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UNIVERSITY OF JAFFNA, SRI LANKA

SECOND EXAMINATION FOR MEDICAL DEGREES (1st) December 2016

Pathology II

Date : 16.01.2017

Time allowed: 3 hours

Answer all **Ten (10)** questions

Answer each question in **separate** answer book

- 1.
- 1.1 A 62 year old driver was admitted to the hospital with gangrene of the left fourth toe and a non-healing ulcer over the lateral malleolar region of right leg.
- 1.1.1 What is gangrene? (05 marks)
- 1.1.2 Mention the different types of gangrene with **one** (01) cause and **one** (01) example for each type. (15 marks)
- 1.1.3 Mention the factors which affect the wound healing. (15 marks)
- 1.2 A 68 year old woman underwent Anterior resection for moderately differentiated adeno carcinoma of upper rectum and admitted to Intensive Care Unit for post-operative care. On 4th post-operative day she developed low grade fever with pain and swelling of the left calf. She was suspected to have Deep Vein Thrombosis in her left lower limb.
- 1.2.1 List the possible risk factors for deep vein thrombosis in this woman. (10 marks)
- 1.2.2 Describe the pathogenesis of deep vein thrombosis. (25 marks)
- 1.2.3 Enumerate the sequelae of deep vein thrombosis. (15 marks)
- 1.2.4 How could you have prevented deep vein thrombosis in this woman? (15 marks)
- 2.
- 2.1 List **three** (03) types (chemical composition) of urinary calculi. (15 marks)
- 2.2 Give **one** (01) predisposing factor for each type of calculi mentioned in 2.1 (15 marks)
- 2.3 Describe briefly the pathological features (macroscopy and microscopy) that may occur in the **kidney** following obstruction of the urinary tract by calculi (70 marks)

3. A 57 year old known hypertensive man was admitted to the medical ward with an episode of sudden onset of chest pain associated with sweating. A myocardial infarction was suspected.
- 3.1 List **four** (04) investigations you will do to confirm the diagnosis. (20 Marks)
- 3.2 Describe the pathogenesis of myocardial infarction in this patient (30 Marks)
- 3.3 This patient died on the 3rd day of admission.
Describe the pathological changes that you would expect to see in his thoracic contents during a post mortem examination. (50 Marks)
4. A 5 months old infant was admitted to paediatrics ward due to failure to thrive. Clinical examination revealed pallor, mild jaundice and marked hepatosplenomegaly. His Haemoglobin was 4g/dL
- 4.1 State the most likely diagnosis. (05 Marks)
- 4.2 State the expected red cell findings in this infant's full blood count. (15 Marks)
- 4.3 State the red cell morphology you would expect in this infant's blood picture. (15 Marks)
- 4.4 State the confirmatory test and expected findings for the most likely disease you mentioned in 4.1 (10 marks)
- 4.5 State the expected findings of the test you mentioned in 4.4 for both parents. (15 marks)
- 4.6 Explain the pathological basis for hepatosplenomegaly in this patient (35 marks)
- 4.7 State **two** (02) tests that are very important in the management of this patient. (05 marks)
5. A 58 year old garage worker developed haematoma many hours after herniotomy and repair surgery. Re-exploration revealed no bleeding points. Many hours after re-closure, the haematoma recurred and the surgeon wanted to exclude non-surgical causes for haematoma formation. Other than regular alcohol consumption, history was unremarkable. He is not on any medications.
- 5.1 State the most likely underlying disease which caused impaired haemostasis in this patient (05 marks)
- 5.2 List **five** (05) causes for the haemostasis impairment in disease you mentioned in 5.1 (25 marks)

- 5.3 State **two** (02) laboratory tests you would request to assess the defect in haemostasis, giving expected findings and samples to be collected for the tests mentioned (15 marks)
- 5.4 State **three** (03) biochemical parameters which can be expected to be abnormal in this patient giving reasons (15 marks)
- 5.5 State **two** (02) therapeutic products available to correct haemostasis failure in this patient (10 marks)
- 5.6 Describe the common red cell changes you would expect in this patient's peripheral blood smear giving the reasons for the changes (15 marks)
- 5.7 State **one** (01) non-laboratory investigation you would request to evaluate this patient's disease status and expected findings (15 marks)
6. A 47 year old man with a history of heavy smoking over 20 years presented with a mass in the right lung. A CT guided tru-cut biopsy confirmed a malignant neoplasm.
- 6.1 List the different types of lung carcinoma (20 marks)
- 6.2 Describe the macroscopic and microscopic features of **one** (01) type listed in 6.1 (40 marks)
- 6.3 Name **four** (04) paraneoplastic syndromes that may be seen in lung carcinoma. (20 marks)
- 6.4 Describe **four** (04) local complications that can occur in lung carcinoma. (20 marks)
7. A 27 year old man presented with blood and mucus diarrhoea for the last one year.
- 7.1 Mention **three** (03) benign conditions for this presentation (15 marks)
- 7.2 Briefly describe the macroscopic appearance of the diseased bowel in each condition mentioned in 7.1 (45 marks)
- 7.3 Discuss briefly the pathological basis of the complications of **two** (02) conditions mentioned in 7.1. (40 marks)

8. A 60 year old man presented to the surgical unit with gradually worsening right sided abdominal pain for three months. Past history revealed that he had three episodes of bleeding per rectum six months ago for which he had sought medical advice. Clinical examination revealed marginally enlarged liver, mild pallor and no jaundice. The Ultrasound scan of abdomen revealed an enlarged liver with multiple space occupying lesions in the liver.

8.1 List **three** (03) possible causes for the lesions in the liver. (15 marks)

8.2 State **two** (02) laboratory investigations that can be performed for the above lesions to obtain a diagnosis. (20 marks)

8.3 State **two** (02) clinical examination procedures that need to be performed to establish the aetiology of the lesions in the liver. (15 marks)

8.4 Describe the macroscopy and microscopy of **one** (01) of the causes you have mentioned in 8.1 (50 marks)

9. A mastectomy specimen from a 42 year old woman shows a two centimeter diameter tumour which is a well differentiated ductal carcinoma of no special type with a minor in-situ component. Two of the fourteen axillary lymph nodes are positive for metastatic tumour. The tumour Oestrogen and Progesterone receptor studies are negative and Her2-neu is positive. There is no distant metastasis.

9.1 Identify the prognostic and predictive factors listed above and discuss the relative importance of each factor mentioned. (50 marks)

9.2 Describe the risk factors for ovarian cancer (25 marks)

9.3 Briefly describe the pathophysiology of pre-eclampsia (25 marks)

10.

10.1 A 26 year old girl presented with loss of weight in spite of eating, sweating and palpitations. On examination she had a thyroid nodule. Following initial thyroid function test results were noted.

TSH	<0.015	mIU/L	(reference interval	0.47-4.7)
Free T4	11	mmol/L	(reference interval	10-28)

- 10.1.1 Explain the results with a probable diagnosis. (20 marks)
- 10.1.2 List **one** (01) important hormonal investigation required to arrive at a definitive diagnosis. (20 marks)
- 10.1.3 List **one** (01) ^{hormonal,} investigation that has to be done in each of the following situations in this patient
- 10.1.3.1 After initial treatment has been started. (10 marks)
- 10.1.3.2 On long term follow up. (10 marks)
- 10.2 A patient presented with a solitary nodule of thyroid and is clinically euthyroid. Briefly describe **one** (01) non-hormonal investigation with interpretation to arrive at a pathological diagnosis. (40 marks)