1. A 45-year-old diabetic truck driver notices maceration of the web spaces of his toes on the right foot. The next day he develops fever of 38^{o}C, exquisite tenderness, swelling, rapidly spreading necrosis and crepitance over the right leg to the pelvic region.

Which of the following is the best management approach?

- (a) a. Book patient for an elective surgical debridement of necrotic tissue
- (b) b. Collect a pus swab from the bullous lesion for MC&S
- (c) c. Administer Ciprofloxacin
- (d) d. Administer Penicillin and Clindamycin

2. A 55-year old man is hospitalised with trauma to the abdomen following a gun-shot related fight. He develops an intra-abdominal abscess which is drained and sent to the laboratory. Clinically myonecrosis is suspected. A *Clostridium* spp is isolated.

Regarding clostridial causes of myonecrosis, which one of the following is correct?

- (a) a. *Clostridium tetani* causes anaerobic myonecrosis
- (b) b. *Clostridium botulinum* proliferates in puncture wounds releasing a potent neurotoxin causing myonecrosis
- (c) c. *Clostridium perfringens* overgrows other intestinal flora in antibiotic-treated patients causing myonecrosis
- (d) d. Clostridia degrade extracellular matrix proteins, but their virulence is attributed to toxin production

3. A 23-year-old pregnant medical student consults a gynaecologist for an abortion. A careless abortion is performed and 12 hours later she is rushed to the emergency department, complaining of progressive severe abdominal pain and fever of 40^{o}C. Blood pressure is 100/60 .CT scan of abdomen reveals pockets of gas in the uterine tissue. She is taken for immediately for surgery and diagnosis of necrotizing fasciitis of the uterus is made. Blood cultures isolate a Group A beta-hemolytic streptococcus.

Type 11 Necrotizing Fasciitis was encountered in this patient, which of the following is the most appropriate terminology?

- (a) a. Myonecrosis
- (b) b. Gas gangrene
- (c) c. Toxic shock like syndrome
- (d) d. Fournier's gangrene

4. A 70-year-old diabetic female, hospitalised for severe peripheral vascular insufficiency develops necrotic sacral bedsores and is found to be septicaemic a week after admission. Blood cultures reveal a polymicrobial infection.

Which one of the following is appropriate drug regimen cover?

- (a) a. Ampicillin and gentamicin
- (b) b. Cloxacillin
- (c) c. Flagyl
- (d) d. Clindamycin and metronidazole

5. A 35-year-old male returned from boating with several cuts and abrasions on his left hand. Within two days, extensive cellulitis developed and it was apparent that subcutaneous tissue was involved, requiring surgical intervention of non-viable tissue. Antibiotics were used aggressively.

This is usually caused by which of the following etiologic agents?

- (a) a. *Bacillus cereus*
- (b) b. *Clostridium botulinum*
- (c) c. *Clostridium difficile*
- (d) d. *Clostridium perfringens*

6. A pathological study of bone biopsy specimens on arthritic patients showed the presence of macroscopic osteophyte formation and eburnation of the bone surface. Which one of the following is most likely to be identified on histology?

- (a) a. Synovial hyperplasia and lymphoid aggregation
- (b) b. Loss of hyaline articular cartilage
- (c) c. Crystal deposition
- (d) d. Granulomatous inflammation

7. A 53-year-old man has noted a slowly enlarging 'bump' on his left elbow for the past 2 years. On examination there is a 2 cm firm, non-tender mass over the left olecranon process. An aspirate from this mass examined microscopically shows elongated, needle-shaped crystals. The excised mass has a chalky white consistency on sectioning. Microscopically, there is a granulomatous inflammatory infiltrate.
Which one of the following disorders is the most likely underlying aetiology of these findings?

- (a) a. Chronic renal failure
- (b) b. Hepatic cirrhosis
- (c) c. Peptic ulcer disease
- (d) d. Inflammatory bowel disease

8. A 60 year old woman presents with a long-standing history of joint pain. She is diagnosed with rheumatoid arthritis. Which one of the following pathogenic mechanisms is most applicable to her disease?

- (a) a. It is an autoimmune process mediated by cytokines
- (b) b. It is an infective process caused by bacteria
- (c) c. It results from synovial atrophy
- (d) d. It is caused by crystal deposition in affected joints

9. A 51-year-old man has noted constant, dull right hip pain for the past 3 months. On physical examination he has diminished range of motion of the right hip. A radiograph reveals a 10 x 13 cm mass involving the right pelvis. The mass has irregular borders and there are extensive areas of bony destruction along with scattered calcifications. The lesion is resected, and grossly the mass has a bluish-white cut surface.

Which of the following is the most likely diagnosis?

- (a) a. Osteosarcoma
- (b) b. Enchondroma
- (c) c. Chondrosarcoma
- (d) d. Osteoblastoma

10. A 23-year-old man notes minor discomfort over the lateral aspect of his right knee after a day working in a cramped cubicle. On physical examination, he has a palpable 'bump' in this region. A radiograph of the knee reveals a lateral bony projection from the lower femoral metaphysis. There is no adjacent soft tissue swelling. The lesion is excised and is composed of a 3 cm stalk of bony cortex capped by cartilage.
Which of the following is the most likely diagnosis?

- (a) a. Osteochondroma
- (b) b. Giant cell tumour
- (c) c. Aneurysmal bone cyst
- (d) d. Chondrosarcoma

11. A 65 year-old man presented with a 3 year history of dull pain in the lower back and right hip. He also had headaches and hearing impairment. On examination, there was evidence of spinal kyphosis. Radiologically, enlarged vertebral bodies with sclerosis were noted. Serum alkaline phosphatase levels were elevated. A biopsy of the vertebral bodies in this patient would reveal a mosaic pattern of thick, disordered woven bone, increased osteclastic and oteoblastic activity and irregular, prominent cement lines.

What is the most likely diagnosis in this case?

- (a) a. Osteomalacia
- (b) b. Osteopenia
- (c) c. Paget's disease
- (d) d. Osteoporosis

12. A 30-year-old man presents with pain in his left leg that has been worsening for weeks. On physical examination he shows the presence of a kyphosis in the lower thoracic region accompanied by increased reflexes. An x-ray shows a destructive lesion of the vertebral bodies from T11 to L1 accompanied by a para-vertebral shadow. Histology of tissue removed shows epitheloid histiocytes and multinucleate giant cells.

Which of the following is the most likely diagnosis?

- (a) a. Osteosarcoma
- (b) b. Chondrosarcoma
- (c) c. Giant cell tumour of bone
- (d) d. Tuberculosis

13. A 50-year-old man has experienced pain in his right knee for the past 4 years. As he moves about during the day, the pain decreases somewhat. The pain is worse when walking for longer distances. On physical examination there is no joint swelling, warmth, or erythema, but he does have decreased range of motion.

Which of the following conditions is he most likely to have?

- (a) a. Osteoporosis
- (b) b. Osteochondroma
- (c) c. Osteomalacia
- (d) d. Osteoarthritis

14. A 58-year-old man has sudden onset, severe pain in his left big toe. There is no history of trauma. On examination there is edema, redness and pain on movement of the toe but there is no overlying skin ulceration. A joint aspirate is performed and reveals numerous neutrophils and needle-shaped crystals. Over the next 3 weeks, he has two more similar episodes. On physical examination between these attacks, there is minimal loss of joint mobility.

Which one of the following laboratory test findings is most characteristic for his underlying disease process?

- (a) a. Positive antinuclear antibody
- (b) b. Hyperuricemia
- (c) c. Hypercalcemia
- (d) d. High rheumatoid factor titer

15. A 35-year-old male presents at his GP with swelling and a constant burning pain in his knees. The man's job involves the installation of laminate wood flooring. A diagnosis of "housemaid's knee" is made.

Which one of the following bursae is most likely affected?

- (a) a. Deep infrapatellar
- (b) b. Infrapatellar
- (c) c. Prepatellar
- (d) d. Suprapatellar

16. A 30-year-old male hiker became trapped when a large boulder fell on his leg. The trauma doctor suspects compartment syndrome because of this crush injury.

Which one of the following signs is not always present in compartment syndrome?

- (a) a. Pallor
- (b) b. Paraesthesia
- (c) c. Paralysis
- (d) d. Pulselessness

17. A severe ankle sprain can lead to tibiofibular diastasis, which is a widening between the distal tibia and fibula. Which one of the following arteries may be damaged?

- (a) a. Anterior tibial
- (b) b. Fibular
- (c) c. Popliteal
- (d) d. Posterior tibial

18. A 35-year-old woman presents at the emergency department with a suspected fracture of her left forearm, which she sustained when she fell on her garden path. Radiographs confirm a fracture of the ulna with a dislocation of the proximal radius.

Which one of the following fractures has occurred?

- (a) a. Colle's
- (b) b. Galeazzi
- (c) c. Monteggia
- (d) d. Smith's

19. A 12-year-old boy is admitted to the emergency department after he was accidentally hit in the arm by his friend's cricket bat. Radiographs reveal a fracture of the shaft of the humerus.

Which one of the following structures is in danger from this fracture?

- (a) a. Axillary artery
- (b) b. Brachial artery
- (c) c. Median nerve
- (d) d. Radial nerve

20. A 23-year-old medical student presents with pain and swelling in his left wrist after he fell running to a theme session. Radiographs show an anterior displacement of one of the carpal bones in relation to the radius.

Which one of the following bones is most likely dislocated?

- (a) a. Capitate
- (b) b. Lunate
- (c) c. Scaphoid
- (d) d. Triquetrum

21. A 37-year-old female golfer presents at her GP with pain on the medial side of her right elbow. The doctor diagnoses the patient with medial epicondylitis.

This condition occurs because of microtears in which one of the following muscles?

- (a) a. Anconeus
- (b) b. Brachioradialis
- (c) c. Flexor carpi radialis
- (d) d. Extensor carpi radialis brevis

22. A 50-year-old man slipped on a wet pavement and fell with his arm outstretched and his wrist extended. He presents at the emergency department with a "dinner fork deformity".

What type of fracture has occurred?

- (a) a. Colle's
- (b) b. Galeazzi
- (c) c. Monteggia
- (d) d. Smith's

23. A 22-year-old man presents at the emergency department after he tripped on the pavement in an inebriated state (drunk) and fell on his hand. He is supporting his arm, which is held abducted and appears too long. Which one of the following injuries is most likely?

- (a) a. Anterior dislocation of the shoulder
- (b) b. Humeral neck fracture
- (c) c. Posterior dislocation of the shoulder
- (d) d. Supracondylar fracture of the humerus

24. A 50-year-old male patient complains of pain at the deltoid insertion radiating along the lateral side of the arm and into the forearm and hand. He did not suffer any trauma before the pain started. Upon inspection, it is noted that the patient only has very limited movement at the shoulder joint. Which one of the following conditions is most likely?

- (a) a. Adhesive capsulitis
- (b) b. Acute tendinitis
- (c) c. Chronic tendinitis
- (d) d. Rotator cuff tear

25. A 25-year-old rugby player was tackled just as he put his foot down on the ground, with all the impact occurring on the lateral side of his knee. He is assisted off the field as he has difficulty walking.

Which one of the following ligaments is most likely to be injured first?

- (a) a. Anterior cruciate
- (b) b. Lateral collateral
- (c) c. Medial collateral
- (d) d. Posterior cruciate

26. A 21-year-old female ballet dancer stumbles during rehearsal with her right foot plantarflexed and inverted.

Which one of the following ligaments is most likely to be injured?

- (a) a. Anterior tibiotalar
- (b) b. Calcaneofibular
- (c) c. Tibiocalcaneal
- (d) d. Tibionavicular

27. Pes planus or flat foot occurs because of a lack of stability of the medial longitudinal arch.

Which one of the following structures is the most important in providing this stability?

- (a) a. Plantar aponeurosis
- (b) b. Plantar calcaneonavicular ligament
- (c) c. Talus
- (d) d. Tendon of flexor hallucis longus

28. A 33-year-old man sustained serious injuries in a car accident, leaving him with one leg significantly shorter than the other.

What is a long-term complication of his condition?

- (a) a. Kyphosis
- (b) b. Lordosis
- (c) c. Scoliosis
- (d) d. Spinal stenosis

29. A 45-year-old female presents with severe pain in the buttock and lower limb. The pain began when she attempted to lift and move a very heavy pot in her garden. The patient is diagnosed with a slipped disc compressing L5/S1.

In which direction is disc prolapse most common?

- (a) a. Anterolaterally
- (b) b. Anteromedially
- (c) c. Posterolaterally
- (d) d. Posteromedially

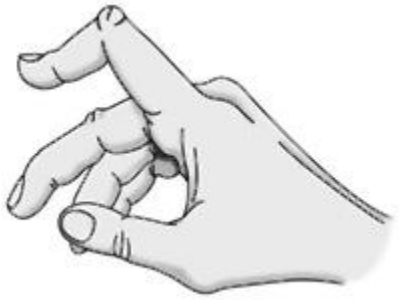
30. A 65-year-old female complains of severe back pain. Radiographs reveal an anterior displacement of L5 in relation to S1.

Which one of the following is the most likely diagnosis?

- (a) a. Scoliosis
- (b) b. Spina bifida
- (c) c. Spondylolisthesis
- (d) d. Spondylolysis

31. A 67 year old female with advanced rheumatoid arthritis presents in your clinic for a follow up appointment. On inspection of the hands you notice a deformity of the index finger. The proximal inter-phalangeal joint is flexed and the distal inter-phalangeal joint is hyperextended.

How would you describe this deformity? (Shown in picture below)



- (a) a. Boutonniere deformity
- (b) b. Bouchard deformity
- (c) c. Swan-neck deformity
- (d) d. Z deformity

32. A 37 year old man presents to your emergency department one week after an injury to the right wrist while chopping firewood. On examination you detect tenderness on palpation in the anatomical snuff box.

In which structure would you suspect pathology?

- (a) a. Radial styloid
- (b) b. Scaphoid
- (c) c. Extensor pollicis brevis
- (d) d. Pisiform

33. A 17 year old male presents with pain at the base of the thumb after gaming on his computer for a few days. You suspect de Quervain's tenosynovitis.

What test will you do to confirm your diagnosis?

- (a) a. Phalen's test
- (b) b. Tinel's test
- (c) c. Prayer test
- (d) d. Finkelstein's test

34. A 44 year old female presents to your clinic complaining of severe generalised lower back pain. You examine the patient in an attempt to localise the source of the pain. The pain is exacerbated by performing a FABER manoeuvre.

Which one of the following pathologies is most likely?

- (a) a. Vertebral disc prolapse
- (b) b. Sacro-iliitis
- (c) c. Sciatic nerve compression
- (d) d. Lumbar ankylosing spondylosis

35. A 47 year old female presents with pain in the joints of the hand. She reports stiffness that is worst in the early morning and improves as the day progresses.

What is the most likely diagnosis?

- (a) a. de Quervain's tenosynovitis
- (b) b. Pseudogout
- (c) c. Rheumatoid Arthritis
- (d) d. Carpel tunnel syndrome

36. A 53 year old man presents in your clinic complaining of lower back pain that radiates down the back of the right leg. The pain is worsened when he leans forward.

What is the most likely cause for this pain?

- (a) a. Lumbar ankylosing spondylitis
- (b) b. Sacro-ilitis
- (c) c. Sciatic nerve compression
- (d) d. Cauda equina syndrome

37. A 67 year old man presents in your orthopaedic clinic with difficulty walking after a CVA (Cerebro-vascular Accident/Stroke).

Which sort of abnormal gait would you expect in this patient?

- (a) a. Circumduction gait
- (b) b. Antalgic gait
- (c) c. High stepping gait
- (d) d. Trendelenburg gait

38. A 15 year old male runner presents at your orthopaedic clinic complaining of a two week history of pain and swelling just below the knee over the tibial tuberosity.

What is the most likely diagnosis?

- (a) a. Prepatellar bursitis
- (b) b. Medial meniscus tear
- (c) c. Baker's cyst
- (d) d. Osgood Schlatter's disease

39. A 55 year old male complains of severe pain in his left heel that came on suddenly while playing squash. He now cannot bend his foot downward and struggles to push-off when he walks.

What is the most likely diagnosis?

- (a) a. Plantar fasciitis
- (b) b. Metacarpal stress fracture
- (c) c. Retrocalcaneal bursitis
- (d) d. Achilles tendon rupture

40. A 9 year old boy presents to the emergency department having woken up this morning with spontaneous onset of severe right knee pain. He has a fever, the joint is red and swollen and he cannot move it at all.

What is the most likely diagnosis?

- (a) a. Haemarthrosis
- (b) b. Septic Arthritis
- (c) c. Juvenile rheumatoid arthritis
- (d) d. Anterior cruciate ligament tear

41. What form of disease prevention does the outlawing of the use of lead in paint or petrol in South Africa represent?

- (a) a. Primordial prevention
- (b) b. Primary prevention
- (c) c. Secondary prevention
- (d) d. Tertiary prevention

42. What is the most critical consequence of low level lead toxicity in utero and during childhood?

- (a) a. Damage to the musculoskletal system
- (b) b. Damage to the gastro-intestinal system
- (c) c. Damage to the brain and nervous system
- (d) d. Damage to the parasympathetic system

43. Which of the following is the best definition of public health?

- (a) a. Ensuring the health of the individual by maintaining and improving the health of the community
- (b) b. The science and art of preventing disease, prolonging life, and promoting health through the organized efforts of medical science
- (c) c. The process of mobilizing local, state/provincial, national and international resources to assure the conditions in which all people can be healthy
- (d) d. The care of the public by creating a multi-discipline task force

44. Globally, what is the major reason for increased longevity of populations?

- (a) a. Improved sanitation and access to clean water
- (b) b. Improved immunization programs
- (c) c. Improved treatment of diseases and health education
- (d) d. Improved medical aid schemes and planned health insurances

45. A 45-year-old man presents with a right swollen knee of 3 days duration. He has a past medical history of hypertension and metabolic syndrome. On examination the patient is found to have a red, tender, swollen joint.
Which one of the following tests should be performed to most accurately diagnose this patient's condition?

- (a) a. Microscopy of the knee aspirate
- (b) b. Radiographs of the patient's knee
- (c) c. Serum rheumatoid factor
- (d) d. Serum uric acid level

46. Which one of the following anti-hypertensive drugs is known to worsen hyperuricaemia?

- (a) a. Enalapril
- (b) b. Hydrochlorthiazide
- (c) c. Atenolol
- (d) d. Nifedipine

47. A 65 year old post- menopausal woman is diagnosed with poly-articular tophaceous gout.
Which of the following drugs is a urate lowering agent?

- (a) a. Indomethacin
- (b) b. Prednisone
- (c) c. Colchicine
- (d) d. Allopurinol

48. For the drug atracurium, which one of the following statements is the most appropriate?

- (a) a. It is a depolarising neuromuscular blocker.
- (b) b. It inhibits acetylcholinesterase.
- (c) c. It is an appropriate choice of neuromuscular blocker in a patient who has renal dysfunction.
- (d) d. It is safe to use it in an asthmatic patient as it does not cause bronchospasm.

49. The following are the blood:gas partition coefficients of each agent. Which one would be the most appropriate to use for maintenance of anaesthesia in an 80 year old patient having an elective surgical procedure?

- (a) a. Sevoflurane 0.65
- (b) b. Isoflurane 1.4
- (c) c. Halothane 2.4
- (d) d. Desflurane 0.42

50. Which one of the following is the primary reason for a rapid sequence induction to be used?

- (a) a. To enable the surgeon to start the procedure as soon as possible.
- (b) b. To protect the lungs from aspiration of gastric contents.
- (c) c. To paralyse the patient as quickly as possible.
- (d) d. To minimise the anxiety experienced by the patient.

51. Which one of the following is the correct induction dose of **propofol**?

- (a) a. 1 - 2 mg/kg.
- (b) b. 2 - 2.5 mg/kg.
- (c) c. 4 mg/kg.
- (d) d. 5 - 10 mg/kg

52. Preoxygenation refers to giving the patient 100% oxygen for 3 to 5 minutes using a face mask.

What is the primary aim of doing this?

- (a) a. To help the patient get accustomed to the face mask.
- (b) b. To allow time for the surgeon to scrub and gown up.
- (c) c. To increase the oxygen reserve in the lungs.
- (d) d. To wash out any volatile agent in the lungs.

53. The following patients require general anaesthesia for a surgical procedure at 14:00hrs today.

Which one is suitable for an elective sequence induction?

- (a) a. A patient with a stabbed abdomen for laparotomy who ate at 02:00hrs today.
- (b) b. A patient for excision of a benign breast lump who ate at 05:00hrs today.
- (c) c. A patient with an open tibial fracture sustained at 08:00hrs who ate at 05:00hrs today.
- (d) d. A patient with septic arthritis for arthrotomy who ate at 10:00hrs today.

54. A 60 year old man presented with back pain. X-rays showed lytic lesions in the spine. Urine was positive for Bence-Jones protein by the heating test. Urine protein electrophoresis showed a large peak which reacted with antibody to kappa light chain.

What is the most likely bone cellular activity in the above patient?

- (a) a. Increased osteocyte activity
- (b) b. Decreased osteocyte activity
- (c) c. Increased osteoclast activity
- (d) d. Decreased osteoclast activity

55. Serum phosphate level decreased from 2.3mmol/L (0.8-1.4) to of 0.6mmol/L (0.8-1.4) after a successful insulin treatment for a patient with diabetic ketoacidosis.

What is the most likely reason for the decrease?

- (a) a. Intracellular to extracellular shift
- (b) b. Extracellular to intracellular shift
- (c) c. Vascular cellular to paracellular shift
- (d) d. Intercellular to extracellular shift

56. The laboratory sent out a memo to the clinicians informing them that the auto correction of calcium was not functional and therefore they had to do their own corrections.

Which one of the following will be used if albumin is less than 40g/L?

- (a) a. Corrected calcium = [total Ca] + 0.02(40+ alb) mmol/L
- (b) b. Corrected calcium = [total Ca] + 0.02(40- alb) mmol/L
- (c) c. Corrected calcium = [total Ca] - 0.02(40- alb) mmol/L
- (d) d. Corrected calcium = [total Ca] - 0.02(40+ alb mmol/L

57. The laboratory sent out a memo to the clinicians informing them that the auto correction of calcium was not functional and therefore they had to do their own corrections.

From the above memo, which one of the following will be used if albumin is 45g/L?

- (a) a. Corrected calcium = [total Ca] + 0.02(alb+ 45) mmol/L
- (b) b. Corrected calcium = [total Ca] + 0.02(alb-45) mmol/L
- (c) c. Corrected calcium = [total Ca] - 0.02(alb- 45) mmol/L
- (d) d. Corrected calcium = [total Ca] - 0.02(alb+45) mmol/L

58. When examining the eyes of a patient with osteogenesis imperfecta (OI), which one of the following pathognomonic finding is likely to be present?

- (a) a. Lid lag
- (b) b. Strabismus
- (c) c. Blue sclera
- (d) d. Brown pupil

59. After reporting a high ALP result. The laboratory carefully carried out a heat (56^{o}C) stability test to distinguish between liver and bone forms of alkaline phosphatase.

Which of the following would be an appropriate report?

- (a) a. Loss of 25% would be due to bone ALP
- (b) b. Loss of 55% would be due to bone ALP
- (c) c. Loss of 35% would be due to bone ALP
- (d) d. Loss of 65% would be due to bone ALP

60. A 27 year old patient was diagnosed with hypophosphataemic rickets (vitamin-D resistant rickets).

Which one of the following is the most likely genetic characteristic in this patient?

- (a) a. X-linked dominant loss-of-function mutations in the PHEX gene
- (b) b. X-linked dominant gain-of-function mutations in the PHEX gene
- (c) c. X-linked recessive loss-of-function mutations in the PHEX gene
- (d) d. X-linked recessive gain-of-function mutations in the PHEX gene

61. A patient presented with increasing bone pain, resulting in inability to walk. X-rays showed osteomalacia. The results below were obtained after a week of treatment with calcium supplementation and parenteral vitamin D.

Plasma:		
Corrected Ca2+	1.1	(2.1-2.6 mmol/l)
Albumin	34	(35-50 g/l)
Pi	0.8	(0.8-1.4 mmol/l)
Mg2+	0.4	(0.7-1.2 mmol/l)

Based on the above information which of the following statements is most appropriate?

- (a) a. Calcium regulates magnesium metabolism
- (b) b. Magnesium regulates calcium metabolism
- (c) c. Albumin regulates calcium metabolism
- (d) d. Magnesium regulates albumin metabolism

62. An 11 year-old child with juvenile rheumatoid arthritis was seen as a follow up case. His condition remains unresponsive to his current therapy for more than 6 months, and recently is prescribed tocilizumab.

Which one of the following is the most accurate description of tocilizumab's mechanism of action?

- (a) a. Blocks IL-6 mediated receptor signaling
- (b) b. Decreases circulating TNF-α levels
- (c) c. Increases rheumatoid factor value
- (d) d. Decreases B cell responses in the synovium

63. A 55 year-old man presented to his orthopedic surgeon 2 weeks after a right total knee replacement, complaining of a painful, stiff and tender right knee joint. He is diagnosed with acute *methicillin resistant staphylococcus aureus* (MRSA) prosthetic knee joint infection and admitted to a surgical ward for surgical debridement and vancomycin therapy.

Which one of the following signs best describes rapid vancomycin infusion reaction?

- (a) a. Blue-grey skin pigmentation
- (b) b. Red discoloration of the urine
- (c) c. Red flushing of head and neck
- (d) d. Brown discoloration of nails

64. A 45 year-old woman was seen as an outpatient case 3 week post total hip replacement. She has been diagnosed as a case of post-operative, non-pustular wound infection. Blood culture revealed Gram-negative *bacilli* sensitive to fluoroquinolones. Her treating surgeon started her on ciprofloxacin.

Which one of the following statements below best describes the mechanism of action of ciprofloxacin?

- (a) a. Inhibits dihydropteroate synthetase
- (b) b. Inhibits transpeptidase
- (c) c. Inhibits topoisomerase II
- (d) d. Inhibits dihydrofolate reductase

65. A 35 year-old man is admitted to the surgical ward complaining of acute severe pain, redness and swelling of his left ankle. The treating doctor diagnosed him as a case of osteomyelitis and started him on piperacillin/tazobactam.
Which one of the following statements below best describes the rationale behind such a combination?

- (a) a. Tazobactam enhances the renal clearance of piperacillin
- (b) b. Tazobactam inhibits the hepatic metabolism of piperacillin
- (c) c. Tazobactam inhibits ß-lactamase inactivation of piperacillin
- (d) d. Tazobactam enhances plasma protein binding of piperacillin

66. A 41 year old woman presents to her doctor with joint pain, morning stiffness and general fatigue. After requesting a number of blood tests, the doctor makes a diagnosis of rheumatoid arthritis. In order to prevent further deterioration of her condition, she was prescribed a disease-modifying anti-rheumatoid agent.
Which one of the following drugs would be the most appropriate <u>first-line therapy</u> for her condition?

- (a) a. Indomethacin
- (b) b. Paracetamol
- (c) c. Methotrexate
- (d) d. Leucovorin

67. A 38 year old man with a history of peptic ulcer disease was seen by his GP. He was complaining of acute monoarticular joint pain and was diagnosed with an acute attack of gouty arthritis.

Considering his medical history, which one of the following drugs would be the most appropriate anti-inflammatory agent for his condition?

- (a) a. Azathioprine
- (b) b. Ibuprofen
- (c) c. Paracetamol
- (d) d. Etoricoxib

68. A 45 year old woman known with rheumatoid arthritis has been prescribed ibuprofen as anti-inflammatory to be taken in conjunction with her disease-modifying anti-rheumatoid therapy. A few weeks later, she was complaining of burning epigastric pain, nausea and dark stool, and her recent endoscopy revealed a peptic ulcer.

Which one of the following best described the mechanism of NSAIDs-induced peptic ulcer disease?

- (a) a. NSAIDs stimulate prostacyclin production
- (b) b. NSAIDs increase platelet thromboxane A_2 production
- (c) c. NSAIDs decrease mucosal prostaglandin E_2 production
- (d) d. NSAIDs inhibit the action of phospholipase A_2 synthesis

69. A 49 year old woman known with rheumatoid arthritis has been prescribed oral prednisone therapy to be taken in conjunction with her disease-modifying anti-rheumatoid therapy.

Which one of the following best describes the mechanism of action of prednisone?

- (a) a. Inhibition of thromboxane synthesis in platelets
- (b) b. Inhibition of arachidonic acid liberation from phospholipids
- (c) c. Stimulation of tumor necrosis factor production
- (d) d. Inhibition of lipoxygenase activity

70. A 59 year-old woman has chronic rheumatoid arthritis. Despite being on disease-modifying anti-rheumatoid therapy, his condition has further deteriorated, her physician decided to start her on a drug that inhibits TNF-α. Which one of the following is the drug of choice for this patient?

- (a) a. Leflonamide
- (b) b. Cyclosporine
- (c) c. Infliximab
- (d) d. Penicillamine

71. A 41 year-old man has a history of chronic gout with tophi on his fingers and ear auricles. His blood results reveal high serum uric acid levels, and he is prescribed allopurinol.

Considering potential drug interactions, which of the following disease-modifying anti-rheumatoid drugs should be avoided in combination with allopurinol?

- (a) a. Azathioprine
- (b) b. Methotrexate
- (c) c. Cyclosporine
- (d) d. Colchicine

72. A 39 year-old man presented to his GP with an acute case of gouty arthritis. In order to treat his painful inflammatory condition, which one of the following drugs is the most appropriate to be prescribed for his acute condition?

- (a) a. Paracetamol
- (b) b. Allopurinol
- (c) c. Chloroquine
- (d) d. Indomethacin

73. A 49 year-old woman with chronic rheumatoid arthritis has requested an additional 6-month repeat script for oral prednisone (40mg per day).

Which one of the following statements is the most accurate regarding the adverse effects of chronic oral glucocorticosteroid therapy?

- (a) a. Decreased risk of TB reccurrence
- (b) b. Increased risk of hypoglycemia
- (c) c. Suppression of ACTH production
- (d) d. Accelerate cutaneous infection healing

74. A five year old female child presents at casualty with a vague history of a possible fall at school that day. The child has a painful swollen knee that is hot to touch, is refusing to weight bear on that leg, and has a pustular lesion of one week's duration overlying the patella. Temperature is 40 degrees celcius.

What would your differential diagnosis in order of most to least importance be?

- (a) a. Possible fracture, soft tissue injury, septic arthritis, haemophilia
- (b) b. Septic arthritis, possible fracture, soft tissue injury, haemophilia
- (c) c. Soft tissue injury, Haemophilia, septic arthritis, possible fracture
- (d) d. Haemophilia, possible fracture, soft tissue injury, septic arthritis

75. Which of the following is **NOT** a known risk factor for avascular necrosis of the femoral head?

- (a) a. Femoral neck fractures
- (b) b. Steroids
- (c) c. Sickle cell disease
- (d) d. Smoking

76. In a patient presenting with an OPEN FRACTURE OF THE TIBIA, what is the most important part of management?

- (a) a. To dress the wound and discharge the patient home
- (b) b. Early wound debridement and initiation of antibiotics
- (c) c. Reassure the patient
- (d) d. Splint the fracture and discharge the patient home

77. In a patient presenting with a KNEE DISLOCATION, what is the most important thing to exclude?

- (a) a. Meniscal injury
- (b) b. Cruciate ligament injury
- (c) c. Popliteal artery injury
- (d) d. Collateral ligament injury

78. What is the main blood supply to the hypothenar muscles?

- (a) a. Ulnar artery
- (b) b. Posterior interosseous artery
- (c) c. Anterior interosseous artery
- (d) d. Radial artery

79. A 46-year-old wood cutter presents with severe hand infection, which developed after sustaining a superficial laceration. Cultures are taken during operative irrigation and debridement, and he is started on antibiotic therapy.
Based on the patient's history, what is the most common pathogen in this setting?

- (a) a. Herpes simplex virus
- (b) b. Candida albicans
- (c) c. Escherichia coli
- (d) d. Methicillin-resistant staphylococcus aureus

80. A 42-year-old female presents with pain and progressive stiffness of the shoulder. After examination a diagnosis of adhesive capsulitis (frozen shoulder) at the early stiffening stage is made.

What treatment do you recommend?

- (a) a. Immediate aggressive therapy for active-assisted and passive range of motion exercises
- (b) b. Platelet-rich plasma (PRP) injections
- (c) c. Arthroscopic lysis of adhesions and bursectomy
- (d) d. Reassurance and a gentle stretching program as symptoms allow

81. Which one of the following is a diagnostic test for Acute Haematogenous Osteomylitis?

- (a) a. Plain X-ray
- (b) b. Blood culture
- (c) c. CT-scan
- (d) d. Clinical examination

82. What is the commonest cause of haematogenous osteomyelitis?

- (a) a. *Streptococcus*
- (b) b. *Staph aureus*
- (c) c. *Salmonella*
- (d) d. *H. Influenza*

83. A 70 year old, female patient presents with osteoporosis and hypertension. She lives independently, and has reported having two falls in the past year, resulting in no injuries other than bruises.

From a physical activity perspective, you should include the following in your assessment of this patient (choose one option):

- (a) a. Asking her, on average how many days a week she engages in moderate or greater activity, as well as how many minutes she participates in this activity
- (b) b. Asking her, on average how many days a week she engages in moderate or greater activity, and encourage her to do more if she doesnt exercise for more than 3 days
- (c) c. Asking her, on average how many days a week she engages in moderate or greater activity, as well as how many minutes she participates in this activity, and provide specific guidelines that includes exercise prescription and dosage
- (d) d. Asking her, on average how many days a week she engages in moderate or greater activity, as well as how many minutes she participates in this activity, and identify attainable goals

84. A 5-year old male child presented to a paediatrician with low-grade fever, pain in the knee and impaired motion with swelling for more than a week. At admission full blood count showed increase in leukocytes and ESR, and high white cell count in synovial fluid aspirate.
Which one of the following is the most likely cause of infection?

- (a) a. Bacteria
- (b) b. Viral
- (c) c. Fungi
- (d) d. Mycobacteria

85. Mrs. Jackson is 53 year old receptionist at the local account firm. She jogs once a week, at 30% of her maximal effort for duration of 20 minutes. Her eating pattern can be considered as healthy and consumes alcohol occasionally. She has become worried about the recent increase in body mass.

An exercise test confirms that Mrs. Jackson has increased in body fat percentage and needs to do more exercise to lower the increase in fat mass.

Which of the following exercise regimens is most likely to produce a higher reduction in body fat?

- (a) a. Performing aerobic activity at the gym, 60 minutes, once a week at a moderate-vigorous intensity
- (b) b. Raking the leaves in the garden for 45 minutes at light intensity, twice a week
- (c) c. Jog at a moderatevigorous pace for 45 minutes, 4 times a week
- (d) d. Swimming at the local swimming pool, 30 minutes, twice a week at a moderate intensity Strengthen the triceps muscles to improve the ability to push up from a seated position

86. Mr. Hislope, a 35 year old self-employed bricklayer, has been experiencing lower back pain for the past 3 months. Topical analgesics in conjunction with corticosteroids seem to relieve pain temporarily. On assessment with his physiotherapist and subsequent dual energy X-ray absorptiometry scan with the radiologist confirms low bone mineral density in the left hip region, indicating osteoporosis. He is referred to a biokineticist to assist with exercise therapy.

Given Mr. Hislope's condition, which one of the following is the most appropriate exercise rehabilitation management?

- (a) a. Weight bearing exercise
- (b) b. Correcting lifting technique
- (c) c. Balance retraining
- (d) d. Aerobic training

87. A 75 year old female is diagnosed with osteoporosis. She is on calcium and vitamin D supplementation.

Which one of the following is first line treatment for this patient?

- (a) a. Strontium renolate
- (b) b. Alendronate
- (c) c. Teriparitide (synthetic PTH)
- (d) d. Calcitonin

88. A 68-year-old man complains of increasing back pain and hand pain for 8 years. The pain is worse with physical activity and improves with rest. On examination, he has bony swelling of his proximal and distal interphalangeal joints of the hands. What is the most likely diagnosis?

- (a) a. Gout
- (b) b. Osteoarthritis
- (c) c. Psoriatic arthritis
- (d) d. Rheumatoid arthritis

89. A 25-year-old teacher presents with a 2-year history of facial rash, hair loss and joint pains. On examination the patient has tender swelling of the wrists and proximal interphalangeal joints and an erythematous rash over the cheeks. On further investigations she is found to have leucopaenia and proteinuria.

What is the most likely diagnosis?

- (a) a. Rheumatoid arthritis
- (b) b. Scleroderma
- (c) c. Dermatomyositis
- (d) d. Systemic lupus erythematosus

90. An athlete presents as he is unable to extend his wrist. On examination, movement of the elbow is normal as is sensation on the dorsum of the hand.

What is the most likely level of damage to the radial nerve?

- (a) a. In the axilla
- (b) b. In the radial groove of the humerus
- (c) c. At the level of the supinator muscle
- (d) d. In the anatomical snuff box

91. A typist complains of loss of sensation over the distal phalanx of the thumb. On examination there is weakness of flexion and abduction of the thumb and opposition is absent. Adduction of the thumb is normal. Which one of the following is most likely to be injured?

- (a) a. Median nerve in the carpal tunnel
- (b) b. Median nerve in the cubital fossa
- (c) c. Ulnar nerve at the level of the hook of the hamate bone
- (d) d. Ulnar nerve at the medial epicondyle

92. Following a motor vehicle accident, a patient presents with symptoms of whiplash. Which one of the following is most likely to be injured?

- (a) a. Anterior longitudinal ligament
- (b) b. Intertransverse ligaments
- (c) c. Ligamentum flavum
- (d) d. Posterior longitudinal ligament

93. A patient presents with rupture of an intervertebral disc. The posterolateral aspect of the disc is most likely to rupture as:

- (a) a. It experiences the least force.
- (b) b. It is closest to the nucleus pulposus.
- (c) c. The annulus fibrosis is thinner.
- (d) d. The annulus fibrosis is well organized.

94. Rotation of the vertebral column predominantly occurs in the thoracic region. This is due to

- (a) a. The articulation with the ribs.
- (b) b. The intervertebral discs are thick relative to the size of the vertebral body.
- (c) c. The orientation of the articular facets.
- (d) d. The presence of rotatores muscles.

95. A patient with squamous carcinoma of the mouth, which has spread to lymph nodes in the anterior triangle of the neck, presents with an inability to laterally flex the neck and head to the left while rotating the head to the right.

Which one of the following muscles is most likely to be affected?

- (a) a. Levator scapulae
- (b) b. Posterior scalene muscle
- (c) c. Sternocleidomastoid
- (d) d. Trapezius

96. Following a water skiing accident, a patient complains that he is unable to move his shoulder. On examination, there is loss of sensation over the deltoid muscle which extends along the lateral aspect of the forearm to the distal phalanx of the thumb. The patient is unable to abduct or laterally rotate the shoulder and the elbow cannot be flexed.

Which one of the following is most likely to be injured?

- (a) a. Axillary nerve
- (b) b. Musculocutaneous nerve
- (c) c. Superior trunk of the brachial plexus
- (d) d. Suprascapular nerve

If assessment score is 0% to 100% Feedback