

**POSTGRADUATE INSTITUTE OF MEDICINE**  
**UNIVERSITY OF COLOMBO**

**SELECTION EXAMINATION IN MD (ORAL SURGERY)**  
**OCTOBER 2009**

Date : 5<sup>th</sup> October 2009

Time : 2.00 p.m. – 5.00p.m.

**PAPER 1.1**

**Answer three (03) questions from each part.**

**Answer each question in a separate book.**

**Part A (General Anatomy)**

1.
  - 1.1. Describe the investing layer of the deep cervical fascia. (70 marks)
  - 1.2. State the relations of the internal carotid artery at its origin. (30 marks)
  
2.
  - 2.1. Enumerate the functional components of the facial nerve. (15 marks)
  - 2.2. Describe its intracranial course. (60 marks)
  - 2.3. Explain the clinical features of a lesion in the facial canal. (25 marks)
  
3.
  - 3.1. Describe the arrangement of lymphnodes in the region of head and neck. (60 marks)
  - 3.2. Explain the possible pattern/s of lymphatic spread in malignancies at the following sites :
    - 3.2.1. Posterior one third of the tongue (20 marks)
    - 3.2.2. maxillary sinus (20 marks)

4.
  - 4.1. Describe the arrangement of the veins in the face. (60 marks)
  - 4.2. Discuss the deep connections of the veins mentioned in 4.1. highlighting their clinical relevance. (40 marks)

### **Part B (Dental Anatomy)**

5.
  - 5.1. List the differences between the adult mandible and that of a neonate. (20 marks)
  - 5.2. Explain the mechanisms responsible for the postnatal growth ... of the mandible. (50 marks)
  - 5.3. List the conditions that may affect the growth of the mandible and state the effects. (30 marks)
6.
  - 6.1. Describe the development of dentogingival junction (20 marks)
  - 6.2. Describe the microscopic structure of dentogingival junction (40 marks)
  - 6.3. List the functions of the dentogingival junction and indicate their clinical relevance. (40 marks)
7.
  - 7.1. Describe the development of the secondary palate. (50 marks)
  - 7.2. List the possible causes for the palatal shelf elevation.(30 marks)
  - 7.3. Outline theories related to the explanation of palatal fusion. (20 marks)
8.
  - 8.1. Describe the macroscopic appearance of the mucosa of the tongue. (40 marks)
  - 8.2. List possible macroscopic changes that can be seen on the tongue. (20 marks)
  - 8.3. Indicate the clinical relevance of the changes mentioned in 8.2. (40 marks)

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**SELECTION EXAMINATION IN MD (ORAL SURGERY),**  
**MD (RESTORATIVE DENTISTRY), MD (ORTHODONTICS)**  
**OCTOBER 2009**

Date : 6<sup>th</sup> October 2009

Time : 9.00 a.m. -12.00 noon.

**PAPER 1I**

**Answer three (03) questions from each part.**  
**Answer each question in a separate book.**

**Part A (Physiology)**

1.
  - 1.1 List the functions of blood. (10 marks)
  - 1.2 Briefly describe the haemopoiesis. (30 marks)
  - 1.3 List the changes that could occur in whole blood during storage. (30 marks)
  - 1.4 Write a brief account of haemophilia. (30 marks)
  
2.
  - 2.1 List five (05) physiological functions of plasma calcium. (05 marks)
  - 2.2 Describe the physiological mechanisms of the following hormones involved in calcium homeostasis.
    - 2.2.1. Parathyroid hormone (PTH) (30 marks)
    - 2.2.2. Calcitonin (15 marks)

- 2.3. Explain the mechanisms of bone remodeling in each of the following.
- 2.3.1. Paget's disease of bone (10 marks)
- 2.3.2. Orthodontic tooth movement. (15 marks)
- 2.3.3. Periodontal disease. (15 marks)
- 2.4. Outline the action of bisphosphonates and its clinical implications. (10 marks)
- 3.
- 3.1. List the stages of swallowing. (15 marks)
- 3.2. Describe the physiological processes involved in the stages of swallowing. (70 marks)
- 3.3. List the causes of dysphagia. (15 marks)
- 4.
- 4.1. Define the term glomerular filtration rate (GFR) (05 marks)
- 4.2. List four factors that determine GFR in a healthy adult. (10 marks)
- 4.3. Describe the physiological basis of the changes in GFR that you would observe in the following conditions :
- 4.3.1. In severe haemorrhage. (25 marks)
- 4.3.2. Ureteral obstruction. (20 marks)
- 4.3.3. Liver disease. (20 marks)
- 4.4. Explain the physiological basis of hypertension observed in a patient with renal artery stenosis. (20 marks)

- 5.
- 5.1. Explain the term “Shock” in clinical practice. (10 marks)
- 5.2. List five (05) types of shock with two clinical examples for each type mentioned. (20 marks)
- 5.3. List the stages of shock and indicate the clinical significance. (30 marks)
- 5.4. Describe the pathogenesis of shock as a result of sepsis. (40 marks)
- 6.
- 6.1. “Metastasis of a malignant neoplasm is a complex process”. Explain the above statement. (60 marks)
- 6.2. Explain as to why some tumours have selective sites for metastasis. (20 marks)
- 6.3. Briefly explain the process of malignant cachexia. (20 marks)
- 7.
- 7.1. Define the term “antibiotic” (10 marks)
- 7.2. List five (05) different groups of antibacterial agents with one example for each group. (20 marks)
- 7.3. Briefly explain the mode of action of antibiotics using examples. (25 marks)
- 7.4. Give possible causes for failures in antibiotic treatment. (25 marks)
- 7.5. List (i) one indication  
(ii) one contraindication / precaution  
In each of the following agents when used in clinical practice.
- (a) Amoxycillin (b) Metranidazole (c) Doxycycline  
(b) Clindamycin (20 marks)

- 8.
- 8.1. Define the term “thrombosis” (05 marks)
  - 8.2. Briefly explain the pathogenesis of thrombosis. (30 marks)
  - 8.3. List the predisposing factors for thrombosis. (20 marks)
  - 8.4. How would you prevent thrombosis in a high risk patient ? (25 marks)
  - 8.5. Compare and contrast a thrombus with a postmortem clot. (20 marks)

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Date : 6<sup>th</sup> October 2010

Time : 2.00 p.m. – 5.00p.m.

**PAPER 1.1**

**Answer three (03) questions from each part.**

**Answer each question in a separate book.**

**PART A (General Anatomy)**

1.
  - 1.1. Describe the macroscopic appearance of the tongue and its clinical relevance. (70 marks)
  - 1.2. Discuss its embryological development and associated abnormalities. (15 marks)
  - 1.3. Describe briefly the lymphatic drainage of the tongue. (15 marks)
  
2.
  - 2.1. Describe the macroscopic structure of the lateral wall of the nose. (60 marks)
  - 2.2. State the clinical relevance of the structures in the lateral wall. (20 marks)
  - 2.3. Discuss the sensory innervation of the lateral wall of the nose. (20 marks)
  
3.
  - 3.1. Describe the macroscopic structure and relations of the parotid gland and its duct with special reference to their clinical importance. (80 marks)
  - 3.2. Explain how it receives the secretomotor supply. (20 marks)
  
4.
  - 4.1. Discuss the course and distribution of the mandibular branch of the trigeminal nerve. (70 marks)
  - 4.2. Discuss the clinical importance of the nerve and its branches. (30 marks)

## **PART B (Dental Anatomy)**

5.
  - 5.1. Explain briefly how the mucosal structure of the hard palate is adapted to perform its functions. (40 marks)
  - 5.2. State how the mucosa of the floor of the mouth is modified from that of the palate. (30 marks)
  - 5.3. State the clinical significance of the modifications mentioned in 5.2. (30 marks)
  
6.
  - 6.1. State the different types of tooth movements that are taking place in a 10 year old boy with examples. (30 marks)
  - 6.2. Describe the associated changes that occur in the tooth and its surrounding tissue during each movement mentioned in 6.1. (50 marks)
  - 6.3. State how the above knowledge could help in clinical practice. (20 marks)
  
7.
  - 7.1. List the non secretory components of a major salivary gland. (20 marks)
  - 7.2. Describe the histology of the components mentioned in 7.1. (40 marks)
  - 7.3. Describe the functional relevance of these components in health and disease. (40 marks)
  
8.
  - 8.1. List the layers that form the condylar head of the mandible in a young individual. (20 marks)
  - 8.2. Describe the histological appearance of each layer mentioned in 8.1. (40 marks)
  - 8.3. Outline the clinical relevance of these histological features with emphasis on diagnosis and surgical treatment of diseases of condylar head. (40 marks)



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**SELECTION EXAMINATION IN MD (ORAL SURGERY),**  
**MD (RESTORATIVE DENTISTRY), MD (ORTHODONTICS)**  
**OCTOBER 2010**

Date : 7<sup>th</sup> October 2010

Time : 2.00 p.m. – 5.00 p.m.

**PAPER 1I**

**Answer three (03) questions from each part.**  
**Answer each question in a separate book.**

**PART A (Physiology))**

1.
  - 1.1. Define the term haemostasis ? (05 marks)
  - 1.2 Explain the factors that prevent blood clot formation within the normal vascular system. (30 marks)
  - 1.3 Explain the physiological significance of the following tests of haemostasis, giving examples of clinical conditions.
    - 1.3.1 Bleeding time (25 marks)
    - 1.3.2. Prothrombin time (20 marks)
    - 1.3.3 Activated partial thromboplastin time (APTT) (20 marks)
2.
  - 2.1 Define the following terms:
    - 2.1.1 Systolic blood pressure
    - 2.1.2 Diastolic blood pressure
    - 2.1.3 Mean arterial pressure
    - 2.1.4. Ejection fraction (10 marks)

- 2.2 Explain the physiological basis of giving angiotensin converting enzyme inhibitors (ACEIs) to patients with hypertension. (30 marks)
- 2.3 Describe the physiological mechanisms responsible for regulation of blood pressure in the following conditions.
- 2.3.1 Moving from supine to erect position (35 marks)
- 2.3.2. Excessive salt intake (25 marks)
- 3.
- 3.1.
- 3.1.1 Hyperventilation causes carpopedal spasms. (25 marks)
- 3.1.2 Increased haemorrhagic tendency in obstructive jaundice. (25 marks)
- 3.1.3 Kussmaul's breathing in diabetes ketoacidosis. (25 marks)
- 3.1.4. Anaemia in chronic renal failure. (25 marks)
- 4.
- 4.1. Define the term oedema. (10 marks)
- 4.2 Describe the physiological basis of oedema in the following conditions.
- 4.2.1. Right heart failure (25 marks)
- 4.2.2. Cirrhosis (20 marks)
- 4.2.3. Lymphatic obstruction (25 marks)
- 4.2.4 Nephrotic syndrome (20 marks)

## **PART B ( Pathology)**

- 5.
- 5.1 Define the term "Neoplasm" (20 marks)
  - 5.2 Name two (02) neoplasms each, arising from
    - 5.2.1 Muscles (02 marks)
    - 5.2.2 Nerves (02 marks)
    - 5.2.3 Blood vessels (02 marks)
    - 5.2.4 Bone (02 marks)
    - 5.2.5 Cartilage (02 marks)
  - 5.3 "The p53 Gene is the guardian of the genome". Justify this statement. (35 marks)
  - 5.4 Describe the steps in tumour invasion and metastasis. (35 marks)
- 6.
- 6.1 What is suppurative inflammation ? (20 marks)
  - 6.2 List the common bacteria causing suppurative inflammation in wounds. (30 marks)
  - 6.3 Describe the sequelae of suppurative inflammation. (50 marks)
- 7.
- 7.1 Describe the basic stages in the fracture healing. (50 marks)
  - 7.2 List the factors that adversely affect fracture healing. (10 marks)
  - 7.3. List the common complications that could occur in fracture healing. (10 marks)
  - 7.4 Describe briefly the pathophysiological mechanism of 'Distraction Osteogenesis' of craniofacial skeleton. (30 marks,

- 8.
- 8.1. What is an embolus ? (10 marks)
  - 8.2 Name Four (04) common types of emboli. (20 marks)
  - 8.3 Describe the effects of pulmonary embolism. (50 marks)
  - 8.4 Explain the role of therapeutic embolisation in clinical practice. (20 marks)

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**SELECTION EXAMINATION IN MD (ORAL SURGERY)**  
**OCTOBER 2011**

Date ; 12<sup>th</sup> October 2011

Time ; 1.00 p.m.– 4.00p.m.

**PAPER 1.1**

**Answer three (03) questions from each part.**  
**Answer each question in a separate book.**

**PART A (GENERAL ANATOMY)**

1. In respect of the infratemporal fossa
  - 1.1. Name the bones that form the boundaries (30 marks)
  - 1.2. List the nerves found in it (20 marks)
  - 1.3. Describe the course and distribution and the clinical significance of the nerves mentioned in 1.2 (50 marks)
  
2.
  - 2.1. Describe the macroscopic appearance of the internal surface of the pharynx and state the clinical relevance. (40 marks)
  - 2.2. Describe the arrangement and attachments of the muscles forming the wall of the pharynx and discuss their innervation (60 marks)
  
3.
  - 3.1. Explain how walls of the orbit are formed (30 marks)
  - 3.2. Discuss the structures passing through different foramina and fissures of the orbit. (30 marks)
  - 3.3. Explain the anatomical basis of clinical features and complications of fractures of orbital walls (40 marks)

4.
  - 4.1. Outline the development of the parts of the temporal bone. (20 marks)
  - 4.2. Describe the immediate relations of the styloid process. (40 marks)
  - 4.3. State how knowledge in anatomy helps you to explain clinical features and complications of temporal bone fractures. (40 marks)

### **PART B (DENTAL ANATOMY)**

5.
  - 5.1. State the components and their functions of the enamel organ at the "late bell" stage. (20 marks)
  - 5.2. Describe the role of the enamel organ after the formation of the crown of an upper 1<sup>st</sup> permanent molar tooth. (50 marks)
  - 5.3. List three (03) consequences that can occur due to malfunction of the enamel organ in the stage mentioned in 5.2 and indicate their clinical relevance. (30 marks)
  
6. Describe the structure of the following indicating the importance of this knowledge for clinical practice.
  - 6.1. Dentinoenamel junction (35 marks)
  - 6.2. Mucous membrane of the dorsum of the tongue (40 marks)
  - 6.3. Cementoenamel junction (25 marks)

7.

7.1. Describe the structure and composition of dento-gingival junction in health. (60 marks)

7.2. List the similarities and differences that exist between the dento-gingival junction and peri-implant mucosa in relation to a titanium implant. (20 marks)

7.3. State the clinical relevance of the features mentioned in 7.2. (20 marks)

8

8.1. Describe the structure including histology of the capsule and its related components of the temporo-mandibular joint (TMJ) in an adult (60 marks)

8.2. Describe how these components help in the normal function of the TMJ. (40 marks)

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**OCTOBER 2011**

Date : 13<sup>th</sup> October 2011

Time : 9.00 a.m. – 12.00 noon

**PAPER 1I**

**Answer three (03) questions from each part.**

**Answer each question in a separate book.**

**PART A (PHYSIOLOGY)**

1. A 60 year old woman was suffering from an endocrine disorder.

She was found to have hyperpigmentation of the skin, lips, oral mucosa and gingivae

Her blood pressure was 80/50 mmHg

Her serum Na<sup>+</sup> was 130 mEq/L, K<sup>+</sup> 6.5 mEq/L and HCO<sub>3</sub><sup>-</sup> 20 mEq/L

She had lost 6 kg of body weight during past few months

- 1.1. What is the possible endocrine disorder this woman is suffering from? (05 marks)
- 1.2. List three (03) groups of hormones secreted by the affected endocrine gland and mention one (01) example for each group (15 marks)
- 1.3. Explain the physiological basis of
  - 1.3.1. Hyperpigmentation of the skin, lips, oral mucosa and gingivae (20 marks)
  - 1.3.2. Blood pressure of 80/50 mmHg (20 marks)
  - 1.3.3. Serum HCO<sub>3</sub><sup>-</sup> 20 mEq/L (20 marks)
  - 1.3.4. Weight loss (20 marks)



2. Explain the physiological basis of the following
  - 2.1. A patient with chronic renal failure presents with osteomalacia (30 marks)
  - 2.2. Acute obstruction in the urinary tract leading to reduction in glomerular filtration rate (20 marks)
  - 2.3. Polyurea in patients with diabetes mellitus (25 marks)
  - 2.4. Primary hyperparathyroidism leading to hypercalcaemia and hypophosphataemia (25 marks)
3.
  - 3.1. Explain the term “reflex” (10 marks)
  - 3.2. Explain the physiological basis of the following reflexes giving examples
    - 3.2.1. Stretch reflex (40 marks)
    - 3.2.2. Withdrawal reflex (30 marks)
    - 3.2.3. Neurohumoral reflex (20 marks)
4. Explain the physiological basis of
  - 4.1. Intermittent claudication (30 marks)
  - 4.2. Referred pain (30 marks)
  - 4.3. Cyanosis in tetralogy of Fallot (40 marks)

## PART B (PATHOLOGY)

5.
  - 5.1. What are the cardinal signs of acute inflammation ? (10 marks)
  - 5.2. Describe the underlying pathological process for each of the signs mentioned in 5.1 (40 marks)
  - 5.3. Explain the sequelae of acute inflammation (50 marks)
  
6.
  - 6.1. Define the term “neoplasia” (10 marks)
  - 6.2. Explain the process of “multistage carcinogenesis” (40 marks)
  - 6.3. Describe the steps involved in metastasis of a malignancy (50 marks)
  
7.
  - 7.1. Define the term “infarct” (10 marks)
  - 7.2. Mention the characteristics of red and white infarcts (20 marks)
  - 7.3. List the factors that influence in the development of an infarct (30 marks)
  - 7.4. Describe briefly the consequences and complications of myocardial infarction (40 marks)
  
8.
  - 8.1. List different types of “hypersensitivity reactions” (10 marks)
  - 8.2. Outline the basic immune mechanisms involved in each type mentioned in 8.1 (60 marks)
  - 8.3. Give two (02) examples of diseases for each type you mentioned in 8.1 (30 marks)