Higher Specialist Diploma

Immunology

Examination 2019

Paper 3

Discipline-specific questions

120 minutes

Attempt 3 out of 6 questions

Instructions to candidates

1. Record your candidate number, qualification title and where appropriate the discipline and examination paper number on the front sheet of the answer booklet

2. Record your candidate number and the page number in the spaces provided on the answer sheets

3. Begin each new answer on a new page

4. Write on one side of the answer sheet only

5. Each question is worth 100 marks

1. Critically appraise the laboratory methods available for the diagnosis of connective tissue disease.

2. Discuss the value of the measurement of free light chains in myeloma and related disorders.

3. Discuss the role of antibodies in the diagnosis of Idiopathic inflammatory myopathies.

4. Critically appraise the advantages and disadvantages of in vitro and in vivo testing in the diagnosis of allergic disease.

5. Discuss the use of antibody testing in the differential diagnosis of diabetes.

6. Critically appraise the laboratory methods available for the diagnosis of chronic granulomatous disease, giving details of factors that may affect results.

Higher Specialist Diploma

Immunology

Examination 2019

Paper 4

Case studies

120 minutes

Attempt all case studies

Instructions to candidates

1. Record your candidate number, qualification title and where appropriate the discipline and examination paper number on the front sheet of the answer booklet

2. Record your candidate number and the page number in the spaces provided on the answer sheets

3. Begin each new answer on a new page

4. Write on one side of the answer sheet only

5. Each case study is worth 100 marks

Seen Case Study

1.

14 year old boy presents with a lifelong history of recurrent oral thrush, which has now been referred to your hospital as his symptoms have recently progressed and he is now having difficulty swallowing. On further questioning he tells us that for the last 10 years he has suffered with what his mother thought was 'athletes' foot' affecting his finger and toe nails, and as a baby he used to suffer recurrent nappy rash.

Examination reveals a number of white adherent plaques on his oral mucous membranes. His finger and toe nails are all markedly thickened, fragmented and discoloured with erythema surrounding the perilungual tissue. Nail fragments sent to microbiology confirm *Candia albicans* infection.

a. What further information from the patients history do you require and why? Make reference to your differential diagnoses. **[40%]**

b. What investigations would you like to perform and why? **[20%]**

The patient is treated with systemic antifungals and his symptoms improve. He is kept on long term follow up by the immunology team and a year later he complains of feeling tired all the time and that he can no longer concentrate at school.

On direct questioning he admits that he has been feeling very weak and his mother thinks that he has lost weight. On examination it is noted that his blood pressure is much lower than previously documented and he now has hyperpigmented areas of skin, notably of the palmar crease.

c. What is the most likely explanation for this, and which of your differential diagnoses is now the most likely? **[20%]**

d. What is the underlying mechanism for the patients symptoms? **[20%]**

Unseen Case Studies

2.

A 5-year-old Irish boy presented to his GP with a history of failure to thrive. Three months later he developed loose stools and generalised but vague abdominal pain. On questioning, the parent stated that the boy had felt tired and had lost weight during the preceding 6 months, despite a good appetite. There was no family history of gastrointestinal disease and no abnormalities were found on examination.

Laboratory investigations

	Result	**Reference range**
Haemoglobin	9.0 g/dL	11.5 - 13.5 g/dL
WBC	10.0 x 10^9/L	5.0 - 14.5 x 10^9/L
Platelets	175 x 10^9/L	150 - 400 x 10^9/L
Vitamin B_{12}	175 ng/L	180 - 1130ng/L
Serum folate	1.5 µg/L	2.7 – 34 µg/L
IgG	12.0 g/L	7.2-19.0 g/L
IgA	<0.07 g/L	0.8-5.0 g/L
IgM	1.2 g/L	0.5-2.0 g/L
IgA tTG antibodies	<1 U/mL	0-7 U/mL
IgA Endomysial antibodies	Negative	

a. What is the likely diagnosis? Give your reasons. [20%]

b. What further serological tests would be indicated? [20%]

c. Discuss other diseases that are associated with this condition. [20%]

d. Discuss an appropriate testing algorithm for this disease in the light of recent guidelines. [40%]

3.

A 62-year-old man went to his GP complaining of back pain following a fall, whilst gardening. During the last 6 months he had had 2 of chest infections requiring antibiotics. A number of blood tests were ordered the results are shown below

Immunoglobulins:	**Result**	**Reference Range**
IgG	1.83 g/L	5.80 – 15.40
IgA	<0.30 g/L	0.64 – 2.97
IgM	0.19 g/L	0.24 – 1.90
Serum electrophoresis	Faint Band	
Creatinine	Raised	
Haemoglobin	Low	

a. What is the likely diagnosis? What further tests would be required to confirm this? What is the most appropriate test for monitoring? [40%]

b. Describe the mechanism that explains the symptoms and blood test results. [40%]

The patient follow up is shown on the flow chart below

Date	Total Protein g/L	Paraprotein Densitometry g/L	IgG g/L Adult (5.8-15.4)	IgA g/L Adult (0.64-2.97)	IgM g/L Adult M 0.24-1.9 F 0.71-2.3	Serum Free Kappa mg/L (3.30 - 19.40)	Serum Free Lambda mg/L (5.71 - 26.30)	Serum Free K/L Ratio (0.26 - 1.65)
07.08.18	64.0		2.9	1.18	0.11			
18.09.18	70.0		3.1	1.33	0.16	529.55	7.11	74.479
??.10.18	54.0		2.7	0.95	0.13			
11.12.18	68.0		6.4	4.07	0.20	35.34	30.38	1.1633
	Immunoglobulin levels checked.							
??.01.19	72.0		9.9	3.41	0.24	34.69	25.47	1.3620
	Serum Electrophoresis shows multiple banding. Serum Immunotyping shows multiple banding ?oligoclonal.							
19.02.19	74.0		9.2	2.27	0.48	26.97	18.55	1.4539
	Serum EP shows multiple banding.							

c. Discuss the likely cause for the changes seen in the last two measurements. [20%]