

POSTGRADUATE INSTITUTE OF MEDICINE
UNIVERSITY OF COLOMBO

QUALIFYING EXAMINATION FOR SELECTION OF CANDIDATES FOR
IN-SERVICE TRAINING PROGRAMME IN PATHOLOGY
SEPTEMBER , 1995

Date: 11th September 1995

Time: 9.00 a.m. -11.00 a.m.

Answer all questions.

Answer each part in a separate book.

PART A

ANATOMIC PATHOLOGY

(GENERAL & SYSTEMIC)

1. Describe the sequelae of a thrombus in a deep vein of the calf.
2. Describe how rheumatic vegetation is formed.
3. Name 3 causes of testicular enlargement.
Describe the macroscopic and microscopic features of anyone of them.
4. Describe the macroscopic and microscopic appearances of the kidney in subacute bacterial endocarditis.
5. Describe the macroscopic and microscopic features of malignancy.
6. List the causes of ulceration of the colon.
Describe the macroscopic and microscopic features of one of them.

PART B

(HEMATOLOGY)

7. List the causes of iron deficiency anemia seen in Sri Lanka.
How do you investigate such a case?
8.
 - (a) An 18 year old boy was admitted with purpuric spots on both upper and lower limbs. List the probable causes.
 - (b) What hematological investigations you would like to do to arrive at a diagnosis?

PART C

(CHEMICAL PATHOLOGY)

- 9.
- (a) What are the common enzymes that are estimated in patients with suspected myocardial infarction ?
 - (b) What is the pattern of enzyme levels seen in an uncomplicated myocardial infarction?
- 10.
- (a) What are the characteristic features of nephrotic syndrome ?
 - (b) What are the biochemical investigations you would do in a patient with suspected nephrotic syndrome and how would you interpret them?

PART D

(MICROBIOLOGY)

- 11.
- (a) How do you investigate a patient suspected to be having typhoid fever ?
 - (b) Mention the significance of each test in relation to the duration of the illness.
- 12.
- (a) What do you mean by a hypersensitivity reaction?
 - (b) List the types of hypersensitivity reactions.
 - (c) Describe briefly one type of these reactions giving clinical examples.

POSTGRADUATE INSTITUTE OF MEDICINE
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QUALIFYING EXAMINATION FOR SELECTION OF CANDIDATES FOR
IN-SERVICE TRAINING PROGRAMME IN PATHOLOGY
AUGUST , 1997

Date: 7th August 1997

Time: 2.00 p.m. - 4.00 p.m.

Answer all questions.

Answer each part in a separate book.

PART A

ANATOMIC PATHOLOGY
(GENERAL & SYSTEMIC)

1.
 - 1.1. Write three morphological features, which could distinguish between a post-mortum clot and a thrombus.
 - 1.2. Name three factors, which promote thrombogenesis
 - 1.3. Describe briefly the fate of a thrombus
2.
 - 2.1. Name three chemical mediators involved in acute inflammation
 - 2.2. Describe briefly the difference between exudate and transudate
 - 2.3. Describe the complications of acute inflammation
3. Write a note on the pathological effects of ischaemia to the myocardium
4. Describe briefly the different ways by which a cerebral abscess could develop
5. Describe briefly the pathogenesis of chronic peptic ulcer
6. Write short notes on the following
 - 6.1 Sarcoid lung
 - 6.2 Small cell carcinoma of lung

PART B
(HEMATOLOGY)

7. Discuss briefly the pathogenesis of anemia in malignant disease.

8.
 - 8.1. What are the donor selection criteria for blood transfusion in Sri Lanka.
 - 8.2. List the transfusion-transmitted diseases.
 - 8.3. List the tests available for detection of these diseases.

PART C
(CHEMICAL PATHOLOGY)

9.
 - 9.1. How would you investigate a patient for suspected diabetes mellitus?
 - 9.2. How do you interpret your test results?
 - 9.3. Enumerate, in order of priority, the biochemical parameters that should be monitored in a patient on treatment for diabetic ketoacidosis.
 - 9.4. Mention one biochemical test that could be used to assess the adequacy of long term glycaemic control in a known diabetic.

10.
 - 10.1. How would you classify jaundice?
 - 10.2. What simple laboratory tests could you do to identify these different types ?
 - 10.3. Tabulate your results for each type.

PART D
(MICROBIOLOGY)

11. Briefly describe how you would make a microbiological diagnosis (including specimen collection and transport) and state two most likely pathogens you would expect to find in

11.1. Lobar pneumonia in a 20 year old girl.

11.2. Urethral discharge in a sexually active male.

12. A five year old child presented with fever and vomiting. On examination he has neck stiffness.

CSF report is as follows,

Colour	- Turbid
Cells	- Polymorphs - 70/cu.mm - Lymphocytes - 20/cu.mm
Protein	- 60 mg/100 ml.
Sugar	- 20 mg/100 ml.
Blood Sugar	- 100-mg/100 ml.

12.1. What is the probable diagnosis?

12.2. Name three organisms, which could cause this condition.

12.3. Name two other organisms, which could cause a similar illness in a two-week-old baby.

12.4. Mention two other investigations you would request on the CSF.

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QUALIFYING EXAMINATION FOR SELECTION OF CANDIDATES FOR
ADMISSION TO THE POSTGRADUATE IN-SERVICE TRAINING LEADING
TO THE DIPLOMA IN PATHOLOGY
AUGUST , 1998

Date: 15th August 1998

Time: 9.30 a.m. - 11.30 a.m.

Answer all questions.

Answer each part in a separate book.

PART A

ANATOMIC PATHOLOGY (GENERAL & SYSTEMIC)

1.
 - 1.1. Enumerate the types of emboli
 - 1.2. Describe the pathological effects of embolism
2.
 - 2.1. Describe the formation of oedema fluid
 - 2.2. Describe how you would distinguish between transudate and exudate
3. Write a note on the pathogenesis and clinicopathological effects of myocardial fibrosis.
4.
 - 4.1. Enumerate causes of hepatomegaly.
 - 4.2. Describe the pathological features of alcoholic hepatitis.
5. Mention three causes of haemoptysis and describe morphological features (macroscopy and microscopy) of one of them.
6. Write short notes on ,
 - 6.1. Polyposis coli
 - 6.2. Chemical carcinogens

PART B
(HEMATOLOGY)

7. A 22-year-old female presented with anemia and jaundice. Her Hb was 7.5 g/dl
Reticulocytes count 8%
- 7.1. List the possible causes for this patient's condition
- 7.2. Write briefly how you would investigate this patient to arrive at a diagnosis.
- 8.
- 8.1. Define disseminated intravascular coagulation (DIC)
- 8.2. List the common causes of DTC
- 8.3. List the laboratory investigations you would do in suspected DIC for confirmation.
- 8.4. Write briefly the main steps of treatment of DIC.

PART C
(CHEMICAL PATHOLOGY)

9. A 30-year-old man presented with oedema.

The following investigations were done ,

Total proteins - 58g/L (66 - 87)
Albumin - 25g/L (35 - 45)
Alanine transaminase - 8U/L (< 12)
Alkaline phosphatase - 98U/L (98 - 279)
Total bilirubin - 10Umol/L (< 20)
Cholesterol - 11 .5 mmol/L (<5.5)
Triglycerides - 180 mg/dl (<150)
24 hour urine proteins - 8.5g

- 9.1 What is your diagnosis?
- 9.2. Give your reasons.
- 9.3. Enumerate the common causes of this condition.
- 9.4. Comment on protein electrophoresis as a diagnostic aid in this condition

10

- 10.1 Name two endocrine disorders that can lead to lethargy and weakness in a non-diabetic, 54-year-old female.
- 10.2 Mention two significant clinical features associated with each disorder.
- 10.3 What biochemical tests would be useful to diagnose each disorder?
- 10.4 How would you interpret the results?

PART D

(MICROBIOLOGY)

11. A 30-year-old hemophiliac patient presented with jaundice. He passes pale stools and dark urine. Clinical examination revealed enlargement of liver and right hypochondrial tenderness.

Serology for Hepatitis B indicates

- | | |
|---------------|------------|
| HBS Ag | - Positive |
| HBc Ag | - Positive |
| Anti HBc | - Positive |
| Anti HBc Ig-M | - Positive |

- 11.1. How would you interpret these results?
- 11.2. Is this patient likely to become a carrier?
- 11.3. What is the definition of a HBV carrier?
- 11.4. Should this person have been immunized?
- 11.5. How would you?
 - (a) Sterilize a liver biopsy needle used on this patient.
 - (b) Disinfect accidental spillage of blood on the floor.

12. Explain why

- 12.1. Two or three samples of blood are taken for blood culture.
- 12.2. Direct microscopy of a throat swab is not useful.
- 12.3. Direct microscopy of cerebro spinal fluid (CSF) is useful in the diagnosis of meningitis.
- 12.4. Blood culture is preferred to the SAT in diagnosing typhoid fever.
- 12.5. TPH or FTA - ABS (specific test for treponemal disease) is required before treatment, if an antenatal clinic mother has VDRL - Reactive (2)

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QUALIFYING EXAMINATION FOR SELECTION OF CANDIDATES FOR
ADMISSION TO THE POSTGRADUATE IN-SERVICE TRAINING
LEADING TO THE DIPLOMA IN PATHOLOGY
AUGUST , 1999

Date: 24th August 1999

Time: 2.00 p.m. - 4.00 p.m.

Answer all questions.

Answer each part in a separate book.

PART A

ANATOMIC PATHOLOGY
(GENERAL & SYSTEMIC)

1.
 - 1.1. Define dysplasia (30 marks)
 - 1.2. State briefly the clinical relevance of dysplasia (70 marks)

2.
 - 2.1. Name 3 conditions that can cause strictures in the gastrointestinal tract (30 marks)

 - 2.2. Describe the macroscopic and microscopic features of the gastrointestinal tract in one of the above conditions. (70 marks)

3.
 - 3.1. Define a granuloma (25 marks)
 - 3.2. List 5 causes granulomatous inflammation (25 marks)
 - 3.3. Describe the microscopic features of one of them (50 marks)

4. Write short notes on:
 - 4.1 Prostaglandins (50 marks)
 - 4.2. Oncogenes (50 marks)

5. Describe how various specimens are transported to the laboratory for histopathological and cytological examination. (100 marks)

- 6.
- 6.1. List 3 causes of thyroid enlargement (30 marks)
- 6.2. Describe the macroscopic and microscopic features of the thyroid gland in one of the above conditions. (70 marks)

PART B

(HEMATOLOGY)

- 7.
- 7.1. List the causes of hypochromic microcytic anemia (20 marks)
- 7.2. What laboratory investigations would you carry out to differentiate the conditions you mention? (60 marks)
- 7.3. Write briefly the management of a patient with iron deficiency anemia (20 marks)
- 8.
- 8.1. Name the coagulation factors, which are involved in the intrinsic pathway of haemostasis. (50 marks)
- 8.2. Describe how would you investigate a 5-year-old boy presenting with haemarthrosis of the left knee (50 marks)

PART C

(CHEMICAL PATHOLOGY)

9. What is the cause of skin pigmentation in
- 9.1.
- (a) Addisons disease (15 marks)
- (b) Haemochromatosis (15 marks)
- 9.2. What abnormalities would you expect to see in the biochemical investigations performed to establish the diagnosis of these two diseases? (70 marks)

10. A middle-aged man found unconscious by the roadside is admitted to medical casualty ward.
There are no obvious external injuries.
- 10.1 List the urgent Biochemical investigations you would order on this patient
(20 marks)
- 10.2. Briefly state what precautions you would take in collecting these samples.
(10 marks)
- 10.3. How would you interpret the results of the tests you have listed?
(70 marks)

PART D

(MICROBIOLOGY)

11. Discuss a management plan (giving microbiological reasons) in the following situations
- 11.1. A pregnant mother is found to have a VDRL-R (4) result during the first trimester.
(30 marks)
- 11.2. A four-year-old boy bitten by a stray dog is found to have bite marks on face and hands
(35 marks)
- 11.3. A 30-year-old nurse had taken a course of ampicillin for a 'sore throat'. Since she had no response a throat swab was done which yielded a *Klebsiella aerogenes*
(35 marks)
12. Write short notes on infections caused by
- 12.1. *Clostridium difficile* (50 marks)
- 12.2. *Helicobacter pylori* (50 marks)

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ADMISSION TO THE POSTGRADUATE IN-SERVICE TRAINING LEADING
TO THE DIPLOMA IN PATHOLOGY
AUGUST , 2000

Date: 22nd August 2000

Time: 2.00p.m. - 4.00p.m.

Answer all questions.
Answer each part in a separate book.

PART A

ANATOMIC PATHOLOGY
(GENERAL & SYSTEMIC)

1. Describe the changes seen in the lungs and the liver in chronic venous congestion. (100 marks)
2. List the similarities and differences between Hyperplasia and Hypertrophy giving 2 examples for each condition. (100 marks)
3. Describe briefly the pathological basis of 3 clinical features seen in carcinoma of the breast. (100 marks)
4. List 5 causes of cervical lymphadenopathy (40 marks)

Describe the macroscopic and microscopic features of the lymphnode in one of these conditions. (60 marks)
5. Write short notes on:
 - (1) Carcinoid tumor (50 marks)
 - (2) Granular contracted kidney. (50 marks)
6.
 - (1) Name 3 sites where fine needle aspiration cytology is performed (30 marks)
 - (2) List the essential equipment necessary for this procedure. (40 marks)
 - (3) Give 2 advantages of performing fine needle aspiration cytology. (30 marks)

PART B
(HAEMATOLOGY)

- 7.
- 7.1 Describe the role of platelets in normal haemostasis
 - 7.2 Discuss the action of common antiplatelet drugs and their uses in clinical practice.
- 8.
- 8.1 What are the causes of red cell macrocytosis?
 - 8.2 How would you investigate a case of macrocytosis to arrive at a diagnosis?
 - 8.3 Briefly describe the management of Pernicious anemia.

PART C
(CHEMICAL PATHOLOGY)

- 9.
- 9.1 Mention
 - (A) Two biochemical tests in urine.
 - (B) Two biochemical tests in serum.
- That would indicate the presence of a malignancy in a patient.
- 9.2 Give examples of malignancies for each abnormal test.
 - 9.3 Discuss the role played by a laboratory in the diagnosis and follow up of malignancies.
10. A 12-year old school boy was admitted to the Casualty due to a three-day history of diarrhea. The serum biochemical results on admission are as follows:

Na	156m.mol/L (132 -144)
K	3.0m.mol/L (3.2 - 4.8)
HCO ₃	17m.mol/L (23 - 33)
Urea	19m.mol/L (3.0 - 8.0)
Cretonne	0.13m.mol/L (0.06 - 0.12)
Glucose	4.2m.mol/L (3.0 - 5.5)

- 10.1 How would you interpret the results?
- 10.2 Give your reasons.
- 10.3 Describe briefly the appropriate treatment, to correct the biochemical abnormalities.

PART D

(MICROBIOLOGY)

11. Describe methods you would employ to collect and transport appropriate specimens for microbiological diagnosis of following diseases.
 - (a) Bacillary dysentery
 - (b) Brain abscess
 - (c) Genital ulcers due to Herpes simplex

12. 12. A 26-yr. old female presents with fever of 14 days duration. She has a mid diastolic murmur, a palpable spleen and haematuria.
 1. What is the probable diagnosis?
 2. Name organisms, which may cause this condition.
 3. Briefly describe how you would make a microbiological diagnosis. (Including specimen collection and transport).

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ADMISSION TO THE POSTGRADUATE IN-SERVICE TRAINING
PROGRAMME LEADING TO THE DIPLOMA IN PATHOLOGY
SEPTEMBER ,2001

Date :- 6th September, 2001

Time :- 2.00 p.m .- 4.00 p.m.

Answer all questions

Answer each part in a separate book.

PART A

ANATOMIC PATHOLOGY
(GENERAL & SYSTEMIC)

Write questions 1 & 2,3 & 4 and 5 & 6 in three separate books.

1.
 - 1.1. Define necrosis (25 marks)
 - 1.2. Describe briefly with examples three different types of necrosis that occur in the body.

2.
 - 2.1. List five examples of granulomatous diseases (50 marks)
 - 2.2. Describe the microscopic appearances of two of the conditions mentioned above. (50 marks)

3.
 - 3.1. Define metaplasia (10 marks)
 - 3.2. List with examples three sites in the body where metaplasia will occur (45 marks)
 - 3.3. Enumerate three differences between metaplasia and dysplasia. (45 marks)

4.
 - 4.1. List six basic differences between benign and malignant neoplasms (60 marks)
 - 4.2. Enumerate methods by which a malignant tumour spreads in the body. (40 marks)
5. Write short notes on –
 - 5.1. Ulcerative colitis (50 marks)
 - 5.2. Amoebic colitis (50 marks)
6. A 55 year old female present with a lump in the breast
 - 6.1. List five possible causes (50 marks)
 - 6.2. Enumerate three pathological diagnostic procedures (30 marks)
 - 6.3. Briefly describe the advantages of one of the procedures mentioned above (20 marks)

PART B

7.
 - 7.1. List the causes of microcytic hypochromic anaemia. (20 marks)
 - 7.2. Discuss how serum ferritin, serum total iron binding capacity (TIBC), and serum iron help you to differentiate the causes you have listed. (40 marks)
 - 7.3. Explain briefly the pathophysiology of one of the causes you mentioned in 7.1. (40 marks)
8. A 50 year old male is admitted with shortness of breath and petechial rash on his body. His haemoglobin 4.0g/dl, White Blood Cells - 3,000/cumm, Platelet 38,000
 - 8.1. List four possible causes for the above clinical features. (20 marks)
 - 8.2. Discuss in detail the laboratory investigations that you would select to help you to arrive at a diagnosis. (50 marks)
 - 8.3. Briefly discuss the aetiology of one of the causes you mentioned in 8.1. (30 marks)

PART C

Chemical Pathology

9.
 - 9.1. What is Multiple Myeloma ?
 - 9.2. Briefly describe three relevant biochemical tests done in a patient with multiple myeloma (Comment on the specimen type, principle of tests where relevant and interpretation)
 - 9.3. How do you confirm the diagnosis ?

10. A 32 year old male referred by the Family Physician presented at the hospital medical clinic with giddiness and headache. He has had several moderately elevated blood pressure recordings.

Describe in brief the biochemical tests you would request to find out the aetiology of hypertension in this patient, giving reasons.

PART D

11.
 - (a) Explain briefly the steps you would take to confirm the diagnosis of enteric infection caused by two common bacterial pathogens.
 - (b) “Acute meningitis is a microbiological emergency”. Explain why ? Outline the actions taken in the first hour after admitting a patient suspected of meningitis.

12. Discuss diagnosis and plan a management strategy in the following clinical situations.
 - (a) a nurse has a needle stick injury while attending on a patient who has Hepatitis B
 - (b) 25 year old female who has mitral valve prolapse has continued fever.

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QUALIFYING EXAMINATION FOR SELECTION OF CANDIDATES FOR
ADMISSION TO THE POSTGRADUATE IN-SERVICE
TRAINING PROGRAMME LEADING TO THE DIPLOMA IN PATHOLOGY
AUGUST , 2002

Date :- 20th August, 2002

Time :- 2.00 p.m .- 4.00 p.m.

Answer all questions

Answer each part in a separate book.

Write questions 1 & 2,3 & 4 and 5 & 6 in three separate books.

PART A

ANATOMIC PATHOLOGY
(GENERAL & SYSTEMIC)

1.
 - 1.1. List three causes of a lump in the breast (40 marks)
 - 1.2. Describe the macroscopic and microscopic features of the above. (60 marks)

2.
 - 2.1. Name five (05) types of colonic polyps (50 marks)
 - 2.2. Describe the macroscopy and microscopy of one of them (50 marks)

3.
 - 3.1. What is an oncogenic virus ? (20 marks)
 - 3.2. Name three (03) oncogenic DNA viruses (40 marks)
 - 3.3. Give one example of a tumor caused by each of the virus mentioned in 3.2. (40 marks)

4. Write a note on granulation tissue. (100 marks)
- 5.
- 5.1 How do you classify ovarian tumors ? (50 marks)
- 5.2 Write a short essay on the Dermoid cyst of the ovary (50 marks)
6. Write short notes on ,
- 6.1 Dystrophic calcification (30 marks)
- 6.2 Pap smear (30 marks)
- 6.3 Pheochromocytoma (40 marks)

PART B

(HAEMA TOLOGY)

- 7.
- 7.1 List the laboratory investigations that would be useful in the confirmation of haemolytic anaemia giving the expected results. (40 marks)
- 7.2 What are the likely causes of haemolytic anaemia and indicate the laboratory tests necessary for the diagnosis of each condition. (60 marks)
- 8.
- 8.1 List the aetiological causes of aplastic anaemia (20 marks)
- 8.2 What investigations needed to diagnose aplastic anaemia (40 marks)
- 8.3 Outline important clinical points in the history and examination in a patient with aplastic anaemia (40 marks)

PART C

(CHEMICAL PATHOLOGY)

- 9.
- 9.1. Discuss the endocrine investigation of suspected thyroid dysfunction. giving reasons. How would you interpret the results ? (50 marks)
- 9.2. Mention the relevant chemical pathological investigations that should be available in the lab, for the efficient post-operative management, and follow up of a patient undergoing total thyroidectomy, for follicular carcinoma of thyroid. Give reasons for your choice of tests. (50 marks)
10. A 32 year old lady, 28 weeks pregnant pays her first visit to the antenatal clinic at the M.O.H. Office. A random urine sample is positive for reduct... substances.
- 10.1 Name the possible causes for this observation. (30 marks)
- 10.2 Discuss the biochemical investigations you would request to arrive at a diagnosis. Give your reasons. (70 marks)

PART D

(MICROBIOLOGY)

11. Explain the following laboratory findings :-
- 11.1. A 35 year old male who had a primary chancre treated with benzathine penicillin had serological findings of VDRL - non reactive and FTA -ABS positive, 2 weeks after therapy. (30 marks)
- 11.2. A 25 year old pharmacist who treated herself with a 10 day course of amoxycillin, had *Klebsiella aerogenes* cultured from her throat after antibiotics were stopped. (30 marks)
- 11.3. A 30 year old lady with dysuria -- frequency - nocturia had no bacterial growth in her urine. (40 marks)
- 12.
- 12.1. Describe the modes by which microorganisms cause human infection (50 marks)
- 12.2. What are the specific features of infections caused by gram negative rods ? (50 marks)

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QUALIFYING EXAMINATION FOR SELECTION OF CANDIDATES FOR
ADMISSION TO THE POSTGRADUATE IN-SERVICE
TRAINING PROGRAMME LEADING TO THE DIPLOMA IN PATHOLOGY
SEPTEMBER , 2003

Date :- 17th September, 2003

Time :-2.00 p.m .- 4.00 p.m.

Answer all questions. Each question in a separate book.
Answer each part in a separate book.

PART A

ANATOMIC PATHOLOGY
(GENERAL & SYSTEMIC)

1.
 - 1.1. Define grading and staging in malignancy giving examples. (50 marks)
 - 1.2. Enumerate 5 other factors which are important in the prognosis of a malignant tumour. Give examples for each. (50 marks)
2.
 - 2.1. List the possible causes for haematemesis in an alcoholic patient. (40 marks)
 - 2.2. Explain the pathological basis of one of the causes mentioned in 2.1. (60 marks)
3. Describe the pathological basis of the cardinal features of acute inflammation. (100 marks)
4.
 - 4.1. Define thrombosis. (20 marks)
 - 4.2. Describe the possible sequelae of a thrombus occurring in a deep vein of the leg (80 marks)

- 5.
- 5.1 Define amyloidosis. (10 marks)
- 5.2 Name two special stains used to detect amyloid in tissue sections. (20 marks)
- 5.3 List two clinical effects of renal amyloidosis and describe briefly the underlying pathology of each of these. (70 marks)
- 6.
- 6.1 List three causes of unilateral testicular enlargement in an adult male. (30 marks)
- 6.2 Describe the macroscopic and microscopic features of one of the conditions mentioned in (6.1). (70 marks)

PART B

HAEMATOLOGY

7. A man was brought to the accident service following a road traffic accident. His
- (i) extremities were cold and clammy
 - (ii) Hb was 4.0g/dl
 - (iii) Blood pressure 70/40 mmHg
- He was transfused 4 units of packed red cells.
- (iv) Soon after the blood transfusions he developed chills and rigors and passed dark coloured urine.
- 7.1. Explain the pathophysiology of (i) (ii) (iii) and (iv). (60 marks)
- 7.2. List the investigations you would do to confirm the pathophysiology explained in (iv). (40 marks)
- 8.
- 8.1. Outline the classification of anaemias. (60 marks)
- 8.2. List the investigations you would request for a macrocytic anaemia with a normal reticulocyte count. (40 marks)

PART C
CHEMICAL PATHOLOGY

- 9.
- 9.1 What are the causes of iron overload ? (25 marks)
 - 9.2 How do you demonstrate bone marrow iron ? (10 marks)
 - 9.3 Discuss other laboratory tests that will help to arrive at a diagnosis of iron overload. (Include the expected abnormality of the tests you mention.) (35 marks)
 - 9.4 Mention two types of treatment offered to patients with iron overload. (20 marks)
 - 9.5 What is the most useful test to monitor adequacy of therapy for iron overload ? (10 marks)
10. CSF was collected into 3 tubes from a 75 year-old unconscious patient. All 3 tubes were evenly blood stained.
- Analysis of the CSF showed the following results.
- WBC count 250/ul
DC - N-68%, M-03%, L-28%, E-1%.
Glucose 170mg/dl (45 -70)
Protein 150 mg/dl (15 - 45)
Gram stain - No organisms seen.
- 10.1. What is the probable diagnosis indicated by these results ? (20 marks)
 - 10.2. What is the significance of the WBC and DC results ? (20 marks)
 - 10.3. How do you interpret the CSF proteins in this patient ? (20 marks)
 - 10.4. What other test is needed to interpret the CSF glucose result ?
What are the possible reasons for the observed CSF glucose value in this patient ? (30 marks)
 - 10.5. If the tubes showed blood staining in the first tube with gradual clearing of blood in the second and third tubes, what is the most likely explanation ? (10 marks)

PART D

MICROBIOLOGY

11. Write short notes on
 - 11.1. Severe Acute Respiratory Syndrome (SARS)
 - 11.2. Diagnostic tests in AIDS

12. Discuss the diagnostic tests and interpretation of results in a patient suspected to have
 12. 1. syphilis
 - 12.2. enteric fever

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QUALIFYING EXAMINATION FOR SELECTION OF CANDIDATES FOR
ADMISSION TO THE POSTGRADUATE IN-SERVICE
TRAINING PROGRAMME LEADING TO THE DIPLOMA IN PATHOLOGY
AUGUST , 2004

Date: 3rd August, 2004

Time: 2.00 p.m. - 4.00 p.m.

Answer all questions.

Answer each question in a separate book.

PART A

ANATOMIC PATHOLOGY
(GENERAL & SYSTEMIC)

1. Write an essay on Atheroma. (100 marks)
2.
 - 2.1 List the different types of intracranial haemorrhage (20 marks)
 - 2.2 Describe one of the conditions mentioned in (2.1). (80 marks)
3. Discuss with examples, the differences between a transudate and exudate. (100 marks)
4. Write short notes on
 - 4.1 Fat embolism (50 marks)
 - 4.2 Alcoholic liver disease. (50 marks)
5. Describe the endometrial causes of abnormal vaginal bleeding in a 45 year old female. (100 marks)
6. Describe the pathological changes that occur in the healing of an infected skin wound. (100 marks)

PART B

HAEMATOLOGY

7. A patient receiving a packed cell transfusion complains of pain along the drip line in the arm, severe loin pain and difficulty in breathing.
- 7.1. State the immediate steps you will take to attend to this problem. (20 marks)
- 7.2. List the vital signs and symptoms you will monitor in this patient. (20 marks)
- 7.3. List the laboratory investigations you will request to confirm your diagnosis and identify possible complications. (20 marks)
- 7.4. Briefly. discuss the principles of management of this patient. (40 marks)
8. A 52 year old man with a massive splenomegaly was admitted to your ward for investigations.
- 8.1. List five (5) causes of massive splenomegaly. (25 marks)
- 8.2. Select one of the causes you have mentioned in (8.1) and state the steps you would take to arrive at a diagnosis (history, clinical findings, investigations) (45 marks)
- 8.3. State the complications of massive splenomegaly. (30 marks)

PART C

CHEMICAL PATHOLOGY

- 9.
- 9.1. How is potassium distributed in the intra and extracellular compartments ? (15 marks)
- 9.2. How does the body maintain a normal plasma potassium level ? (20 marks)
- 9.3. A patient's plasma potassium report shows a high value. Discuss the possible causes for this observation. (55 marks)
- 9.4. Mention one clinical condition where both plasma bicarbonate and potassium are decreased. (10 marks)

10. Give a brief account of the biochemical investigations that would be useful in the diagnosis and management of an adult patient suspected of having Diabetes mellitus.

(The answer should include patient preparation, specimen collection, diagnostic criteria and interpretation of the test results where relevant).

(100 marks)

PART D

MICROBIOLOGY

11. Discuss the interpretation of the following reports and suggest further investigations (if needed) to arrive at a final diagnosis.

11.1 Staphylococcus epidermidis (coagulase negative) isolated from the blood culture of a patient having fever after abdominal surgery.

(25 marks)

11.2. 25 year old male with dysuria, frequency and nocturia has cloudy urine and pus cells are seen under the microscope.

(25 marks)

11.3. 60 years old patient with aortic incompetence has following serological test results.

(25 marks)

VDRL - non reactive

TPHA - positive

11.4 17 year old student having fever has Salmonella typhi H antibody titre of 1 in 100.

(25 marks)

12. Write short notes on :

12.1 Dengue fever

(50 marks)

12.2 Isolation of patients to prevent transmission of infections. (50 marks)

POSTGRADUATE INSTITUTE OF MEDICINE
UNIVERSITY OF COLOMBO

SELECTION TEST FOR ADMISSION TO THE INSERVICE TRAINING
PROGRAMME IN PATHOLOGY
AUGUST , 2005

Date: 9th August 2005

Time: 2.00 p.m.- 4.00 p.m.

Answer all questions.

Answer each question in a separate book.

PART A

ANATOMIC PATHOLOGY
(GENERAL & SYSTEMIC)

1. Briefly discuss the differences between ,
 - 1.1. metaplasia and dysplasia (30 marks)
 - 1.2. hyperplasia and hypertrophy (30 marks)
 - 1.3. apoptosis and necrosis (40 marks)

2. Write short notes on ,
 - 2.1. cardiac vegetations (50 marks)
 - 2.2. the role of initiators and promoters in carcinogenesis (50 marks)

3.
 - 3.1. List three causes of thyroid enlargement. (30 marks)
 - 3.2. Briefly describe the macroscopic and microscopic appearances of two causes you have mentioned in 3.1 (70 marks)

4.
 - 4.1. Outline the morphological differences between primary and post primary pulmonary tuberculosis (60 marks)
 - 4.2. Briefly explain the pathological basis of the above differences. (40 marks)

5. A 60 year old male presented with passage of blood and mucous with stools of six months duration.
- 5.1 List three possible causes (30 marks)
- 5.2 Briefly describe the macroscopic and microscopic features of one of the causes mentioned in 5.1 (70 marks)
- 6.
- 6.1 A 10 year old girl presented with features of nephrotic syndrome. Her renal biopsy shows glomeruli with normal histological appearance under the light microscope.
What is your diagnosis ? (20 marks)
- 6.2 List three types of glomerulopathies that can present with nephrotic syndrome. (30 marks)
- 6.3 Briefly describe the microscopic appearance of one of the causes mentioned in 6.2 (50 marks)

PART B

HAEMATOLOGY

- 7.
- 7.1. List the differential diagnoses of hypochromic microcytic anaemia. (20 marks)
- 7.2. List the laboratory investigations that are indicated in the diagnosis giving expected changes in each of the conditions mentioned in 7.1 (80 marks)
8. A 2 year old male patient presented with left knee joint swelling which is tender and warm.
- 8.1 Give the differential diagnoses for above condition. (20 marks)
- 8.2 What are the important findings in the history and examination ? (20 marks)
- 8.3 List the relevant investigations and their expected changes in each of the conditions you mentioned in 8.1 (40 marks)
- 8.4 What advice would you like to give his mother ? (20 marks)

PART C

CHEMICAL PATHOLOGY

9. A 7 year old male child, was admitted to the Accident & Emergency unit in a drowsy state. He was treated by a General Practitioner, 3 days ago for a brief illness of fever, cough and a cold of 2 days duration.

9.1 List the possible causes of this patient's clinical presentation. (30 marks)

9.2 Describe in brief the biochemical tests, you would request in the management of this patient, giving reasons. (70 marks)

10.

10.1 Discuss briefly the biochemical investigations you would request to assess the Glomerular Filtration Rate in an adult. (Comment on the advantages and disadvantages of the tests and sample collection, where relevant.) (50 marks)

10.2 A 50. year old female patient who consumed oral anti-inflammatory Drugs for more than 6 years for osteoarthritis, was admitted to a medical ward.

The serum biochemical results on admission are as follows.

Na	138 mmol/L	(135 - 145)
K	5.6 mmol/L	(3.5 - 5.0)
Urea	16 mmol/L	(3.0 - 8.0)
Creatinine	1.0 mmol/L	(0.06 - 0.12)
Calcium	1.69 mmol/L	(2.15 – 2.55)
Phosphate	2.5 mmol/L	(0.60 – 1.25)

a) What is the most likely diagnosis of this patient ? (08 marks)

b) What is the most probable cause for the diagnosis ? (04 marks)

c) Name one biochemical investigation you would request to establish the diagnosis. (08 marks)

d) How do you explain her serum calcium level ? (20 marks)

e) Name two other causes of hyperkalaemia. (10 marks)

PART – D

MICROBIOLOGY

11. A baby who is six months old was presented with fever, irritability, refusal of feeds and vomiting of 2 days duration. On examination the baby appears very ill and lethargic and had a bulging fontanelle. Meningitis was suspected.
- 11.1 List the probable aetiological agents in this baby's condition. (20 marks)
- 11.2 Discuss the microbiological basis of diagnosis and treatment of this patient. (40 marks)
- 11.3 Discuss the role of vaccines available to prevent meningitis in children. (40 marks)
12. Discuss with examples the advantages and disadvantages of combination antibiotic therapy. (100 marks)

POSTGRADUATE INSTITUTE OF MEDICINE
UNIVERSITY OF COLOMBO

SELECTION EXAMINATION FOR DIPLOMA IN PATHOLOGY
AUGUST , 2006

Date: 8th August 2006

Time: 1.30 p.m.- 3.30 p.m.

Answer all questions.

Answer each question in a separate book.

PART A

ANATOMICAL PATHOLOGY
(GENERAL & SYSTEMIC)

1. Explain the pathological basis of the following
 - 1.1. Development of adenocarcinoma at the lower end of the oesophagus. (40 marks)
 - 1.2. Cerebral infarction in a patient who had a myocardial infarction. (60 marks)
2. Write an account on the contribution of the pathology laboratory in the diagnosis of malignant disease. (100 marks)
3. Write short notes on
 - 3.1. Adult respiratory Distress Syndrome (60 marks)
 - 3.2. Primary biliary cirrhosis (40 marks)
4. Describe the following
 - 4.1. Pathological changes of the heart in acute rheumatic carditis (50 marks)
 - 4.2. Macroscopic appearance of the heart in rheumatic mitral stenosis. (50 marks)
5. A 60 year old man with longstanding bronchiectasis presented to a medical ward With progressive renal failure.

Microscopic examination of the renal biopsy showed extensive extracellular pink Amorphous material on H & E staining. This material demonstrated an orange red Colour with congo red stain.

- 5.1. State the most likely diagnosis giving reasons. (20 marks)
 - 5.2. Classify the above condition giving examples under each type. (50 marks)
 - 5.3. Briefly describe the macroscopic appearance of spleen in the condition you have mentioned in 5.1. (30 marks)
- 6.
- 6.1 Define oedema. (20 marks)
 - 6.2 Discuss the pathogenesis of oedema. (80 marks)

PART B

HAEMATOLOGY

- 7.
- 7.1. List five causes of macrocytosis including one physiological cause. (20 marks)
 - 7.2. List the laboratory investigations and expected findings in a 65 year old strict vegetarian, presented with Hb of 5g/dl and normal serum ferritin level. (65 marks)
 - 7.3. Name two other red cell changes in the blood film, in which MCV is more than 100 fl. (15 marks)
8. A 10 year old boy presented with echymotic patches.
- 8.1. Give three differential diagnoses for the above condition (30 marks)
 - 8.2. What are the important informations you would gather from the history and clinical examination. (10 marks)
 - 8.3. List the investigations with expected findings, in each of the above Conditions. (60 marks)

PART C

CHEMICAL PATHOLOGY

9. A 28-year-old female garment factory worker presented at the Out Patients' Department with abdominal pain of three hours duration. She had been in apparent good health prior to this illness.
- 9.1. List the possible causes for her presentation. (40 marks)
- 9.2. Mention possible tests (preferably biochemical) that can be performed on a sample of **urine** which will help to diagnose the conditions you have listed.
(Please indicate the abnormality expected in each condition.) (60 marks)
10. A 35-year-old male presented to a medical clinic with a history of polyuria.
- 10.1. List the possible causes, indicating the pathogenic process leading to Polyuria, in each condition. (50 marks)
- 10.2. Discuss the **biochemical tests** you would request on this patient, indicating how you would use the results to arrive at a diagnosis. (50 marks)

PART D

MICROBIOLOGY

11. A 60 year old man had a cough with purulent sputum. He has not had any hospital admission to date. 3 – 4 days after his cough he developed fever of 102⁰F and had difficulty in breathing. He was admitted to hospital and the chest X-ray revealed bilateral opacities.
- 11.1. What is the diagnosis ? (10 marks)
- 11.2. What aetiological agents could account for his diagnosis ? (20 marks)
- 11.3. Describe the microbiological investigations (including collection and transport) you would perform to arrive at a aetiological diagnosis. (40 marks)
- 11.4. What antimicrobial agents would you consider (giving reasons for your choice) to treat him ? (30 marks)

12. A 65 year old hospitalized diabetic patient who has been on an indwelling urinary catheter for last 2 weeks developed fever.
- 12.1 What are the predisposing factors for urinary tract infection (UTI) in this patient ? (20 marks)
- 12.2 List three probable organisms which can cause UTI in this patient. (15 marks)
- 12.3 Describe how you would collect and transport a specimen of urine from him for culture. (50 marks)
- 12.3 Enumerate three measures that would be practiced to prevent urinary tract infections in catheterized patients. (15 marks)

POSTGRADUATE INSTITUTE OF MEDICINE
UNIVERSITY OF COLOMBO

SELECTION EXAMINATION FOR DIPLOMA IN PATHOLOGY
AUGUST, 2007

Date: 21st August 2007

Time: 1.30 p.m. to 3.30 p.m.

Answer all questions.

Answer each question in a separate book.

PART A

ANATOMICAL PATHOLOGY (GENERAL & SYSTEMIC)

1. Discuss the pathogenesis of shock. (100 marks)
2. Discuss viral carcinogenesis with examples. (100 marks)
3. Write notes on
 - 3.1 Paraneoplastic syndrome (50 marks)
 - 3.2 Dilated Cardiomyopathy (50 marks)
4. A 20-year-old male presented with an enlarged lymph node in the neck.
 - 4.1 List four (04) possible causes. (20 marks)
 - 4.2 Mention two (02) histopathological investigations you would like to perform on this patient. (10 marks)
 - 4.3 Briefly describe the microscopic features of two (02) of the conditions mentioned under 4.1 (70 marks)
5.
 - 5.1 Define cirrhosis. (10 marks)
 - 5.2 List the aetiological causes of cirrhosis. (20 marks)
 - 5.3 Briefly describe the pathogenesis of **one** of the above mentioned causes. (30 marks)
 - 5.4 Describe the pathology (macroscopy and microscopy) of the condition mentioned in 5.3 (40 marks)

6. A 47-year-old woman presented with abnormal vaginal bleeding.
- 6.1 List five possible (05) causes. (20 marks)
- 6.2 Describe the macroscopic and microscopic appearances of one of the causes you mentioned in 6.1. (50 marks)
- 6.3 Describe how you would transport gynaecological specimens to a histopathology laboratory. (30 marks)

PART B

HAEMATOLOGY

7. A 22-year-old girl presented with fever on and off for 2 weeks, body aches and pains.
- On examination, she was found to be pale and icteric, with mild splenomegaly.
- 7.1 What are the possible causes ? (20 marks)
- 7.2 List laboratory investigations you would request to arrive at a diagnosis. (20 marks)
- 7.3 What are the expected laboratory results in each of the conditions you mentioned under 7.1 ? (60 marks)
8. A 70-year-old male presented with backache, anaemia and high ESR.
- 8.1 What are the possible causes ? (24 marks)
- 8.2 On further investigations, x-rays revealed lytic lesions and serum protein electrophoresis showed a dense monoclonal band in the gamma region. What is the most appropriate diagnosis from the list you mentioned in 8.1 ? (06 marks)
- 8.3 Discuss further investigations, giving the expected results and explain the pathophysiology of bone lesions in this condition. (70 marks)

PART C
CHEMICAL PATHOLOGY

9. An eight-year-old child was referred to a paediatric ward with a family history of iron overload.
- 9.1 What is the difference between primary and secondary iron overload ?
Mention one disease as example for each type. (20 marks)
- 9.2 Discuss the interpretation of laboratory tests that will help to establish the presence of iron overload in the diseases you have mentioned above. (Comment on sample collection where relevant) (50 marks)
- 9.3 What are the long-term complications of iron overload ? (30 marks)
10. Discuss briefly the interpretation of the following results and **list** further chemical pathology investigations **in serum** (if needed) to arrive at a final diagnosis.
- 10.1 A 34-year-old male:
Fasting plasma glucose = 6.5 mmol/L (117 mg/dl) (25 marks)
- 10.2 A 55-year-old female:
Serum total cholesterol = 7.25 mmol/L (280 mg/dl)
Thyroid Stimulating Hormone (TSH) = 40 μ IU/ml (Ref. range 0.4-4.0) (25 marks)
- 10.3 A 12-year-old girl passing dark urine:
Urine for bile = Positive (25 marks)
- 10.4 A 57-year-old male with chest pain:
Serum aspartate transaminase = 88 U/L (Ref. range <35) (25 marks)

PART D
MICROBIOLOGY

11. A 30-year-old male presented to the STD clinic with urethral discharge for the last 5 days. The discharge is mucopurulent. He gave a history of sexual contact with a commercial sex worker.
- 11.1 What are the possible aetiological agents for urethritis ? (20 marks)
- 11.2 Briefly describe the microbiological investigations you would do. (30 marks)
- 11.3 List the complications of urethritis. (30 marks)
- 11.4 What is the microbiological basis of treatment of this patient ? (20 marks)
12. Discuss the microbiological investigations indicated and comment on the collection and dispatch of samples for the testis you have mentioned in each of the following conditions.
- 12.1 A 40-year-old female presented with fever of two weeks duration, loss of appetite, and loss of weight and had a systolic murmur in the mitral area. (35 marks)
- 12.2 A 30-year-old febrile male presented with a tender swelling over the dorsum of right foot with surrounding redness. (35 marks)
- 12.2 A 60-year-old male toddy drinker presented with loose stools of two weeks duration. (30 marks)

POSTGRADUATE INSTITUTE OF MEDICINE
UNIVERSITY OF COLOMBO

SELECTION EXAMINATION FOR ADMISSION TO THE TRAINING
PROGRAMME LEADING TO POSTGRADUATE DIPLOMA IN PATHOLOGY
SEPTEMBER 2008

Date: 4th September 2008

Time : 1.00 p.m. - 3.00 p.m.

Answer all questions.

Answer each question in a separate book.

All questions carry equal marks.

1.
 - 1.1. Describe briefly the molecular mechanism of tumour invasion and metastases. (60 marks)
 - 1.2. Name the Germ cell tumours of the ovary. (15 marks)
 - 1.3. Describe the macroscopic and microscopic features of one of these Germ cell tumours. (25 marks)

2. A 68 year old female diabetic patient presents with a non-healing chronic ulcer in the left foot.
 - 2.1. Describe briefly the reasons for poor healing of this ulcer. (30 marks)
 - 2.2. Describe briefly the macroscopic and microscopic features that are likely to be found in this patient's.
 - 2.2.1. heart (35 marks)
 - 2.2.2. kidney (35 marks)

3.
 - 3.1. Briefly describe the pathogenesis of disseminated intravascular coagulation. (30 marks)
 - 3.2. Outline the investigations to diagnose disseminated intravascular coagulation. (20 marks)
 - 3.3. List the steps a medical officer should focus on, from the time a unit of red cell concentrate is issued to a patient from the Blood Bank until the transfusion is completed. (50 marks)

4. Discuss the Chemical Pathology (biochemistry) investigations recommended for the
 - diagnosis
 - monitoring and
 - management of complications of diabetes mellitus.Comment on specimen collection and interpretation where relevant.

(100 marks)

POSTGRADUATE INSTITUTE OF MEDICINE
UNIVERSITY OF COLOMBO

SELECTION EXAMINATION FOR ADMISSION TO THE
TRAINING PROGRAMME LEADING TO POSTGRADUATE
DIPLOMA IN PATHOLOGY
SEPTEMBER 2009

Date : 10th September 2009

Time : 1.00 p.m. – 3.00 p.m.

Answer all questions.

Answer each question in a separate book

All questions carry equal marks.

1. A 30-year-old woman was diagnosed as having invasive ductal carcinoma of the breast. Her mother and grandmother died of breast cancer at the age of 45 and 55 years respectively.
 - 1.1. Discuss the generic basis of breast cancer in this patient. (40 marks)
 - 1.2. This patient's younger sister also presents with a breast lump. Discuss the advantages and disadvantages of different types of investigations that can be done for diagnosis of this lump. (60 marks)

2. A 50-year-old man who was admitted to hospital with severe retrosternal chest pain was diagnosed as having an anterior myocardial infarction. Five days after admission, he died after developing sudden chest pain and breathlessness.
 - 2.1. What are the possible causes for his death ? (20 marks)
 - 2.2. Describe the macroscopic post-mortem findings that would help you to diagnose the different causes that you mentioned in 2.1. (80 marks)

3. A 23-year-old woman presents in her 4th month of pregnancy (P₂C₁), with shortness of breath. No abnormality was detected on physical examination except for pallor.

Hb	7.4 g/dl	
HCT	24.3 %	
MCV	70.3 fl	
MCH	21.4 pg	
MCHC	30.5 g/dl	
RDW	16 %	
RBC	$3.45 \times 10^{12}/l$	
Platelets	$430 \times 10^9/l$	
Serum ferritin	10 μ g/l	(15 – 200)
TIBC	100 μ mol/l	(45 – 70)
% Saturation	9 %	

Hb electrophoresis

HbA	96.2 %
HbA ₂	3.0 %
HbF	0.8 %

- 3.1. What is the likely diagnosis in this patient ? Explain your answer. (40 marks)
- 3.2. Outline the management of anaemia in this patient (20 marks)
- 3.2. At term she is found to have a Hb of 8 g/dl. The obstetrician decided to transfuse her prior to delivery
What are the steps involved in avoiding a wrong unit of blood being transfused to this patient ? (40 marks)

4. (A)
- 4.1. Discuss the factors which contribute to the formation of renal stones. (20 marks)
- 4.2. Categorise the renal stones according to their chemical constituents. (15 marks)
- 4.3. Name the laboratory investigations that would be appropriate in the diagnosis and management of a patient having renal stones. Give the reason for requesting and the expected abnormality, in each test. (25 marks)

(B)

A 50-year-old male was admitted in a semiconscious state to the emergency treatment unit. There was no history of trauma.

The arterial blood gas analysis report of this patient on admission is given below-

pH	7.28	(7.35 – 7.45)
pO ₂	100 mmHg	(80 – 110)
pCO ₂	26 mmHg	(35 – 45)
HCO ₃ ⁻	14 mmol/L	(24 – 32)

- 4.4. Interpret the arterial blood gas analysis report. (08 marks)
- 4.5. List three possible causes for the above findings in this patient. (12 marks)
- 4.6. Discuss what further biochemical investigations you would do to confirm / exclude the diagnosis of each of the conditions you have mentioned in 4.5. (20 marks)

POSTGRADUATE INSTITUTE OF MEDICINE
UNIVERSITY OF COLOMBO

SELECTION EXAMINATION FOR ADMISSION TO THE
TRAINING PROGRAMME LEADING TO POSTGRADUATE
DIPLOMA IN PATHOLOGY
SEPTEMBER 2010

Date : 21st September 2010

Time : 1.00 p.m. – 3.00 p.m.

Answer all questions.

Answer each question in a separate book.

All questions carry equal marks.

1. Explain the pathological basis of the following.
 - 1.1. Haematuria in a patient with infective endocarditis. (35 marks)
 - 1.2. Myocardial fibrosis in a patient with longstanding untreated hypertension. (25 marks)
 - 1.3. Compression fracture of a lumbar vertebra in a patient who has a solitary thyroid nodule. (40 marks)

2. A 50 year-old male presented with dry cough and haemoptysis of three months duration. On examination he was found to have Cushing syndrome. The chest x ray revealed an opacity in the right lung.
 - 2.1. What is the most likely diagnosis ? (10 marks)
 - 2.2. List the different types of samples that can be taken to diagnose his lung lesion. (20 marks)
 - 2.3. Describe how you would collect and transport the above specimens. Include the measures taken to ensure that the optimum results are obtained from the listed specimens. (30 marks)
 - 2.4. Describe the macroscopic appearances of the thorax in this patient. (40 marks)

3. A 15 year-old girl is referred to you with a history of menorrhagia. She also gives a history of easy bruising.

- 3.1. List three (03) relevant information you would obtain from the history of this patient. (15 marks)

On examination she was found to be pale and dyspnoeic. A full blood count was performed.

Hb	5.0 g/dL
RBC	$2.1 \times 10^{12}/L$
MCV	70 fl
MCH	20 pg
MCHC	29 g/dL
RDW	20%.
Platelet count	$456,000/mm^3$
WBC	$6000/mm^3$

- 3.2 What is the most likely cause for her anaemia ? (10 marks)
- 3.3. List five (05) investigations you would do to confirm your answer in 3.2 ? State the expected finding for each investigation you mention. (20 marks)

Two units of packed red cells were transfused. Halfway through the second pack she developed a rigor and fever of 39°C.

- 3.4. List three (03) possible causes for this reaction. (15 marks)
- 3.5. What broad groups of investigations are relevant in investigating this reaction ? (20 marks)

She was followed up at the haematology clinic and her anaemia was managed appropriately. She continued to have menorrhagia and bruising.

- 3.6. List five (05) investigations you would do to establish the cause for her bleeding tendency. State the expected findings for the investigations that you mention. (20 marks)

4. (A)

A patient's serum potassium level was found to be above the given reference range.

- 4.1. Discuss the possible causes and the measures you would take to arrive at the root cause, including further investigations where applicable. (75 marks)

(B)

A 46 year old female had a creatinine clearance done.

Serum creatinine	80 $\mu\text{mol/L}$	(60 -120)
Urine creatinine	7.2 mmol/L	
24 hour urine volume	480 ml	

- 4.2. Calculate the creatinine clearance. (10 marks)
- 4.3. Comment on your results. (08 marks)
- 4.4. Mention one (01) method for estimating the glomerular filtration rate using the available information. (04 marks)
- 4.5. State the main drawback in applying the method mentioned in 4.4, to Sri Lanka. (03 marks)

POSTGRADUATE INSTITUTE OF MEDICINE
UNIVERSITY OF COLOMBO

SELECTION EXAMINATION FOR ENROLEMENT TO THE IN-
SERVICE TRAINING PROGRAMME IN POSTGRADUATE
DIPLOMA IN PATHOLOGY
SEPTEMBER 2011

Date : 21st September 2011

Time : 1.00 p.m. – 3.00 p.m.

Answer all questions.

Answer each question in a separate book.

All questions carry equal marks.

PART A

ANATOMICAL PATHOLOGY (GENERAL & SYSTEMIC)

1.
 - 1.1. Briefly describe the pathological basis of fat embolism syndrome. (35 marks)
 - 1.2. Describe the steps involved in angiogenesis, highlighting its importance in different pathological processes. (35 marks)
 - 1.3. Write notes on the aetiology and pathogenesis of colorectal adenocarcinoma, with reference to its genetic alterations. (30 marks)

2.
 - 2.1. Briefly describe the pathogenesis of alcoholic liver disease. (35 marks)
 - 2.2. List the possible causes of perimenopausal bleeding, briefly describing the pathological features of two (02) conditions mentioned. (30 marks)
 - 2.3. Briefly explain the aetiology and pathogenesis of infections of the central nervous system. (35 marks)

PART B

HAEMATOLOGY

- 3.
- 3.1.
- 3.1.1. List causes of acquired polycythaemia. (10 marks)
- 3.1.2. State five (05) laboratory investigations which are useful to differentiate primary, secondary and spurious polycythaemia. (15 marks)
- 3.2.
- 3.2.1. Mention the four (04) most probable causes for the following laboratory findings in a 60-year-old previously healthy male with fever. (10 marks)
- | | |
|--------------------|-------------------------------|
| Hb | 4.1 g/dl |
| WBC/DC | 1.1 x 10 ⁹ /L |
| | N – 10%, L– 82%, E– 5%, M– 3% |
| Platelet count | 15 x 10 ⁹ /L |
| Reticulocyte Count | 0.2% |
- 3.2.2. Briefly discuss how you would investigate this patient. (15 marks)
- 3.2.3. Mention specific requirements of transfusion support in this patient. (20 marks)
- 3.3. A 50-year-old man with excessive post operative bleeding following herniotomy was referred to the Haematologist. All the possible surgical causes were excluded.
- 3.3.1. State four (04) relevant information you would get from the patient. (10 marks)
- 3.3.2. List four (04) investigations done to arrive at a diagnosis giving reasons. (20 marks)

PART C

CHEMICAL PATHOLOGY

4.

4.1. A 32-year-old female presents with a blood pressure of 170/100 mmHg.
List the possible causes of hypertension in this patient and discuss the biochemical investigations that would help to arrive at a definitive diagnosis. (75 marks)

4.2. Comment on the following biochemical test results and suggest further biochemical tests where relevant.

4.2.1. A 2-year-old boy (05 marks)

Urine
Glucose : negative
Ketone bodies positive

4.2.2. A 50-year old male (10 marks)

Serum
Total protein 96 g/L (60 – 80)
Albumin 32 g/L (35 – 48)
Uric Acid 0.56 mmol/L (0.19 – 0.44)

4.2.3. A 38-year-old female (10 marks)

Serum
Total cholesterol 6.1 mmol/L (3.6 – 6.2)
Triglyceride 5.8 mmol/L (0.4 – 1.8)