



**MASINDE MULIRO UNIVERSITY OF  
SCIENCE AND TECHNOLOGY  
(MMUST)**

**MAIN CAMPUS**

**UNIVERSITY EXAMINATIONS  
2019/2020 ACADEMIC YEAR**

**SECOND YEAR, THIRD TREMESTER EXAMINATIONS**

**FOR THE DEGREE  
OF  
BACHELOR OF SCIENCE IN CLINICAL MEDICINE, SURGERY AND  
COMMUNITY HEALTH**

**COURSE CODE: HCM 461**

**COURSE TITLE: MEDICINE III**

**DATE: MONDAY 25<sup>TH</sup> JANUARY 2021 TIME: 9.00 -12:00 NOON**

**INSTRUCTIONS TO CANDIDATES**

**ANSWER ALL QUESTIONS**


**SEC A: MULTIPLE CHOICE QUESTIONS (MCQ) (20 MARKS)**

**SEC B: SHORT ANSWER QUESTIONS (SAQ) (40MARKS)**

**SEC C: LONG ANSWER QUESTIONS (LAQ) (40MARKS)**

**TIME: 3 HOURS**

MMUST observes ZERO tolerance to examination cheating

This Paper Consists of 6 Printed Pages. Please Turn Over. 

**SECTION A: Multiple Choice Questions. Choose ONE best answer (20Marks)**

1. The following statements about glycogen storage diseases are true, EXCEPT?

- A. Glycogen storage diseases are as a result of an enzyme defect
- B. Are almost always cured by liver transplantation
- C. Are inherited as autosomal recessive conditions
- D. Diet therapy may be highly effective at reducing clinical manifestations

Use the following information to answer questions 2,3 and 4

Reference ranges: TSH – 0.5 to 5.5 mU/l, Free T4 9-22 pmol/l, T4 – 70-140nmol/l

2. A 36-year-old woman presents with feeling tired and cold all the time. On examination a firm, non-tender goitre is noted. Blood tests reveal the following:

TSH - 34.2 mU/l

Free T4 - 5.4 pmol/l

What is the most likely diagnosis?

- A. Primary atrophic hypothyroidism
- B. Pituitary failure
- C. De Quervain's thyroiditis
- D. Hashimoto's thyroiditis

3. A 40-year-old woman complains of feeling tired all the time and putting on weight. On examination a diffuse, non-tender goitre is noted. Blood tests are ordered: TSH - 15.1 mU/l, Free T4 - 7.1 pmol/l, ESR - 14 mm/hr

Anti-TSH receptor stimulating antibodies – Negative

Anti-thyroid peroxidase antibodies - Positive

What is the most likely diagnosis?

- A. Pituitary failure
- B. Primary atrophic hypothyroidism
- C. Hashimoto's thyroiditis
- D. Grave's disease

4. A 52-year-old woman who was diagnosed as having primary atrophic hypothyroidism 12 months ago is reviewed following recent thyroid function tests (TFTs): TSH - 12.5 mU/l, Free T4 - 14 pmol/l. She is currently taking 75mcg of levothyroxine once a day. How should these results be interpreted?

- A. Poor compliance with medication
- B. Taking extra thyroxine
- C. Evidence of recent systemic steroid therapy
- D. Keep on same dose

5. A 23-year-old woman presents with sweating and tremor. Her thyroid function tests are as follows: - TSH - <0.05 mU/l, Free T4 - 25 pmol/l

What is the most common cause of this presentation?

- A. Hashimoto's thyroiditis
- B. Graves' disease

- C. Toxic nodular goitre  
D. Toxic adenoma
6. The following statements about Insulin administration in the management of diabetes mellitus are true. Which one is NOT?  
A. Should be given into subcutaneous tissue  
B. Swabbing with alcohol is not necessary  
C. Examine intermediate and long acting insulin for cloudy appearance. Do not use if cloudy  
D. Rotate or gently roll or shake the bottle if other than regular insulin. Do not shake vigorously
7. The following are non-modifiable risk factors of diabetes mellitus. Which one is NOT?  
A. Polycystic ovary syndrome  
B. Abdominal or central obesity  
C. History of impaired glucose tolerance, impaired fasting glucose  
D. History of gestational diabetes or delivery of a macrosomic babies
8. Which of the following statements about Hypopituitarism is FALSE?  
A. Hypopituitarism is a clinical syndrome of deficiency in pituitary hormone production.  
B. This may result from disorders involving the pituitary gland, hypothalamus, or surrounding structures.  
C. Pan-hypopituitarism refers to involvement of all pituitary hormones ( anterior and posterior pituitary)  
D. Current studies have shown that infiltrative and infectious causes do not result in the condition
9. The following statements about Cushing syndrome are true. Which one is FALSE?  
A. Elevated ACTH levels are usually due to an anterior pituitary tumor, which is classic Cushing  
B. Non-pituitary ectopic sources of ACTH, such as small-cell lung carcinoma (oat cell carcinoma), carcinoid tumor, medullary thyroid carcinoma, or other neuroendocrine tumors can result in high ACTH levels and sequentially hypercortisolism.  
C. Ectopic corticotropin-releasing hormone (CRH) secretion leading to increased ACTH secretion comprises a very rare group of cases of Cushing syndrome.  
D. ACTH-dependent Cushing syndrome is characterized by depressed ACTH levels.
10. One of the following statements about the risk factors for the development of osteoarthritis is FALSE. Which one is it?  
A. Ageing process in joint cartilage  
B. Defective lubricating mechanism  
C. Incompletely treated congenital dislocation of hip  
D. None of the above
11. The following statements about osteoarthritis are false. Which one is TRUE?  
A. Osteoarthritis is an inflammatory condition of joints characterized by inflammation of joints and resulting in swelling.  
B. Is the least common form of arthritis, affecting a few people worldwide  
C. Occurs when the protective cartilage that cushions the ends of bones wears down over time.  
D. None of the above
12. One of the following statements regarding gouty arthritis is FALSE?  
A. It is caused by accumulation of sodium pyrophosphate crystals in joints  
B. Characterized by severe pain, redness and tenderness in joints.  
C. Gout most classically affects the joint in the base of the big toe  
D. Patients with chronic gout can use behavioral modification such as diet, exercise and decreased intake of alcohol to help minimize the frequency of attacks of pain that often occur suddenly and mostly at night

- 13. Identify the false statement regarding ankylosing spondylitis ( AS)**
- A. There is evidence suggesting that bacterial infection of the enteric or the urogenital system may be the trigger for the development of the condition.
  - B. Extraarticular symptoms, such as acute anterior uveitis, inflammatory bowel disease, and psoriasis, may be present
  - C. Is a chronic systemic inflammatory disease that primarily involves the axial skeleton of elderly patients
  - D. A close relationship exists between the prevalence of the HLA-B27 gene and the development of AS
- 14. Polymyositis: which of the following statements is false?**
- A. Polymyositis is an idiopathic inflammatory myopathy
  - B. characterized by Symmetrical, proximal muscle weakness, Elevated skeletal muscle enzyme levels and characteristic electromyography (EMG) and muscle biopsy findings
  - C. Is associated with characteristic dermatologic manifestations
  - D. Initial treatment with corticosteroids usually produces a response
- 15. Systemic Lupus Erythematosus (SLE): The following statements are True, which one is FALSE?**
- A. Less than 30% of cases of SLE occur in women
  - B. Management of SLE often depends on the individual patient's disease severity and disease manifestations, although hydroxychloroquine has a central role for long-term treatment in all SLE patients
  - C. The classic presentation of a triad of fever, joint pain, and rash in a woman of childbearing age should prompt investigation into the diagnosis of SLE
  - D. Its presentation and course are highly variable, ranging from indolent to fulminant.
- 16. Which one of the following statements regarding rickets is FALSE?**
- A. Rickets may lead to skeletal deformity and short stature. In females, pelvic distortion from rickets may cause problems with childbirth later in life.
  - B. Severe rickets has been associated with respiratory failure in children.
  - C. It is caused by a failure of osteoid to calcify in a growing person
  - D. Most of the deformities correct with growth and therefore surgery has no role to play in the management of its complications
- 17. Which of the following statements regarding paget disease is FALSE?**
- A. Paget disease is a localized disorder of bone remodeling that typically begins with excessive bone resorption followed by an increase in bone formation.
  - B. Usually there is osteoclastic overactivity followed by compensatory osteoblastic activity leads to a structurally disorganized mosaic of bone (woven bone), which is mechanically weaker, larger, less compact, more vascular, and more susceptible to fracture than normal adult lamellar bone.
  - C. Paget disease may involve a single bone but is more frequently multifocal
  - D. None of the above
- 18. Wilson disease: which of the following statements is true?**
- A. The mainstay of therapy is lifelong use of chelating agents (eg, penicillamine, trientine)
  - B. Kayser-Fleischer rings is not a common finding in the eyes
  - C. Wilson disease is a very common inherited disorder of copper metabolism that is characterized by excessive deposition of copper in the liver, brain, and other tissues
  - D. Wilson disease rarely causes mortality even when symptomatic.
- 19. Which one of the following factors is NOT a risk factor for multiple myeloma**
- A. Increasing age of above 60years
  - B. Female sex.
  - C. Family history of multiple myeloma.
  - D. Personal history of a monoclonal gammopathy of undetermined significance (MGUS).

20. With regard to Hyperparathyroidism, one of the following statements is FALSE. Which one is it?
- A. Symptoms of may be obvious like kidney stones, frequent headaches, fatigue, and depression or subtle e.g.: high blood pressure and the inability to concentrate.
  - B. Laboratory investigations will reveal elevated Serum PTH level and calcium level.
  - C. Surgery has no role in the management of the condition
  - D. There are no medications or pills that work to cure or treat parathyroid problems or high calcium.

### Section B: Short Answer Questions (40Marks)

Q1 Briefly describe ANY FIVE classes of oral glucose lowering agents and their mechanisms of action. (10 Marks)

Q2. Discuss Palliative care under the following sections. (10 marks)

- a) WHO definition ( 2 marks)
- b) Palliative care patient support services (3 marks)
- c) Outline any six principles of palliative care (6 Marks)

Q3. Pituitary Gigantism is an endocrine abnormality that is caused by excess circulating levels of GH occurring before the onset of puberty. Discuss the condition under the following headlines (10Marks)

- a) Medical side effects (7 marks)
- b) Testing and Diagnosis (2 marks)
- c) Long-term Prognosis ( 1 Mark)

Q4. Make short notes on the following growth disorders. (10 Marks)

- a) Familial short stature ( 5 marks)
- b) Constitutional delay in growth and maturation( puberty) ( 5 marks)

### Section C: Long Answer Questions (40Marks)

Q1. A 25 year old Mr. J. Shivembe from Kakamega Township is a patient who has lived with diabetes since the age of 9 years. He has been on insulin therapy (Mixtard 70/30) 20 IU in the morning and 10 IU in the evening. He developed acute cough productive of whitish sputum, bilateral chest pain 4 days ago and as a result was unable to travel to the clinic that was scheduled 2 days ago. He had ran out of medications a days ago prior to the onset of the chest symptoms. He was brought to the casualty unit by a friend who found him unconscious in his house. Vital signs taken at casualty by the clinical officer manning the station found that he was breathing fast with a respiratory rate of 30 breaths per minute, Temperature of 38<sup>0</sup> Celsius, he had dry mucus membranes with reduced skin turgor. He ordered and obtained a random blood sugar, urinalysis and Blood gas analysis that showed: RBS 17 mmol/l, 4+ ketones in urine, a bicarbonate of 18 meq/l and a PH of 7.2 (20marks)

**Required:**

- a. Identify the acute complication of the type of chronic medical condition the patient is suffering from given the clinical presentation and the laboratory findings (2marks)
- b. List the precipitating conditions of the acute complication in (a) above(3 marks)
- c. Outline the General principles of management of the acute complication in (a) above and the patient in general (15 marks)

**Q2. Discuss Rheumatoid arthritis as a common rheumatologic disease under the following headings (20marks)**

- a. Definition( 2 marks)
- b. Causes(6marks)
- c. Diagnostic Criteria (7marks)
- d. Complications (5 marks)