

## **KISII UNIVERSITY SPECIAL/SUPPLEMENTARY EXAMINATIONS**

### **CIMS 0228: CLINICAL PATHOLOGY II**

#### **SECTION A: SHORT ESSAYS (60MARKS)**

##### **ATTEMPT ALL QUESTIONS**

1. (a) Briefly discuss the thyroid hormone synthesis. (5mks)  
(b) Outline the functions of thyroid hormones. (5mks)
2. (a) State briefly the functions of parathyroid hormone (5mks)  
(b) State the manifestations of Cushing's syndrome. (5mks)
3. (a) Write short notes on thyroid storm (crisis). (5mks)  
(b) Briefly discuss the classification and causes of jaundice. (5mks)
4. Discuss the causes and classification of ascites. (10mks)
5. Discuss the pathogenesis of peptic ulcer disease. (10mks)
6. Briefly discuss aetiopathology of malabsorption. (10mks)

#### **SECTION B: LONG ESSAYS (40MKS)**

##### **ATTEMPT ANY TWO QUESTIONS**

1. Discuss hyperthyroidism under the following subheadings (20mks)
  - (a) definition
  - (b) aetiology
  - (c) Pathology
  - (d) Clinical features
2. Discuss Gastro intestinal bleeding under the following subheadings (20mks)
  - (a) Definition
  - (b) Aetiology
  - (c) Clinical features
3. Discuss diabetes mellitus under the following subheadings (20mks)
  - (a) Definition and classification
  - (b) Pathophysiology
  - (c) Clinical features
  - (d) Complications

## PART II: MULTIPLE CHOICE

### SECTION B MCQS: CHOOSE ONLY ONE CORRECT ANSWER

1. A 45-year-old woman with long-standing rheumatoid arthritis complains of dry eyes and dry mouth. Bilateral enlargement of the parotids is noted on physical examination. The syndrome described here is best described as
  - (a) Autoimmune.
  - (b) Infectious.
  - (c) Metabolic.
  - (d) Metastatic.
  - (e) Primary neoplastic.
2. A 45-year-old man complains of "heartburn" and burning epigastric pain, relieved by antacids and triggered by eating spicy or acidic foods or by assuming a recumbent position. The patient smokes two packs of cigarettes a day and consumes several alcoholic drinks each evening. Which of the following is the usual cause of this patient's condition?
  - (a) Columnar intestinal metaplasia of esophageal squamous epithelium
  - (b) Excessive acid production in the stomach
  - (c) Excessive nonsteroidal anti-inflammatory drug use
  - (d) *Helicobacter pylori* infection
  - (e) Hiatal hernia and incompetent lower esophageal sphincter
3. A 60-year-old man presents with hematemesis, melena, guaiac-positive stools, and signs of circulatory collapse. He has a 20-year history of burning mid epigastric pain and tenderness relieved by food, milk, or antacids. Also, he has been taking high doses of non-steroidal anti-inflammatory drugs to relieve the pain of long-standing arthritis. Esophagogastroduodenoscopy reveals a peptic ulcer in the upper duodenum. Which of the following is an important association of duodenal peptic ulcer disease?
  - (a) Barrett esophagus and columnar intestinal metaplasia of esophageal squamous epithelium
  - (b) Evolution into carcinoma as a likely sequelae
  - (c) *Helicobacter pylori* infection
  - (d) Hiatal hernia and incompetent lower esophageal sphincter
  - (e) Pernicious anemia and achlorhydria
4. A 65-year-old man presents with dysphagia, weight loss, and anorexia. Physical examination is normal. Esophagogastroduodenoscopy with biopsy of an esophageal lesion is performed, revealing squamous cell carcinoma. Which of the following is true regarding this cancer?
  - (a) Cigarette smoking and chronic alcohol use are associated risk factors.
  - (b) Gastroesophageal reflux disease and Barrett esophagus are associated risk factors.
  - (c) Histologic findings include disordered, back-to-back submucosal glands.
  - (d) It most frequently arises in the lower third of the esophagus.

(e) This cancer is characterized by an indolent course, and long survival is common.

5. A 10-day-old infant presents with projectile vomiting. His mother states that the infant will actively drink his milk, but he forcefully vomits after each feeding. The infant shows signs of failure to thrive, with weight loss, dehydration, and lethargy. Physical examination reveals a firm, non-tender, mobile, "olive shaped" epigastric mass. Which of the following is the most likely diagnosis?

- (a) Candida esophagitis
- (b) Congenital pyloric stenosis
- (c) Esophageal cancer
- (d) Gastroesophageal reflux disease
- (e) Tracheoesophageal fistula

6. A neonate has been persistently jaundiced from birth despite aggressive phototherapy and exchange transfusions. Laboratory studies demonstrate significantly elevated unconjugated bilirubin. Tests from an outside laboratory confirm the total absence of glucuronyl transferase activity. The neonate most likely has which of the following condition?

- (a) Crigler-Najjar syndrome
- (b) Gilbert syndrome
- (c) Hemolytic disease of the newborn
- (d) Physiologic jaundice of the newborn
- (e) Rotor syndrome

7. A 26-year-old woman presents to her primary care physician with fever, malaise, and "yellow eyes." She denies alcohol abuse, but admits to indulging in a dozen raw oysters at happy hour 3 weeks ago. In addition to scleral icterus, physical examination reveals a mildly enlarged liver with tenderness to palpation. Laboratory studies demonstrate a markedly increased aspartate aminotransferase and alanine aminotransferase and increased IgM and anti-hepatitis A titers. Which of the following is the most likely result of this infection?

- (a) Cirrhosis
- (b) Complete resolution
- (c) Establishment of a chronic carrier state
- (d) Fulminant hepatitis
- (e) Hepatocellular carcinoma

8. A 32-year-old woman seeking to become pregnant visits her physician for a prepregnancy examination. Routine prenatal laboratory testing demonstrates the following profile: HBsAg (-), anti-HBsAg (+), anti-HBcAg (-), anti-HBeAg (-), and HBV DNA (-). Which of the following likely represents the status of the patient?

- (a) Hepatitis B carrier
- (b) Immunized against hepatitis B
- (c) Infected and within the "window period"
- (d) Infected with hepatitis B and highly transmissible
- (e) Recently infected with hepatitis B

9. While on an international medical rotation, you encounter a pregnant woman in a rural village in India who presents with fever, jaundice, and malaise. The patient unexpectedly expires. This is the second case this month with a similar presentation. Which of the following is the most likely form of hepatitis?

- (a) Hepatitis A
- (b) Hepatitis B
- (c) Hepatitis C
- (d) Hepatitis D
- (e) Hepatitis E

10. A 23-year-old woman is involved in a minor motor vehicle accident, prompting an abdominal computed tomography scan, which was read by the emergency department radiologist as normal with the exception of a questionable mass in the right lobe of the liver. A subsequent fine-needle biopsy confirms the presence of a liver adenoma. Which of the following is associated with the development of this lesion?

- (a) Hepatitis B
- (b) Hepatitis C
- (c) Oral contraceptives
- (d) Polycythemia vera
- (e) Polyvinyl chloride

11. A 36-year-old man from sub-Saharan Africa presents to the clinic with jaundice and right upper quadrant pain. On examination, the liver is palpably enlarged. Laboratory studies demonstrate an increase in liver enzymes. Computed tomography demonstrates a single large mass in the right lobe of the liver, and serum  $\alpha$ -fetoprotein is markedly elevated. Which of the following is likely to have contributed to the patient's condition?

- (a) Aflatoxin B)
- (b) *Clonorchis sinensis*
- (c) Hepatitis A
- (d) Polyvinyl chloride
- (e) Tetracycline

12. A 43-year-old multigravida presents with nausea, vomiting, fever, and right upper quadrant pain. On examination, she displays arrested inspiration on palpation of the right upper quadrant (Murphy sign). Her laboratory results reveal neutrophilia with a "left shift." Which of the following is the most likely diagnosis?

- (a) Acute cholecystitis
- (b) Carcinoma of the ampulla of Vater
- (c) Cholangiocarcinoma
- (d) Cholesterolosis
- (e) Sclerosing cholangitis

13. During a yearlong training program, a 23-year-old female Air Force officer falls in class rank from first place to last place. She has also noted a lower pitch to her voice and coarsening of her

hair, along with an increased tendency toward weight gain, menorrhagia, and increasing intolerance to cold. Which of the following laboratory abnormalities is expected?

- (a) Increased serum free T4
- (b) Increased serum T3 resin uptake
- (c) Increased saturation of thyroid hormone-binding sites on thyroid-binding globulin
- (d) Increased serum thyroid-stimulating hormone
- (e) Decreased serum cholesterol

14. A 35-year-old woman presents with amenorrhea and weight loss despite increased appetite. The history and physical examination reveal exophthalmos, fine resting tremor, tachycardia, and warm, moist skin. Laboratory tests for thyroid function would be expected to yield a decreased value for which of the following?

- (a) Free T4
- (b) Radioactive iodine uptake
- (c) T3 resin uptake
- (d) T3
- (e) Thyroid-stimulating hormone

15. After suffering a seizure, a 23-year-old woman is found to have profound hypoglycemia. Determination of which of the following would aid in differentiating exogenous hyperinsulinemia from endogenous hyperinsulinemia?

- (a) C-peptide
- (b) Gastrin
- (c) Glucagon
- (d) Proinsulin
- (e) Vasoactive intestinal peptide

#### MCQS Respond Tor F

1. Insulinoma (beta cell tumor)

- a) Is the most common islet cell tumor.
- b) It is characterized by greatly decreased secretion of insulin.
- c) Clinical characteristics include the Whipple triad:
- d) Episodic hyperinsulinemia and hypoglycemia
- e) Dramatic reversal of CNS abnormalities by glucose administration

2. Neuroblastoma

- (a) This highly malignant catecholamine-producing tumor occurs in early childhood.
- (b) Urinary catecholamines and catecholamine metabolites are the same as in pheochromocytoma.
- (c) The tumor causes hypotension.
- (d) It usually originates in the adrenal medulla and often presents as a large abdominal mass.
- (e) Occasionally it converts into a more differentiated form termed ganglioneuroma.

3. Pheochromocytoma

- (a) This tumor is derived from chromaffin cells of the adrenal medulla
- (b) Most often this tumor is malignant.
- (c) Increased urinary excretion of catecholamines and their metabolites is characteristic.
- (d) This tumor can also cause hyperglycemia.
- (e) It can also be associated with neurofibromatosis or with von Hippel-Lindau disease

#### 4. Primary aldosteronism (Conn syndrome)

- a). The cause is primary hyperproduction of adrenal mineralocorticoids.
- b) It can also result from hyperplasia of the zona glomerulosa.
- c) Rarely it may be caused by adrenocortical carcinoma
- d) Clinical characteristics include hypertension, sodium and water retention, and hypokalemia, often with hypokalemic alkalosis.
- e) Decreased serum renin occurs due to negative feedback of increased blood pressure on renin secretion.

#### 5. Cushing syndrome (hypercorticism)

- (a) Cushing syndrome results from increased circulating glucocorticoids, primarily cortisol.
- (b) Ectopic production of ACTH by non-pituitary carcinomas, especially small cell carcinoma of the lung.
- (c) Morphologic changes in adrenal gland Bilateral hyperplasia of the adrenal zona fasciculata occurs when the syndrome results from ACTH stimulation.
- (d) Adrenal cortical atrophy is seen when exogenous glucocorticoid medication is the cause.
- (e) None of the above

#### 6. Hyperthyroidism (thyrotoxicosis) manifestations include

- (a) Restlessness, irritability, fatigability
- (b) Heat intolerance; sweating; warm, moist skin (especially of palms)
- (c) Muscle wasting and weight gain despite increased appetite
- (d) Fine hair
- (e) constipation

#### 7. Cretinism

- (a) Caused by Deficiency of enzymes necessary for the synthesis of thyroid hormones
- (b) May be caused by Failure of the fetal thyroid to descend from its origin at the base of the tongue
- (c) Transplacental transfer of antithyroid antibodies from a mother with autoimmune thyroid disease
- (d) Severe mental retardation
- (e) Impairment of physical growth with retarded bone development and dwarfism

#### 8. Carcinoma of the esophagus

- (a) This is a less aggressive tumor
- (b) manifest clinically by dysphagia, weight loss, and anorexia.
- (c) Adenocarcinoma arises most often in aberrant gastric mucosa or submucosal glands or in the metaplastic columnar epithelium of Barrett esophagus.
- (d) Squamous cell carcinoma arises most frequently in the lower 2/3 thirds of the esophagus.
- (e) Adenocarcinoma arises most frequently in the upper third of the esophagus.

9. Congenital pyloric stenosis

- (a) This stenosis is caused by hypertrophy of the circular muscular layer of the pylorus,
- (b) Presents with a palpable mass.
- (c) The resulting obstruction of the gastric outlet causes episodes of projectile vomiting
- (d) Manifests in the first 2 weeks of life.
- (e) The condition is corrected by surgical incision of the hypertrophied muscle.

10. Peptic ulcer of the stomach

- (a) Most often, the stomach ulcer occurs at or near the greater curvature, in the antral and prepyloric regions.
- (b) The ulcer is not a precursor lesion of carcinoma of the stomach.
- (c) Gastric peptic ulcers rarely occur in association with absolute achlorhydria.
- (d) *H. pylori*-mediated processes is associated cause
- (e) Bile-induced gastritis may lead to gastric ulceration

11. Carcinoma of the stomach

- (a) Carcinoma of the stomach is most common before 50 years of age.
- (b) It occurs more frequently in persons with blood group A.
- (c) *H. pylori* is a high suspect
- (d) May present with Virchow node.
- (e) Does not manifest as Krukenberg tumors

12. Crohn's disease

- a. This chronic inflammatory condition of unknown etiology may affect any part of the gastrointestinal tract
- (b) Less commonly involves the distal ileocecum, small intestine, or colon.
- (c) Crohn's disease tends to affect elderly people in the fifth decade of life,
- (c) The disease can lead to carcinoma involving the small intestine or colon.
- (d) Chronic inflammation involving all layers of the intestinal wall (transmural involvement)
- (e) All the above are true

13. Acute appendicitis

- (a) Occurrence is most frequent in the second and third decades of life.
- (b) The disease is thought to be caused by obstruction of the appendiceal lumen, most often by a fecalith, resulting in bacterial proliferation and invasion of the mucosa.
- (c) Gross changes include a congested appendix with a swollen distal half covered by purulent exudate
- (d) Histologic characteristics include an acute inflammatory infiltrate extending from the mucosa through the full thickness of the appendiceal wall.
- (e). Presenting features include anorexia, nausea, and abdominal pain, most commonly localized to the right lower quadrant.

14. Congenital hyperbilirubinemias causes include the following except

- a) Gilbert syndrome
- b) Crigler-Najjar syndrome

- c) Dubin-Johnson syndrome
- d) Rotor syndrome
- e) All of the above

15. Acute pancreatitis

- a) The cause is activation of pancreatic enzymes, resulting in autodigestion of the organ.
- b) Manifests with hemorrhagic fat necrosis and deposition of calcium soaps,
- c) Excessive alcohol intake is not a cause
- d) Clinical manifestations include severe abdominal pain and prostration closely mimicking an acute surgical abdomen.
- e) There is an association with decreased serum amylase