



KISII UNIVERSITY
UNIVERSITY EXAMINATIONS

THIRD YEAR EXAMINATION FOR THE AWARD OF THE DEGREE
BACHER OF SCIENCE IN CLINICAL MEDICINE AND COMMUNITY HEALTH
THIRD SEMESTER 2022/2023
[MAY-AUGUST, 2023]

MEDS 360: MEDICINE

STREAM: Y3S3

TIME: 2 HOURS

DAY: WEDNESDAY, 9:00 – 12:00 PM

DATE: 26/07/2023

INSTRUCTIONS

1. *Do not write anything on this question paper.*

PAPER I: ESSAY

SECTION A: SHORT ESSAY QUESTIONS (60 MARKS)

This section is composed of six compulsory short essay questions of ten marks each. Attempt all questions

1. Write short notes on Helicobacter pylori and its significance in medicine (10 marks)
2. Write short notes on diabetes insipidus (10 marks)
3. Write short notes on chronic diarrhea (10 marks)
4. Write brief notes on proteinuria (10 marks)
5. Outline the causes of a high anion gap metabolic acidosis (10 marks)
6. Write short notes on the role of aldosterone in sodium regulation (10 marks)

SECTION B: LONG ESSAY QUESTIONS (40 MARKS)

This section comprises of three long essay questions of twenty marks each, attempt any two questions.

1. Define and describe the pathophysiology acute kidney injury and outline the principles of management (20marks)
2. Discuss the pathophysiology and outline principles of management of ascites in liver cirrhosis (20marks)
3. Define end-stage renal disease and discuss its management (20marks)

PAPER II: MULTIPLE CHOICE QUESTIONS

This section comprises of sixty questions, each question having four options. Mark ONLY ONE correct response. There is no penalty for wrong responses

1. Increased sympathetic discharge in the renal nerves will result in:
 - A. Dilatation of the afferent and efferent arterioles.
 - B. Decreased secretion of renin.
 - C. Increased RBF (renal blood flow).
 - D. An increase in the GFR.
 - E. Renal retention of sodium and water.
2. Renal papillary necrosis is found in the following conditions
 - A. Diabetes insipidus
 - B. Sickle cell disease
 - C. Medullary cystic disease
 - D. Diabetes insipidus
 - E. Renal artery stenosis
3. The actions of angiotensin II (AII) include:
 - A. Peripheral vasodilatation.
 - B. Desensitization of the thirst center.
 - C. Inhibition of aldosterone secretion.
 - D. Stimulation of ADH secretion.
 - E. Stimulation of renin secretion.
4. Death due to renal failure is unusual in
 - A. Severe sepsis
 - B. Systemic sclerosis (scleroderma)
 - C. multiple myeloma
 - D. Paget's disease of bone (osteitis deformans)
 - E. Henoch-Schönlein syndrome
5. Recognized features of distal renal tubular acidosis (Type 1) include:
 - A. a urine pH < 5.3 in the presence of acidaemia
 - B. An increased anion gap
 - C. Hyperkalaemia
 - D. Nephrocalcinosis
 - E. Gigantism
6. Intravenous contrast nephrotoxicity
 - A. Is more common in patients who are underweight
 - B. Is more likely to occur if hypertension is present
 - C. Is prevented by an intravenous infusion of dopamine
 - D. Is more likely in the presence of water and salt depletion
 - E. Does not occur if non-ionic contrast is used
7. The acute nephritic syndrome is a recognized complication of the following diseases, except?
 - A. Crescentic glomerulonephritis
 - B. Lupus glomerulonephritis
 - C. Mesangio-capillary glomerulonephritis
 - D. Amyloidosis
 - E. mesangial IgA nephropathy
8. Non-gonococcal urethritis
 - A. Has a recognized association with keratoderma blenorrhagica
 - B. Responds to treatment with penicillin
 - C. Gives rise to symptoms in the majority of affected females

- D. Can be easily differentiated clinically from gonorrhoea
- E. Is not a recognized cause of sterile pyuria
9. The following are reabsorbed predominantly in the proximal renal tubule except?
- water
 - sodium
 - Phosphate
 - calcium
 - Bicarbonate
10. What is the most likely outcome of minimal change nephropathy at 16 year of age?
- a tendency to relapse
 - Full renal recovery
 - Permanent renal impairment
 - Persistent hypertension
 - Nephrocalcinosis
11. A 44-year-old woman with type 1 diabetes mellitus has not attended the diabetic clinic for 5 years. Her HbA1c is 10.1%. Examination shows no abnormalities. Her hemoglobin level is 9 g/dL, hematocrit is 28%, and mean corpuscular volume is 94 mcm³. A blood smear shows normochromic, normocytic anaemia. Which of the following is the most likely cause?
- acute blood loss
 - chronic lymphocytic leukaemia
 - erythropoietin deficiency
 - Microangiopathic haemolysis
 - diabetic nephropathy
12. A 24-year-old man undergoes successful renal transplantation with a matched related donor graft. One month later he presents with a high fever and leucopenia. His clinical condition deteriorates rapidly and he becomes dyspnoeic. Liver function tests are markedly deranged. Which of the following is the most likely cause of his illness?
- Adenovirus
 - Coxsackie virus
 - Cytomegalovirus
 - Parvovirus B19
 - Varicella zoster virus
13. Complications of nephrotic syndrome include all except
- Anemia
 - Malnutrition
 - Coagulopathies
 - Hypokalemia
 - Infections
14. Not true about acute kidney injury
- Associated with abrupt decline in kidney function
 - Clinical features include azotemia
 - Clinical features include normocytic normochromic anemia
 - Clinical features include abnormal urine volume

- E. Convulsions may be a cause
15. Dietary management of chronic kidney disease does not include the following
- A. Protein restriction
 - B. Sodium and water restriction
 - C. Potassium restriction
 - D. Phosphate supplementation in hypocalcemia
 - E. Calcium supplementation in hypocalcemia
16. Complications of renal transplantation include all the following except
- A. Late allograft loss
 - B. Denovo glomerulonephritis
 - C. Acute hypocalcemia
 - D. BK-virus nephropathy
 - E. Immunosuppression
17. All are mechanisms of analgesic nephropathy except
- A. Vasomotor acute kidney injury
 - B. Acute interstitial nephritis
 - C. Acute pyelitis
 - D. Acute tubular necrosis
 - E. Chronic interstitial nephritis
18. The commonest cause of glomerulonephritis in adults
- A. Immunoglobulin A (IgA) nephropathy
 - B. Idiopathic anti-GBM (glomerular basement membrane) disease
 - C. Systemic lupus erythromatosis (SLE)
 - D. None steroidal anti-inflammatory drugs (NSIADs)
 - E. Post streptococcal glomerulonephritis
19. The following are secondary causes of proteinuria EXCEPT?
- A. Systemic lupus erythromatosis(SLE)
 - B. Bacterial Endocarditis
 - C. IgA nephropathy
 - D. Sickle cell disease
 - E. Myeloma amyloid nephropathy
20. The following are causes of hyperkalemia except
- A. increased potassium salts intake

- B. cellular potassium release
 - C. ACE inhibitors and ARBs
 - D. Use of calcium channel blockers
 - E. Beta blockers
21. Regarding IBD which is FALSE
- A. Erythema nodosum tends to correlate well with the activity of the underlying bowel disease
 - B. UC commonly involves the colon but not the anus
 - C. Smoking worsens Crohn's disease
 - D. Nephrolithiasis occurs more commonly with UC
22. Regarding hepatitis B infection which is FALSE?
- A. HBsAG with normal liver enzymes suggests a healthy carrier
 - B. IgM anti-HBc is used to identify chronic hepatitis
 - C. Anti-HBs imply prior infection and Immunity
 - D. In patients who are HBV DNA positive, transplantation may be followed by severe recurrent disease
23. Which is the BEST marker of liver function in acute liver failure?
- A. Prothrombin time
 - B. Albumin
 - C. Plasma ammonia
 - D. Bilirubin
24. Which of the following is NOT a feature of Acute Liver Failure
- A. Raised ALT
 - B. Jaundice
 - C. Encephalopathy
 - D. Centrilobular or panacinar necrosis
25. Which of the following is TRUE regarding Boerhaave's syndrome?
- A. Diagnosis and surgery within 48 hours has a survival rate of greater than 50%
 - B. Barium oesophagram is an appropriate investigation
 - C. Haematemesis is unusual
 - D. 90% of erect chest x-rays are initially normal
26. Which statement is TRUE regarding inflammatory bowel disease?
- A. Bowel resection in Crohn's disease is curative

- B. Toxic megacolon is indicated by a transverse colon diameter > 10 cm
- C. > 10 motions/day is indicative of fulminant disease in ulcerative colitis
- D. Episcleritis is the most common extra-intestinal manifestation
27. Which statement is FALSE regarding Button battery ingestion?
- A. Esophageal perforation has occurred within 6 hours post ingestion
- B. Mercuric poisoning is a possibility but no clinical case has been recorded
- C. Around 1/3 of patients may be asymptomatic with the battery lodged in the oesophagus
- D. The discharge state (power remaining) of the battery correlates with outcome
28. The following about ingestion of strong acids / alkali is true EXCEPT
- A. The oesophagus may have significant burns with normal lips and oral cavity on examination
- B. Endoscopy within 24 hrs is indicated for all symptomatic patients, patients with visible oropharyngeal burns and all patients with intentional ingestions
- C. The use of corticosteroids following alkali ingestion prevents the formation of strictures
- D. Ingestion of strong alkali cause 'liquefying' necrosis with high penetration of tissues
29. Regarding causes of oesophageal obstruction, which one is TRUE
- A. Median survival for oesophageal cancer is < 1 year
- B. Treatment of a Schatzki ring is endoscopic excision
- C. Oesophageal webs are usually found in the distal oesophagus
- D. Oesophageal obstruction in children is often caused by oesophageal diverticula
30. Which of the following is NOT an extra intestinal manifestation of IBD
- A. Uveitis
- B. Erythema nodosum
- C. Pancreatitis
- D. Alopecia
31. Concerning iron, which one is correct?
- a) Gastrectomy increase iron absorption
- b) Has many intravenous forms e.g ferrous gluconate
- c) Tolerance test is required after infusion of 100-200mg
- d) Iron is regulated at absorption level in the normal state
- e) Iron is stored in the liver in the form of transferrin

32. An alcoholic man has pale stools, dark urine, RUQ pain, AST 2000, ALP 100, Bilirubin 50, vomiting and diarrhoea. The most likely diagnosis is:

- a) Drug-induced hepatitis
- b) Viral hepatitis
- c) Obstructive jaundice
- d) Chronic active hepatitis
- e) Alcoholic steatosis

33. A known alcoholic with anorexia and nausea has become jaundiced. His urine is dark and his faeces pale. He has discomfort in the right hypochondrium. The AST (SGOT) is 2000 IU/l, the alkaline phosphatase 100 IU/l and the serum bilirubin is 75 micromol/l. The best treatment would be

- a) Withdrawal of alcohol
- b) Expectant
- c) Operation to remove obstruction (gallstones tumour)
- d) Urgent liver biopsy
- e) Protein restriction

34. Jaundice without bilirubin in the urine is seen in:

- a) Carcinomatosis
- b) Acquired haemolytic anaemia
- c) Obstruction of common bile duct
- d) Infective hepatitis
- e) Cholestasis

35. The double stranded hepatitis B virus can survive outside the body for

- a) Less than 4 hours
- b) Six to twelve hours
- c) One to two days
- d) More than seven days
- e) Five days

36. A 50-year-old man has noted passing darker urine for the past week. On physical examination there are no abnormal findings. A urinalysis shows pH 5.5, specific gravity 1.013, 2+ blood, no protein, and no glucose. A urine cytology is performed and there are atypical uroepithelial cells seen. A urologist performs a cystoscopy, but no mucosal lesions are noted. He has a 60 pack year history of smoking cigarettes.

Which of the following is the most likely diagnosis?

- a) Adenocarcinoma of prostate
- b) Urothelial carcinoma of renal pelvis
- c) Acute interstitial nephritis
- d) Nodular glomerulosclerosis
- e) Squamous cell carcinoma of penis

37. In the pharmacological treatment of acute variceal bleeding, which intravenously administered drug has been shown to have a reduction in mortality when used in comparison with a placebo?

- A. Somatostatin
- B. Vasopressin
- C. Terlipressin
- D. Octreotide

38. The risk of transmission of Hepatitis C to a health care worker from an infected patient after a needle stick injury is approximately

- A. 0.5%
- B. 2-8%
- C. 8-15%
- D. 15-20%
- E. 20-30%

39. Not true about acute pancreatitis

- A. Elevation of amylase always points to the diagnosis
- B. Grey Turner is a sign
- C. Cullen is a sign
- D. Management is mainly supportive
- E. CT scan abdomen may be useful

40. True about peptic ulcer disease except

- A. Associated with cigarette smoking
- B. PPIs are useful
- C. Associated with H. pylori
- D. Avoidance of certain foods is mandatory for management
- E. Dyspeptic symptoms are common

41. Concerning iron, which one is correct?

- a) Gastrectomy increase iron absorption
- b) Has many intravenous forms e.g ferrous gluconate
- c) Tolerance test is required after infusion of 100-200mg
- d) Iron is regulated at absorption level in the normal state
- e) Iron is stored in the liver in the form of transferrin

42. In the management of Acute Kidney injury all are true except

- a) Identify co-existing respiratory acid-base balance.
- b) In treatment, correct the underlying disease, replenish potassium and magnesium deficits.
- c) Saline sensitive metabolic alkalosis is the most common
- d) Consider treatment with endogenous alkali.
- e) Hemodialysis in a patient with marked renal failure may be indicated

43. Which of the following is true about sodium homeostasis.
- a) Hyponatremia suggests too little water in the extracellular fluid relative to sodium.
 - b) Hypernatremia suggests too much water in the extracellular fluid relative to sodium.
 - c) Hypernatremia is more common than Hyponatremia.
 - d) Hyponatremia is commonly associated with decreased serum osmolality.
 - e) Hyponatremia can't be caused by the syndrome of inappropriate antidiuretic hormone secretion
44. Upper GIT bleeding
- a) Refers to bleeding distal to ligament of trietz
 - b) Forms 75% of lower GIT bleeding
 - c) When caused by oesophageal varices almost always is due to portal hypertension
 - d) Ocreotide play no role in its management
 - e) Always caused by peptic ulcer disease
45. You are called at night to see a 45 year old man admitted in rehabilitation centre for alcoholism. He has vomited blood more than four times. He tells you that he has been taking alcohol since early adulthood. He has been in the centre for the last one month but has never vomited blood before and he thinks his problem is because he is not getting alcohol. What would you do first?
- a) Put him on antacid and sedation
 - b) Prepare him for emergency surgery
 - c) A quick assessment, resuscitation and urgent endoscopy
 - d) Investigate for Mallory- Weiss syndrome
 - e) Take him urgent endoscopy plus band ligation or sclerotherapy
46. Complications of nephrotic syndrome include all except
- a) Anemia
 - b) Malnutrition
 - c) Coagulopathies
 - d) Hypokalemia
 - e) Vitamin D deficiency
47. Not true about acute kidney injury
- a) Associated with abrupt decline in kidney function
 - b) Clinical features include azotemia
 - c) Clinical features include normocytic normochromic anemia
 - d) Clinical features include abnormal urine volume
 - e) May progress to chronic kidney disease
48. Dietary management of chronic kidney disease does not include the following
- a) Protein restriction
 - b) Sodium and water restriction
 - c) Potassium restriction
 - d) Phosphate supplementation in hypocalcemia
 - e) Calcium supplementation
49. Complications of renal transplantation include all the following except
- a) Late allograft loss
 - b) Denovo glomerulonephritis
 - c) Acute hypocalcemia

- d) BK-virus nephropathy
 - e) Chronic immunosuppression
50. All are mechanisms of analgesic nephropathy except
- a) Vasomotor acute kidney injury
 - b) Acute interstitial nephritis
 - c) Acute pyelitis
 - d) Acute tubular necrosis
 - e) Chronic interstitial nephritis
51. The following may result in esophageal motility disorders except
- a) Diabetes mellitus
 - b) Scleroderma
 - c) Amyloidosis
 - d) African trypanosomiasis
 - e) American trypanosomiasis
52. Precipitants of gastroesophageal reflux include all except
- a) Supine position
 - b) Prone position
 - c) Fatty foods and caffeine
 - d) Pregnancy
 - e) Cigarette smoking
53. A rapid rise in creatinine and urea is most suggestive of
- a) Acute Kidney Injury
 - b) Chronic Kidney Disease Stage V
 - c) Nephrotic syndrome
 - d) Nephritic syndrome
 - e) Diabetic nephropathy
54. Low blood albumin and proteinuria is most suggestive of
- a) Acute Kidney Injury
 - b) Nephritic syndrome
 - c) Glomerulonephritis
 - d) Nephrotic syndrome
 - e) SLE nephropathy
- 55 Which of the following is NOT a method of renal tubule damage?
- a) Hypotension
 - b) Glomerular damage
 - c) Hypertension
 - d) Deposition of abnormal proteins
 - e) Direct poisoning by myoglobin
- 56 Which of the following symptoms would be typically found in pyelonephritis but not cystitis?
- a) Fever
 - b) Haematuria
 - c) Dysuria
 - d) Polyuria
 - e) Confusion

57. A 19 year old lady presents with gross oedema and frothy urine. She is investigated and is found to have an albumin of 10 and heavy proteinuria of 11.5g/l with a Cholesterol of 9. She undergoes a renal biopsy and is diagnosed as having Minimal Change nephropathy. She initially goes into remission with oral Prednisolone but on withdrawal of Steroids relapses quickly. She is readmitted with a painful left leg and further significant oedema. D-Dimers are elevated and a Deep Vein Thrombosis extending to her External Iliac Vein is diagnosed on Doppler Ultrasound. She is commenced on Heparin but symptoms fail to respond. She is back on oral Prednisolone and diuretics. Her albumin remains at 20. On examination she has gross oedema of both legs and some mild facial swelling. Her Left leg is painful and erythematous with a dusky hue. JVP is not raised. Her BP lying is 110/70 and standing is 102/62. Her clotting studies show an APTT ratio of 1.86 and INR of 1.5. What is the most likely Diagnosis?

- a) Antithrombin-III deficiency
- b) Hodgkin's disease
- c) Dehydration
- d) Inadequate Heparin
- e) Warfarin resistance

57. A 44-year-old woman with type 1 diabetes mellitus has not attended the diabetic clinic for 5 years. Her HbA1c is 10.1%. Examination shows no abnormalities. Her hemoglobin level is 9 g/dL, hematocrit is 28%, and mean corpuscular volume is 94 mcm³. A blood smear shows normochromic, normocytic anaemia. Which of the following is the most likely cause?

- a) Acute blood loss
- b) Chronic lymphocytic leukaemia
- c) Erythropoietin deficiency
- d) Microangiopathic haemolysis
- e) Vitamin B12 deficiency

58. A 24-year-old man undergoes successful renal transplantation with a matched related donor graft. One month later he presents with a high fever and leucopenia. His clinical condition deteriorates rapidly and he becomes dyspnoeic. Liver function tests are markedly deranged.

Which of the following is the most likely cause of his illness?

- a) Adenovirus
- b) Coxsackievirus
- c) Cytomegalovirus
- d) Parvovirus B19
- e) Acute HIV infection

59. A 26 year old female who is 13 weeks pregnant is seen in the outpatient clinic and noted to have a sustained blood pressure of 170/92 mmHg. She has no past medical history of note and has otherwise been well and asymptomatic. This is her first pregnancy. Examination is otherwise generally normal and no abnormalities are noted on fundoscopy. Ultrasound examination of the kidneys showed both kidneys to be of equal size 9-10 cm. Urinalysis reveals protein (+) and blood (+).

What is the most appropriate anti-hypertensive therapy for this patient?

- a) ACE inhibitor
- b) Alpha-Methyldopa

- c) Beta-blocker
- d) Labetalol
- e) Angiotensin II receptor blockers

60. A 74 years old male presents to his General Practitioner with dyspnoea. Over the last three months he has been aware of deteriorating breathlessness and exercise capacity. He has noticed that he now develops breathlessness after walking 100 yards on the flat. He has also noticed an approximate 7 kg weight gain over this time. Up until this illness he has been well and takes no medication. Examination reveals that he appears comfortable at rest, has a BMI of 29.5 kg/m², a blood pressure of 124/88 mmHg and has a slight elevation of the jugular venous pressure, peripheral oedema to the mid tibia with bibasal fine crackles on chest examination. Auscultation of the heart is normal. His investigations at that stage reveal a urea of 8.5 mmol/l and a creatinine of 161 micromol/l and the GP starts him on amiloride 10 mg together with frusemide 80mg od.

One week later, he returns with markedly improved symptoms, being now asymptomatic and the frusemide is stopped. Repeat blood tests reveal a urea of 12.1 mmol/l, a creatinine of 190 micromol/l, with a sodium concentration of 134 mmol/l and a potassium of 5.9 mmol/l. An ECG is normal.

What is the most appropriate management of his hyperkalaemia?

- a) Do nothing
- b) Give calcium gluconate
- c) Give calcium resonium
- d) Give insulin + dextrose infusion
- e) Give sodium bicarbonate