Specialty Certificate in Rheumatology Sample Questions

Question 1

A 40-year-old man had severe pain in one leg affecting both the buttock region and the lateral border and sole of the foot, in association with paraesthesiae of the sole on walking.

What is the correct nomenclature for the nerve root from which these symptoms have arisen?

A L4
B L4/L5
C L5
D L5/S1
E S1

Question 2

A 43-year-old woman, with recent-onset rheumatoid factor-positive inflammatory arthritis, was having 10-weekly intramuscular injections of sodium aurothiomalate. At week 10 she reported being “90% better”.

On examination, her hand joints were much less puffy than before treatment and knee effusions had resolved. She had developed a shiny, slightly scaly erythematous plaque over the abdomen and two smaller patches on her limbs. Her serum C-reactive protein had fallen from 56 to 4 mg/L (<10).

What is the most appropriate next step in management?

A continue sodium aurothiomalate and seek a dermatological opinion
B continue sodium aurothiomalate and treat with topical hydrocortisone
C reduce sodium aurothiomalate to 25 mg per week
D stop sodium aurothiomalate
E stop sodium aurothiomalate until the rash has settled and then reintroduce

Question 3

A 46-year-old man presented with a 2-week history of a worsening ulcerating rash over his lower limbs, which had coalesced in places. He also had right knee and left wrist synovitis. He had returned from a holiday in Portugal 4 weeks previously. He had ulcerative colitis that had been diagnosed the previous year, and was taking 5 mg prednisolone daily.

What is the most likely diagnosis?

A discoid lupus
B erythema nodosum
C granuloma annulare
D Lyme disease
E pyoderma gangrenosum

Question 4

A 32-year-old woman, with severe psoriatic arthritis well-controlled with sulfasalazine and paracetamol, presented to clinic. She had just married and wished to conceive without risking a flare of her arthritis.

What is the most appropriate treatment strategy?

A add oral prednisolone
B continue sulfasalazine
C stop sulfasalazine
D stop sulfasalazine and change to oral prednisolone
E stop sulfasalazine and start methotrexate and folic acid

Question 5

A 50-year-old woman was referred by an orthopaedic surgeon with a 2-month history of severe pain in her right knee, calf and foot. This had developed 1 week after an arthroscopic meniscectomy.

On examination, she was tearful and her right leg was swollen, dusky, cool and tender below the knee. She found light touch extremely painful and refused to have her knee fully examined.

Investigations:

serum C-reactive protein	3 mg/L (<10)
Doppler ultrasound scan	normal

What is the most likely diagnosis?

A complex regional pain syndrome
B deep venous thrombosis
C popliteal artery dissection
D septic arthritis
E synovial leak

Question 6

A 24-year-old woman presented with acute pain and swelling of her right knee. She had been complaining of lower abdominal pain for the previous 3 days. On examination, her temperature was 37.9°C. The right knee was warm and tender with a tense effusion. Several pustules were seen on her right knee.

Investigations:

white cell count	16.4×10^9/L (4.0–11.0)
serum C-reactive protein	120 mg/L (<10)
synovial fluid analysis:	
appearance of fluid	turbid
white cell count	80 000/mL (<200)
neutrophil count	>90%
Gram stain	negative
crystals	absent
culture	negative

What is the most likely diagnosis?

A enteropathic arthritis
B gonococcal arthritis
C reactive arthritis
D rheumatoid arthritis
E tuberculous arthritis

Question 7

A 20-year-old man of Turkish origin presented with a recurrent monoarthropathy. He also complained of attacks of intermittent fever, abdominal pain and pleuritic chest pain, and had noted an erythematous rash during these attacks.

What is the most likely diagnosis?

A adult-onset Still's disease
B Behçet's disease
C familial Mediterranean fever
D Henoch–Schönlein purpura
E systemic lupus erythematosus

Question 8

A 48-year-old man presented with a 2-month history of arthralgia and a recurrent itchy rash over his trunk and limbs. On examination, he had urticarial lesions all over his trunk. He had started antihistamine therapy, but with no benefit. No other abnormalities were found on examination.

A skin biopsy showed a leucocytoclastic vasculitis and a diagnosis of urticarial vasculitis was made.

What is the most appropriate next treatment?

A azathioprine
B dapsone
C hydroxychloroquine
D naproxen
E prednisolone

Question 9

A 61-year-old woman with long-standing rheumatoid arthritis presented with persistent leg ulcers. She was taking methotrexate. Infliximab had been stopped 2 months previously following the appearance of the leg ulcers.

On examination, there were bilateral shallow ulcers on the medial malleoli.

Investigations:

haemoglobin	98 g/L (115–165)
MCV	89 fL (80–96)
MCHC	35 g/dL (32–35)
white cell count	4.8×10^9/L (4.0–11.0)
neutrophil count	1.0×10^9/L (1.5–7.0)
platelet count	180×10^9/L (150–400)
erythrocyte sedimentation rate	60 mm/1st h (<30)
serum immunoglobulin G	23.0 g/L (6.0–13.0)
serum immunoglobulin A	1.2 g/L (0.8–3.0)
serum immunoglobulin M	2.3 g/L (0.4–2.5)
rheumatoid factor	48 kIU/L (<30)

What is the most likely diagnosis?

A cryoglobulinaemia
B delayed drug reaction to infliximab
C Felty's syndrome
D leucocytoclastic vasculitis
E rheumatoid vasculitis

Question 10

A 42-year-old woman with rheumatoid arthritis presented with a 3-day history of malaise and nausea. Because of progressive disease, methotrexate had been changed to leflunomide 20 mg daily 2 weeks previously. Her other medication was dihydrocodeine and ibuprofen.

On examination, she had right hypochondrial tenderness.

Investigations:

serum total bilirubin	27 µmol/L (1–22)
serum alanine aminotransferase	3276 U/L (5–35)
serum alkaline phosphatase	367 U/L (45–105)
serum gamma glutamyl transferase	970 U/L (4–35)

Leflunomide was discontinued.

What is the most appropriate next step in management?

A acetylcysteine
B colestyramine
C high-dose prednisolone
D intravenous ganciclovir
E no additional treatment

Question 11

A 42-year-old man presented with a 6-month history of pain in his right upper arm that prevented him from working. On examination, there was flattening of the right deltoid contour with restriction of active and passive shoulder movements, and of neck movements.

What is the most likely cause of his pain?

A adhesive capsulitis
B cervical spondylosis
C glenohumeral joint osteoarthritis
D subacromial bursitis
E supraspinatus tendonitis

Question 12

A 72-year-old man presented with a 6-month history of recurrent joint pain and swelling. His symptoms had begun with three attacks of arthritis affecting his right wrist, his left ankle and his right knee. The current attack was more widespread, affecting his hands, wrists, knees and ankles. He had also developed tender swelling over the extensor aspect of both elbows. His medical history included chronic renal impairment, type 2 diabetes mellitus, hypertension and heart failure. His current medication comprised bumetanide, spironolactone, lisinopril and simvastatin.

On examination, he was obese and had widespread synovitis and bilateral olecranon bursitis.

What investigation is likely to be most informative?

A antinuclear antibodies
B erythrocyte sedimentation rate
C rheumatoid factor
D serum urate
E synovial fluid analysis

Question 13

A 20-year-old woman presented with a 1-week history of tender lumps over the shins and painful ankles. There was a preceding history of a coryzal type illness. On examination, there were erythematous subcutaneous nodules over the shins and synovitis of the ankles.

Which investigation is most likely to lead to a diagnosis?

A anti-neutrophil cytoplasmic antibodies
B antinuclear antibodies
C antistreptolysin titre
D chest X-ray
E skin biopsy

Question 14

A 32-year-old woman with long-standing rheumatoid arthritis had failed to respond to treatment with methotrexate, leflunomide, etanercept and adalimumab.

She had heard that a new antirheumatic agent, rituximab, was available for the treatment of rheumatoid arthritis and expressed a wish to try it.

What is the most appropriate way to describe the nature of rituximab?

A antimetabolite
B chimeric monoclonal antibody
C humanised monoclonal antibody
D recombinant cytokine
E recombinant human receptor fusion protein

Question 15

A 55-year-old man with poorly controlled ankylosing spondylitis was due to start anti-TNF therapy. A tuberculosis interferon-gamma release assay was used to exclude latent or active tuberculosis. This test involved measurement of the production of interferon-gamma after incubation of the patient's peripheral blood leucocytes with tuberculosis-specific peptides.

Which cells produce the interferon-gamma in this assay?

A eosinophils
B macrophages
C natural killer cells
D neutrophils
E T lymphocytes

Question 16

A 59-year-old woman presented with a 6-month history of fatigue, hand pain and weakness in her arms and legs. As a result, she was no longer able to work as a nurse. She had hypothyroidism and hyperlipidaemia, and was taking thyroxine only.

On examination, she had dry cracked hands, bilateral basal crackles on chest auscultation and grade 4/5 weakness of the thighs.

Investigations:

haemoglobin	105 g/L (115–165)
white cell count	4.3×10^9/L (4.0–11.0)
neutrophil count	2.2×10^9/L (1.5–7.0)
lymphocyte count	1.0×10^9/L (1.5–4.0)
platelet count	184×10^9/L (150–400)
erythrocyte sedimentation rate	32 mm/1st h (<20)
serum creatine kinase	403 U/L (24–170)
serum C-reactive protein	15.4 mg/L (<10)
antinuclear antibodies	1:320 (negative at 1:20 dilution)
rheumatoid factor	64 kIU/L (<30)
chest X-ray	normal

What is the most likely diagnosis?

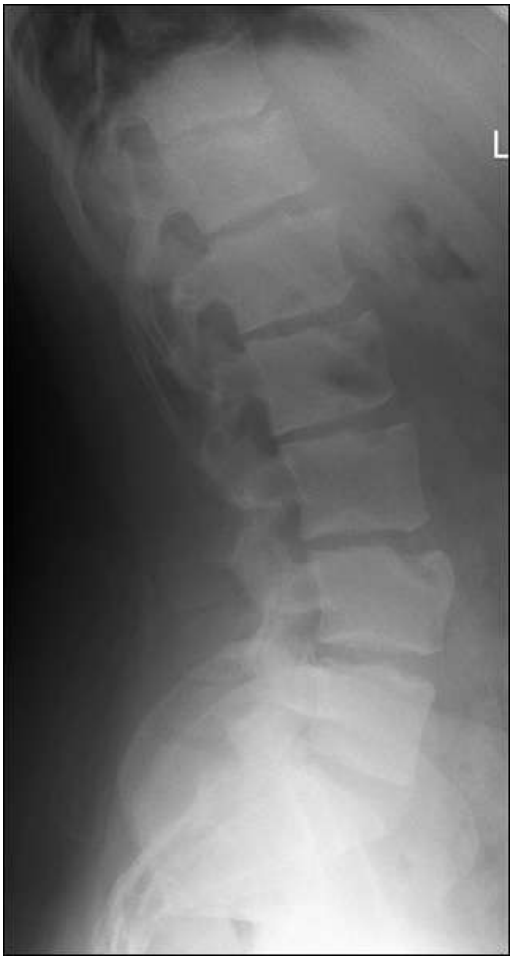
A fibromyalgia
B polymyalgia rheumatica
C polymyositis
D rheumatoid arthritis
E sarcoidosis

Question 17

An 18-year-old man presented with a 2-year history of lower back pain. He was otherwise well and had no significant medical history. Examination was normal. He had been taking naproxen with no benefit.

Investigations:

X-ray of lumbar spine see image



What is the most appropriate initial treatment?

A anti-TNF therapy
B exercise programme
C intravenous antibiotics
D phenylbutazone
E prednisolone

Question 18

A 74-year-old woman presented with a 2-year history of widespread joint pain, Raynaud's phenomenon and recurrent lower limb ulceration. On examination, there were purpuric lesions on her legs associated with numerous punched-out ulcers. There was reduced sensation in a stocking distribution, and absent ankle and knee reflexes. The plantar reflexes were downgoing.

Investigations:

white cell count	10.2×10^9/L (4.0–11.0)
platelet count	450×10^9/L (150–400)
erythrocyte sedimentation rate	89 mm/1st h (<30)
serum creatinine	130 µmol/L (60–110)
serum alanine aminotransferase	68 U/L (5–35)
serum alkaline phosphatase	192 U/L (45–105)
serum complement C3	45 mg/dL (65–190)
serum complement C4	5 mg/dL (15–50)
anti-neutrophil cytoplasmic antibodies	negative
antinuclear antibodies	negative
rheumatoid factor	150 kIU/L (<30)
ulcer biopsy	small vessel leucocytoclastic vasculitis

What is the most likely diagnosis?

A microscopic polyangiitis
B mixed essential cryoglobulinaemia
C rheumatoid vasculitis
D systemic lupus erythematosus
E Wegener's granulomatosis

Question 19

A 65-year-old man presented with a 24-hour history of shortness of breath and rash. Over the previous 3 weeks, he had developed a sore throat and joint pains across his fingers, both knees and left ankle. He was previously well and was taking no regular medication.

On examination, he had palpable purpura on his legs and splinter haemorrhages affecting his fingernails. His chest was clear. Urinalysis showed red cells 3+.

Investigations:

serum creatinine	125 µmol/L (60–110)
serum C-reactive protein	115 mg/L (<10)
chest X-ray	normal
blood cultures ×3	no growth
echocardiogram	no vegetations

What is the most appropriate initial management?

A intravenous cyclophosphamide
B intravenous methylprednisolone
C oral methotrexate
D oral mycophenolate mofetil
E plasmapheresis

Question 20

A 25-year-old woman with systemic lupus erythematosus had been treated with prednisolone 10 mg daily for 4 years. A routine DEXA scan showed T scores of –2.7 at the hip and –2.5 at the lumbar spine.

Investigations:

serum creatinine	62 µmol/L (60–110)
estimated glomerular filtration rate (MDRD)	>60 mL/min (>60)
serum corrected calcium	2.02 mmol/L (2.20–2.60)
serum phosphate	0.78 mmol/L (0.8–1.4)
plasma parathyroid hormone	11.2 pmol/L (0.9–5.4)

What is the most appropriate management?

A alendronic acid
B calcium
C dietary advice
D parathyroidectomy
E vitamin D

Question 21

A randomised, controlled, double-blind study was carried out to compare the effect of two different doses of intra-articular methylprednisolone on pain 6 weeks post-injection as assessed by a visual analogue pain score.

What is the most appropriate statistical test to compare the change between baseline and 6-weeks in the two treatment groups?

A chi-squared test
B Kruskal–Wallis one-way analysis of variance
C Mann–Whitney U test
D Spearman's rank correlation coefficient
E Wilcoxon matched-pairs signed-rank test

Question 22

A 63-year-old man presented with a 2-month history of pain and numbness in the right leg. He described pain in the right buttock and outer hip, with radiation into the anterior thigh and inner aspect of the shin. He was unable to lie on his right side at night. He had type 2 diabetes mellitus and had been taking metformin and simvastatin for the past 4 years.

On examination, there was wasting of the right quadriceps, an absent right knee reflex and sensory loss to light touch over the anterior thigh.

What is the most likely diagnosis?

A femoral neuropathy
B meralgia paraesthetica
C mononeuritis multiplex
D neuralgic amyotrophy
E simvastatin-induced myopathy

Question 23

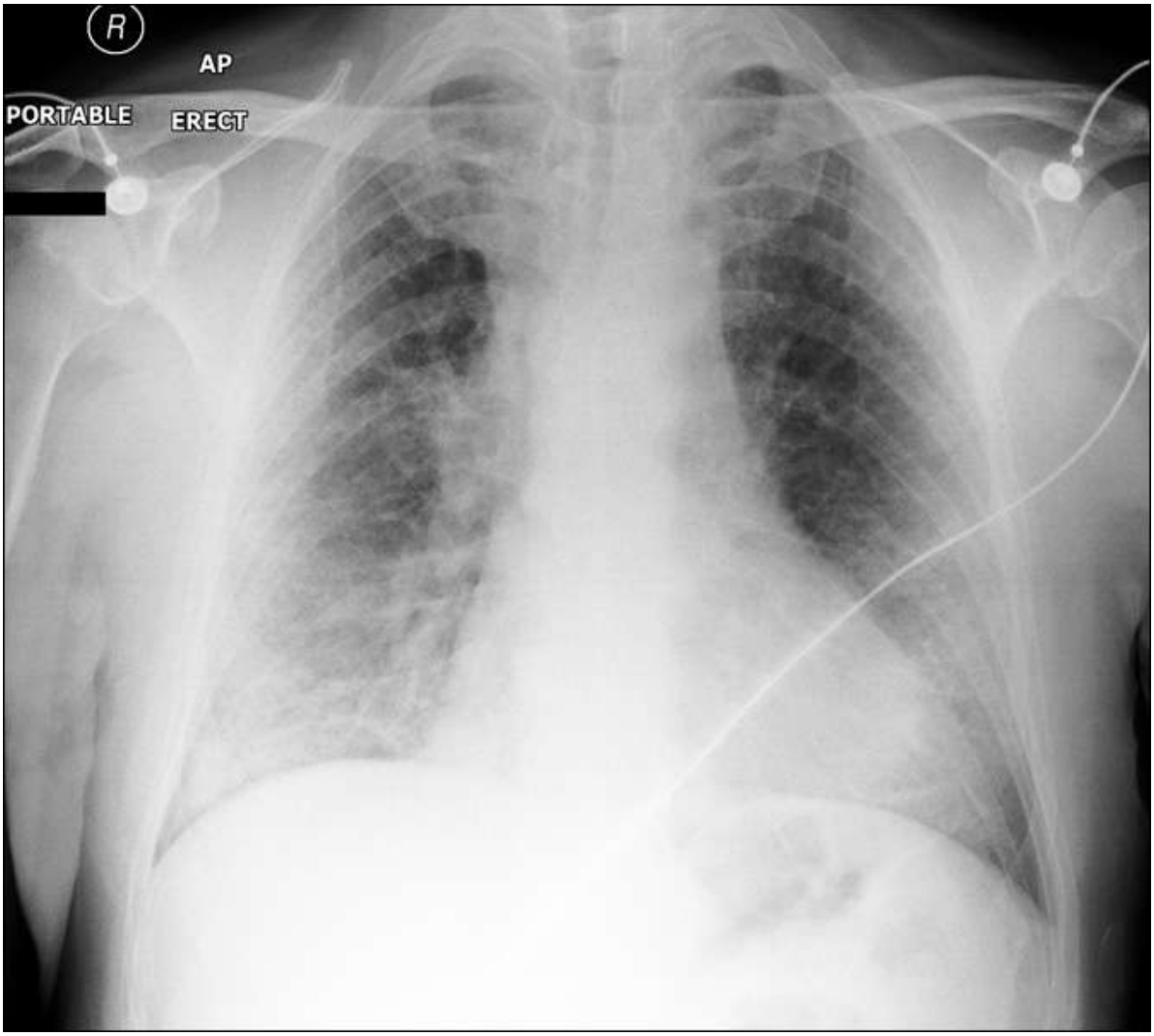
A 58-year-old man presented with a dry cough and severe breathlessness. He was taking prednisolone 40 mg daily and methotrexate 20 mg weekly for refractory giant cell arteritis, established by temporal artery biopsy 4 months previously.

Investigations:

haemoglobin	121 g/L (130–180)
white cell count	6.1×10^9/L (4.0–11.0)
serum creatinine	105 µmol/L (60–110)
serum C-reactive protein	98 mg/L (<10)
HIV antibodies	negative
chest X-ray	see image

What is the most likely diagnosis?

A aspergillosis
B cardiac failure
C methotrexate pneumonitis
D pulmonary embolism
E staphylococcal pneumonia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Question 24

A 49-year-old woman presented with a 4-month history of pain along the medial aspect of her left foot, which was exacerbated by walking. On examination, there was swelling and tenderness below the medial malleolus of the left foot, weakness in inversion and she was unable to rise up on tiptoes. There was lowering of the longitudinal arch with planovalgus deformity.

Which tendon is most likely to be affected?

A extensor digitorum longus
B flexor digitorum longus
C peroneus longus
D tibialis anterior
E tibialis posterior

Answer keys:

1. E
2. D
3. E
4. B
5. A
6. B
7. C
8. E
9. C
10. B
11. A
12. E
13. D
14. B
15. E
16. C
17. B
18. B
19. B
20. E
21. C
22. A
23. C
24. E