Paper 1 Essays (90 minutes) - 2 compulsory questions

1. Compare and contrast the strategies of prophylactic and pre-emptive therapy for CMV infection in solid organ transplant recipients.

2. Write a business case to your laboratory manager to propose using nucleic acid detection to replace virus isolation for diagnosis of respiratory virus.

Paper 2 Short Answer questions (90 minutes) – Typically 9 compulsory questions

1. A 37 year old woman presents to the Accident and Emergency Department with severe respiratory symptoms. She returned two days previously from Viet Nam. What advice would you give about her management?

2. Write short notes on the epidemiology, symptoms, diagnosis and treatment of chikungunya virus.

3. Discuss the laboratory investigation of immunity to measles, mumps and rubella virus.

4. Discuss the management of a 12 week pregnant woman in contact with her young son who developed a maculopapular rash two days ago.

5. A 57 year old man is admitted to hospital with severe headache, fever, confusion, becoming unconscious. Discuss the virological diagnosis and treatment you would recommend.

6. A 24 week pregnant woman presents to her GP with a two day history of severe chickenpox. What would you suggest for the management of this patient?

7. A 44 year old CMV antibody negative man is given a lung transplant from a CMV antibody positive donor. Discuss the ideal management of this case, and the likely outcome with and without interventive management.

8. A term baby is born with cerebral calcifications and chorioretinitis. His CMV IgM and Toxoplasma gondii IgM results on a clotted blood taken two days after birth are negative. Does this exclude infection with these two organisms and what management would you recommend?

9. A 39 year old man who had a living unrelated bone marrow transplant 4 weeks ago is admitted to hospital with severe respiratory symptoms. Adenovirus DNA is detected by PCR in a BAL. What advice would you give on the management of the patient?

Paper 3 practical (over 2-3 days) – typically 2-3 questions starting off with initial investigations followed by further tests and data interpretation

1. Perform an HIV Ag/Ab combination ELISA assay

Samples from 5 patients provided

1. 17 year old man who has sex with men
2. 53 year old heterosexual man
3. 54 year old man from Africa, presented to GUM clinic with urethitis
4. 63 year old hypertension with stroke – source of Needle stick injury for a nurse
5. 32 year old man who has sex with men, history of unprotected sex 2 weeks before

Follow on questions involve interpretation of results and additional testing including immunocomb, RT-PCR and sequence data interpretation.

2. A 5 year old autologous bone marrow transplant recipient with a 3 week history of upper respiratory symptoms is admitted to hospital with worsening symptoms. Perform a PCR with respiratory virus multiplex assay. Give a clinical interpretation of the results and provide advice on the patient's management.

3. Three ante-natal booking samples from patients H, I and J, were submitted for rubella antibody testing. Patients I and J attended their booking appointment routinely, whereas Patient H, who was 16 weeks pregnant, gave a 2 day history of fever and a non-specific maculo-papular rash.

Use the latex agglutination kit provided to determine their rubella serological status of each patient.

a. Interpret the results in the context of the history of each patient.
b. What further tests, if any, would you recommend to each patient?
c. What is the risk of rubella infection to Patient H and what are the possible consequences?
d. What is the recommended management of Patient I?
e. What other infection serology tests are recommended during routine ante-natal screening?

Paper 4 OSPE (between 10 – 15 questions, time allow for each question could range from 6 – 15 min)

1. Telephone call from GP: 39th week gestation women contact with her son present with chickenpox 5 days ago. Please take this call and discuss with GP. (10 min)

2. Laboratory on-site inspection for safety issue in a P3 lab: point out 10 deficiencies in term of safety (10 min)

3. Examine this Quality Control Chart (6 min)
a. What abnormality is shown in this quality control chart?
b. Which rule has been violated and how?
c. Give two possible scenarios which may account for this abnormality.

4. Examine these electron-micrographs (6 min)
a. In which clinical specimen type can you find all these viruses?
b. Name the viruses labelled A to G.
c. Which of these viruses belong to the same viral family? Name the family.
d. Which of these viruses have effective vaccines? What is the nature of this vaccine?

5. Examine this phylogenetic tree (6 min)
a. Does this phylogenetic tree support transmission of hepatitis C in the dialysis unit? Why do you say so and which patients were involved?
b. Can you determine which patient is the index case from this tree? Why do you say so?
c. What is the meaning of the number at the node of each branch?

6. Examine this set of laboratory data (6 min)
a. Interpret this set of laboratory data.
b. Give three possible explanations to account for this set of result?

7. These pictures are from different patients suffering different complications of the same viral infection (6 min)
a. Which virus caused these complications?
b. Name each complication.
c. Name four other possible complications of this viral infection?

8. This is the histological examination of brain tissue of a man died of an unexplained encephalopathy (6 min)
a. What is the diagnosis?
b. What is the pathognomonic feature found in the histology slide?
c. How do you diagnose this condition before death?

9. This is the brain MRI of a patient from sub-Saharan Africa who presented with a two week history of headache and admitted with generalised seizures (6 min)
a. What is the most likely diagnosis?
b. Name one possible alternative diagnosis.
c. What is the most likely underlying condition?
d. What is the management of this condition?

10. Examine these clinical pictures (6 min)
a. Which two viral infections were demonstrated in these clinical pictures?
b. Name the signs found in the oral cavity and match each one to its corresponding clinical picture.
c. What laboratory methods are available to diagnose these two infections?

Paper 5 Viva (3-5 questions, 30 – 45 min per candidate)

Discussion of case scenarios

1. Management of a returned traveller from Africa with fever
2. Management of a pregnant woman known to have HIV presenting in labour
3. Management of an incident of needle stick injury