



FRCPath Part 1 in Infection / Combined Infection Certificate Examination

Sample MCQs

Question 1

A 20-year-old woman presented with a 2-day history of fever, headache and confusion.

On examination, her temperature was 39.0°C and her Glasgow coma score was 11. She had no neck stiffness or rash.

Investigations:

CT scan of brain	normal
cerebrospinal fluid:	
total protein	0.85 g/L (0.15–0.45)
glucose	3.8 mmol/L (3.3–4.4)
white cell count	126/μL (≤5)
lymphocyte count	120/μL (≤3)
neutrophil count	6/μL (0)

What is the most likely causative organism?

- A cytomegalovirus
- B enterovirus
- C herpes simplex virus type 1
- D human herpes virus 8
- E varicella zoster virus

Question 2

A 12-year-old boy underwent appendicectomy for acute appendicitis.

At the time of surgery there was evidence of localised peritonitis, and a pus swab was sent for culture.

Which is the most likely pathogen?

- A *Streptococcus agalactiae*
- B *Streptococcus anginosus*
- C *Streptococcus equi*
- D *Streptococcus gallolyticus*
- E *Streptococcus infantarius*

Question 3

A 23-year-old woman was referred with a 1-week history of fever, malaise, night sweats and painful joints. Two weeks previously she had had a sore throat.

On examination, her temperature was 38.2°C, pulse 110 beats per minute, blood pressure 105/65 mmHg. She had a pan-systolic murmur, her chest was clear on auscultation. Her right wrist and left knee were hot, swollen and painful.

Investigations:

serum C-reactive protein	221 mg/L (<10)
anti-streptolysin O titre	1600
echocardiogram	evidence of pericardial effusion with mitral regurgitation

Rheumatic fever is considered as a diagnosis

Which of the modified Duckett–Jones criteria are fulfilled to confirm the diagnosis?

- A 1 major + 1 minor
- B 1 major + 2 minor
- C 2 major + 2 minor
- D 2 major + 3 minor
- E 3 major + 3 minor

Question 4

A 72-year-old man developed fever and increased oxygen requirement while being ventilated 6 days after emergency surgery for a ruptured abdominal aortic aneurysm. Two days previously, he had been started on intravenous vancomycin for infection at the site of a peripheral intravenous cannula. He had a history of anaphylaxis following penicillin.

On examination, his temperature was 38.2°C, his pulse was 98 beats per minute and regular, and his blood pressure was 124/78 mmHg. There was decreased air entry and coarse crackles were audible at the right lung base.

Investigations:

chest X-ray	new infiltrate in right lower lung field
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What is the most appropriate addition to his antibiotic treatment?

- A ceftazidime
- B ciprofloxacin
- C co-trimoxazole
- D fosfomycin
- E tigecycline

Question 5

A 24-year-old woman presented with a 2-day history of cough productive of green sputum.

On examination, there were signs of consolidation at the left lung base. Her CURB-65 score was 1. She was attempting to conceive and was reluctant to take any antibiotic that might be harmful in pregnancy.

Which antibiotic is most appropriate?

- A amoxicillin
- B azithromycin
- C doxycycline
- D levofloxacin
- E vancomycin

Question 6

A 35-year-old woman presented with a 3-day history of productive cough, breathlessness and rigors.

She was treated empirically with intravenous vancomycin.

What is the site of action of vancomycin?

- A cell membrane integrity
- B DNA synthesis
- C peptidoglycan cross-linking
- D protein synthesis via the 50S ribosomal subunit
- E RNA synthesis

Question 7

Four patients on an elderly care ward were diagnosed with norovirus infection.

What immediate measure is most appropriate to prevent further spread within the institution?

- A close down the kitchen supplying meals to the ward
- B hydrogen peroxide vapour in affected areas
- C introduce alcohol hand rub to the ward
- D isolation of symptomatic patients
- E transfer asymptomatic patients to other wards

Question 8

A 30-year-old man was diagnosed with acute hepatitis A virus infection. This was notified to the Health Protection Unit (HPU).

He had attended a wedding reception 4 weeks previously. The HPU ascertained that that eight other guests out of a total of 50 had developed acute hepatitis.

What is the most appropriate approach to investigating the source of this outbreak?

- A case control study
- B cohort study
- C environmental investigation of the catering facility
- D randomised controlled trial
- E serological surveillance

Question 9

A 1-day old baby was visited by his 5-year-old sister who developed chickenpox the following day. The baby had been born at 30 weeks' gestation and weighed 990g. The mother had not had any obvious illness during the pregnancy.

The maternal antenatal blood taken at 13 weeks was retrieved for investigation

Investigations:

Varicella zoster virus IgG	positive
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What is the most appropriate intervention for the baby?

- A commence intravenous aciclovir
- B commence oral valganciclovir
- C give intramuscular human normal immune globulin
- D give intramuscular varicella zoster immune globulin
- E no action required

Question 10

A 6-year-old boy was brought by his mother to the emergency department after accidentally stabbing himself with a needle found discarded in the park. His mother had brought the needle with them.

On examination, the child was well, apart from a minor scratch to the right hand.

What is the most appropriate management?

- A give hepatitis B immunoglobulin
- B issue HIV post-exposure prophylaxis
- C request urgent blood-borne virus serology
- D start an accelerated course of hepatitis B vaccine
- E test the needle for blood-borne viruses

Question 11

A 32-year-old woman presented to the TB contact clinic after her husband had been diagnosed with fully sensitive smear-positive pulmonary tuberculosis. She was well and had no symptoms.

On examination she had a BCG scar. Her chest was clear.

Investigations:

chest X-ray	normal
interferon gamma release assay	positive

What is the most appropriate advice about chemoprophylaxis?

- A isoniazid for 3 months
- B none required
- C rifampicin for 6 months
- D rifampicin plus ethambutol for 3 months
- E rifampicin plus isoniazid for 3 months

Question 12

A 35-year-old woman presented to a travel clinic prior to a 1-week beach holiday in the Gambia. She was taking fluoxetine.

What is the most appropriate malarial chemoprophylaxis?

- A atovaquone/proguanil
- B chloroquine and proguanil
- C doxycycline
- D mefloquine
- E none required

Question 13

What is the most appropriate confirmation test following an initial reactive hepatitis B surface antigen (HBsAg) screening result by enzyme immunoassay (EIA)?

- A neutralisation of the reactivity using hepatitis B surface antibody
- B repeat the EIA
- C test the sample for hepatitis B core total antibody
- D test the sample for HBV DNA
- E test the sample for hepatitis B e antigen and hepatitis B e antibody

Question 14

A 42-year-old man was found to be infected with both HIV-1 and hepatitis B viruses.

Investigations:

CD4 count	420 × 10 ⁶ /L (430–1690)
HIV-1 RNA	132,000 copies/mL (lower detection limit 40)
HIV-1 genotypic resistance assay	no drug resistance mutations
HLA B*5701	negative
hepatitis B surface antigen (HBsAg)	positive
hepatitis B e antigen (HBeAg)	positive
HBV DNA	30,000 IU/mL (lower detection limit 250)
liver biopsy	minimal fibrosis

What is the most appropriate management plan?

- A atazanavir, ritonavir, abacavir and lamivudine
- B efavirenz, tenofovir and emtricitabine
- C entecavir
- D no treatment required
- E peginterferon alfa-2a

Question 15

A 20-year-old man presented with a 5-day history of fever. He had received a haematopoietic stem cell transplant for acute myeloid leukaemia 7 months previously.

Investigations:

blood

adenovirus DNA	100 000 copies/mL (lower limit of detection 10)
cytomegalovirus DNA	100 000 IU/mL (lower limit of detection 10)

Which anti-viral agent is active against both viruses?

- A aciclovir
- B cidofovir
- C foscarnet
- D ganciclovir
- E ribavirin

Question 16

A 42-year-old woman was admitted to ICU with severe community acquired pneumonia. She was known to have advanced HIV disease and had recently returned from the mid-west of the USA.

Investigations

Non-directed bronchial lavage

Gram stain

Yeast 2+

Which of the following poses greatest risk to laboratory staff?

- A *Candida dubliniensis*
- B *Cryptococcus neoformans*
- C *Histoplasma capsulatum*
- D *Rhodotorula rubrum*
- E *Trichosporon beigellii*

Question 17

A 5 year old child presented with a 2 day history of diarrhoea. Two other children in the same class had developed similar symptoms in the same week. An outbreak control team was convened.

Investigations

Faeces culture

Shigella sonnei

What is the most likely cause of the outbreak?

- A a visit to a petting farm
- B eating party cakes
- C eating undercooked chicken nuggets
- D poor hand hygiene
- E swimming in contaminated pool water

Question 18

A 24-year-old Liberian man presented with a 4-day history of fever and headache. He had lived in the UK for 3 years but had visited Liberia to attend a funeral, returning to the UK 2 days previously.

On examination, his temperature was 39.0°C, his pulse was 120 bpm and blood pressure was 100/70. There was active bleeding around venepuncture sites.

Investigations:

malaria film negative

In addition to hand hygiene, what other infection control measures are most appropriate?

- A fluid repellent disposable gown, double gloves, FFP3 respiratory mask, eye protection
- B gloves and plastic apron
- C gloves, plastic apron, FFP3 respiratory mask and eye protection
- D gloves, plastic apron, surgical mask and eye protection
- E surgical mask

Question 19

A 7-year-old boy, with no history of past chickenpox infection, was being treated for nephrotic syndrome with high dose prednisolone. His 3-year-old sister had developed confirmed chickenpox in the last 24 hours.

Investigations:

varicella zoster virus IgG 8 mIU/ml

What is the most appropriate next step in the boy's management?

- A give intravenous aciclovir
- B give oral valaciclovir
- C give varicella vaccine
- D give varicella zoster immunoglobulin (VZIG)
- E no treatment is required