per OIF) / WET PREPARATION (per OIF)		
Gram Positive Cocci	+++	
Gram Positive Bacilli	Nil	
Gram Negative Cocci	Nil	
Gram Negative Bacilli	Nil	
Yeasts	Nil	

IMAGE — Synovial fluid microscopy

- a) List the 4 Kocher criteria for septic arthritis of the hip in children AND state how to apply them. (3 marks)

- b) List 4 indications for urgent joint aspiration. (4 marks)

- c) State 5 management priorities for septic arthritis. (5 marks)

Question 11 | Anterior Shoulder Dislocation (10 marks)

A 27-year-old man presents to your emergency department after dislocating his right shoulder while playing rugby 30 minutes ago. He had a previous shoulder dislocation on the same side 18 months ago. On examination, he is in significant pain holding his arm in slight abduction and external rotation. There is an obvious anterior deformity with a 'squared-off' shoulder contour and a palpable humeral head anteriorly. Sensation over the regimental badge area is reduced compared with the contralateral side.

a) List 3 components of pre-reduction assessment. (3 marks)

b) List 4 reduction techniques for anterior shoulder dislocation (with brief description). (4 marks)

c) State 3 post-reduction priorities. (3 marks)

Question 12 | Achilles Tendon Rupture (10 marks)

A 45-year-old male recreational tennis player presents to your emergency department after a sudden 'pop' in his right calf during a forehand stroke. He felt as though he had been struck on the back of his calf. He is unable to plantar-flex his right foot. On examination, there is bruising in the popliteal fossa and a palpable gap in the right Achilles tendon approximately 5 centimetres above the calcaneal insertion.

a) Describe the Thompson (calf-squeeze) test AND explain the basis. (3 marks)

b) List 4 risk factors for Achilles tendon rupture. (4 marks)

c) State 3 management options. (3 marks)

Question 13 | Common Peroneal Nerve Injury (9 marks)

A 40-year-old woman presents to your emergency department with a 2-week history of foot drop and lateral foot pain following an ankle sprain (severe lateral ligament injury) sustained during trekking 3 weeks ago. She is now finding it difficult to walk because her right foot 'slaps' the ground and she cannot lift her toes.

- a)** Describe the sensory and motor disturbance expected in a common peroneal nerve injury (4 elements). (4 marks)

- b)** Name the most common anatomical site of injury. (2 marks)

- c)** List 3 differential diagnoses for foot drop (other than common peroneal nerve injury). (3 marks)

Question 14 | Posterior Hip Dislocation (10 marks)

A 35-year-old female restrained driver is brought to your emergency department after a head-on motor vehicle collision. She is complaining of severe right hip pain and is unable to move her right lower limb. On examination, the right leg is held in flexion, adduction, and internal rotation. AP X-ray of the pelvis shows the right femoral head displaced superiorly and laterally to the acetabulum.

a) List 3 features supporting posterior hip dislocation (the typical type). (3 marks)

b) State 4 management priorities for hip dislocation. (4 marks)

c) List 3 complications. (3 marks)

Question 15 | Acute Gout (10 marks)

A 55-year-old man with a history of hypertension (treated with hydrochlorothiazide), type 2 diabetes mellitus, and chronic kidney disease (eGFR 50) presents to your emergency department with a 2-day history of severe pain, swelling, and redness of his right great toe. He woke this morning unable to bear weight on the toe. He has no recent trauma. On examination, the right first metatarsophalangeal joint is exquisitely tender, warm, swollen, and erythematous. Vital signs are stable, with no fever. Synovial fluid microscopy is shown.

CELL COUNT / WET PREPARATION (per HPF)		
White Cells	137200	$\times 10^6/L$
Red Cells	140	$\times 10^6/L$
Net Film	+ Urate crystals	
GRAM STAIN (per OIF) / WET PREPARATION (per OIF)		
Gram Positive Cocci	+++	
Gram Positive Bacilli	Nil	
Gram Negative Cocci	Nil	
Gram Negative Bacilli	Nil	
Yeast	Nil	

IMAGE — Synovial fluid microscopy

a) Interpret the synovial fluid microscopy AND state the diagnosis. (3 marks)

b) List 4 risk factors for gout in this patient. (4 marks)

c) State 3 immediate treatment options (with considerations for this patient). (3 marks)

Question 16 | Acute Lower Back Pain — Red Flags (10 marks)

A 65-year-old woman presents to your emergency department with a 2-week history of progressive lower back pain. She has a history of breast cancer (treated 5 years ago — currently on anastrozole). She has had no trauma. Her pain is constant, worse at night, and not relieved by rest. She has noticed bilateral lower-limb weakness over the past 24 hours. On examination, she has tenderness over the L3 vertebra, mild bilateral lower-limb weakness (Medical Research Council 4/5), and reduced sensation in the saddle area. Her ankle reflexes are reduced bilaterally.

a) List 4 'red flags' on history and examination that suggest serious pathology requiring urgent investigation. (4 marks)

b) List 3 most likely differential diagnoses for this patient. (3 marks)

c) State 3 immediate management priorities. (3 marks)

Question 17 | Slipped Upper (Capital) Femoral Epiphysis (11 marks)

A 13-year-old obese boy is brought to your emergency department by his parents with a 2-week history of progressive right hip and knee pain with limping. There has been no acute trauma. He weighs 90 kilograms (BMI 33). On examination, he holds the right leg in slight external rotation; passive flexion of the right hip causes obligatory external rotation. There is mild decreased range of internal rotation. His vital signs are normal.

a) List 3 risk factors for slipped capital femoral epiphysis. (3 marks)

b) Describe the imaging findings AND the Klein/Trethowan line. (4 marks)

c) State 4 management priorities. (4 marks)

Question 18 | Hip Trauma in the Patient with Bilateral Hip Replacements (9 marks)

A 75-year-old woman presents to your emergency department after a fall onto her left hip 2 hours ago. She has bilateral total hip arthroplasties (performed 5 and 8 years ago). She is now unable to weight-bear on the left side. On examination, the left lower limb is shortened and externally rotated. The AP pelvic radiograph is shown.



IMAGE — AP pelvic X-ray showing bilateral hip prostheses

a) Describe 3 radiographic findings. (3 marks)

b) List 3 causes of pain and instability in patients with hip prostheses. (3 marks)

c) State 3 management priorities for periprosthetic fracture. (3 marks)

Question 19 | Pulled Elbow (Radial Head Subluxation) (8 marks)

A 3-year-old girl is brought to your emergency department by her mother after she 'pulled her arm' lifting her up by the wrists onto a curb. The child is now refusing to use her right arm and is holding it slightly flexed and pronated by her side. There is no swelling, deformity, or tenderness over the right elbow on gentle examination, although she becomes distressed when the area is touched.

a) Describe the anatomy and mechanism of pulled elbow. (3 marks)

b) Describe 2 reduction techniques. (3 marks)

c) List 2 indications for X-ray (rather than attempted reduction). (2 marks)

Question 20 | Open Fracture Management (10 marks)

A 35-year-old male motorcyclist is brought to your emergency department after a high-speed crash 30 minutes ago. He has an obvious open fracture of the right tibial shaft with bone visible through a 5-centimetre wound. There is moderate bleeding from the wound. He is otherwise haemodynamically stable. Vital signs: heart rate 100 beats per minute, blood pressure 130/85 millimetres of mercury, peripheral oxygen saturation 99 percent on room air, temperature 36.8 degrees Celsius. Tetanus status: last booster 10 years ago.

a) Describe the Gustilo-Anderson classification of open fractures. (4 marks)

b) List 5 immediate management priorities. (5 marks)

c) State the time target for definitive surgical debridement. (1 mark)
