

POSTGRADUATE INSTITUTE OF MEDICINE
UNIVERSITY OF COLOMBO
SELECTION EXAMINATION IN MD (RESTORATIVE DENTISTRY)
OCTOBER 2009

Date : 5th October 2009

Time : 2.00 p.m. – 5.00p.m.

PAPER 1.3

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 deep cervical fascia. (70 marks)
 - 1.2. State the relations of the internal carotid artery at its origin. (30 marks)
2.
 - 2.1. Describe the anatomy of the maxillary air sinus. (70 marks)
 - 2.2. Indicate the importance of its relations to dental practice. (30 marks)
3. With regard to the palate
 - 3.1. Describe the development. (30 marks)
 - 3.2. Indicate the nerve and blood supply. (30 marks)
 - 3.3. List the developmental anomalies. (20 marks)
 - 3.4. Outline how the quality of life in a person could be affected as a result of the anomalies mentioned above. (20 marks)
4.
 - 4.1. What are the functional components of the mandibular division of the trigeminal nerve. (20 marks)
 - 4.2. Describe the extracranial course of the mandibular nerve. (50 marks)
 - 4.3. Describe the relevance of details mentioned in 4.2. in clinical practice. (30 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. Write notes on
 - 6.1. Age related and post eruptive changes of dentine. (40 marks)
 - 6.2. Adhesion of dental materials to dentine. (30 marks)
 - 6.3. Dentine sensitivity. (30 marks)

7.
 - 7.1. Describe how surface enamel differs from sub-surface enamel. (40 marks)
 - 7.2. Explain how the knowledge of structure of enamel helps you to understand the principles of
 - (a). Fluoridation (20 marks)
 - (b). acid etching (20 marks)
 - (c). dental caries (20 marks)

8.
 - 8.1. Describe how the dental pulp of a developing tooth differs from that of a matured tooth. (50 marks)
 - 8.2. List the age changes that occur in the dental pulp and indicate their clinical relevance. (30 marks)
 - 8.3. List the two types of cells in the pulp that have a close relationship to neural elements and indicate their functions. (20 marks)

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

Date : 6th 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) Amoxicillin (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)

POSTGRADUATE INSTITUTE OF MEDICINE
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SELECTION EXAMINATION IN MD (RESTORATIVE DENTISTRY)
OCTOBER 2010

Date : 6th October 2010

Time : 2.00 p.m. – 5.00 p.m.

PAPER 1.3

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

PART A (General Anatomy)

1.
 - 1.1 Give an account of the origin, course and distribution of the first (mandibular) part of the maxillary artery. (80 marks)
 - 1.2. Describe the development of the maxillary artery. (20 marks)

2.
 - 2.1 Describe the extracranial course of the hypoglossal nerve. (70 marks)
 - 2.2 Discuss the clinical significance that is relevant to dental practice. (30 marks)

3.
 - 3.1 Describe the functional components of the facial nuclei. (30 marks)
 - 3.2. Give an account of the chorda tympani nerve. (70 marks)

4.
 - 4.1 Describe the structure of the temporomandibular joint. (70 marks)
 - 4.2 Add a note on its clinical importance. (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. Describe the repair mechanism of the dentine-pulp complex to environmental injury and restorative dental procedures. (60 marks)
 - 7.2. How would you apply this knowledge to protect this complex in clinical practice. (40 marks)

8.
 - 8.1 Outline the structure of the periodontal ligament. (50 marks)
 - 8.2. State how the structure of the periodontal ligament is adapted to perform its functions. (50 marks)

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

Date : 7th 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)

POSTGRADUATE INSTITUTE OF MEDICINE
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SELECTION EXAMINATION IN MD (RESTORATIVE DENTISTRY)
OCTOBER 2011

Date ; 12th October 2011

Time ; 1.00 p.m.– 4.00p.m.

PAPER 1.3

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. List the functional components of the facial nerve (20 marks)

 - 3.2. Describe the course and the distribution of the facial nerve (30 marks)

 - 3.3. Outline the relevance of the facial nerve in clinical practice (50 marks)

4.
 - 4.1. Describe the anatomy of the soft palate (60 marks)
 - 4.2. Briefly describe the functions of the soft palate (20 marks)
 - 4.3. State the clinical significance of a soft palate defect (20 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 1st 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 surface enamel (30 marks)
 - 7.2. List the age changes that take place in enamel (20 marks)
 - 7.3. Explain as to how the understanding of the enamel structure led to the conservative approach in the treatment procedures of restorative dentistry (50 marks)

8.
 - 8.1. Describe the junctional epithelium (JE) (50 marks)
 - 8.2. Indicate the characteristics of JE that are of clinical significance (30 marks)
 - 8.3. State how the connective tissue supporting the JE differs from that of gingival epithelium (20 marks)

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SELECTION EXAMINATION IN MD (ORAL SURGERY),
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OCTOBER 2011

Date : 13th 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⁺ was 130 mEq/L, K⁺ 6.5 mEq/L and HCO₃⁻ 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 HCO₃⁻ 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)