1. a) Write short notes on the following
   i) Mechanisms of mitral regurgitation in a patient with myocardial infarction. (3)
   ii) Hypertensive retinopathy. (4)
   iii) How to measure jugular venous pressure (JVP). (4)

b) A 50-year-old male patient is admitted and on treatment for congestive heart failure
   i) Explain how you would monitor clinical status of this patient. (4)

c) i) Discuss non-atherosclerotic causes of cardiac ischaemia. (4)
    ii) List three drug classes for the management of angina pectoris and give one example under each drug class. (6)

2. Discuss
   a) The clinical features and signs of diverticular disease of the colon. (13)
   b) What tests would you do to confirm the diagnosis? (5)
   c) What advise would you give to the patient with diverticular disease? (7)

3. A 50-year-old female patient who stays alone, a known diabetic on Metformin and glibenclamide, is brought in by a neighbour after collapsing at her gate. Her blood glucose is found to be 2mmol/litre and she is cold and sweaty
   a) Is she for possible admission? - if so why? (5)
   b) Which of the 2 drugs above is responsible for her blood sugar level? (5)
   c) What is the best way to manage this patient? (5)
   d) Would you use glucagon for this patient? – support your answer briefly? (5)
   e) What is your comment on the use of sulphonylureas in elderly generally; taking into consideration especially regarding glibenclamide in reference to modified SEMDSA Guidelines of 2012 regarding management of a Type 2 Diabetic. (5)

4. List 5 factors predisposing to renal calculi, the different metabolic causes of renal calculi and how you would investigate a patient with renal stones. (25)
1 a) Mr YK is a 35-year-old married insurance broker who has been on antiretrovirals (ARVs) for 10 years. He started taking antiretroviral therapy (ART) in Zimbabwe but has been living in South Africa for the last 8 years. His CD count has been ‘normal’ for years and is currently 845 cell/µL. His viral load is undetectable. He is on tenofovir (TDF), lamivudine (3TC) and efavirenz (EFV). For the past three months he has noticed increasing drowsiness. He falls asleep while interviewing clients. He has also become forgetful. Five years ago he had become depressed and stopped his ART for a year but was persuaded by his GP to restart. His viral load returned to undetectable levels. His clinical examination including that of the nervous system, is normal. A lumbar puncture was performed by the referring physician: CSF clear and colourless, opening pressure 13cm H₂O, no cells present, the microscopy and culture was normal. The total CSF protein was 0.62g/l. CSF chloride and glucose were normal. You suspect that Mr YK may have an encephalitis or an encephalopathy. How will you confirm your suspicion and what will you do about it? (13)

b) Mrs A.N is a 45-year-old HIV-infected lady not yet on ART who was admitted to hospital in April 2015. Three weeks before she had complained of a painful rash involving her right forehead and adjacent scalp. Two days before her admission her family noticed increasing drowsiness and confusion. In the emergency room her Glasgow Coma Scale (GCS) was 11/15. The healing scar of a herpes zoster infection was visible adjacent to her right eye. She resisted any attempt to open that eye. Neck stiffness was present. The rest of the examination was normal. Her CD4 was 210 c/µL and her plasma viral load, 21,000cp/ml. Her FBC, U&E and LFTs, glucose and RPR were normal or negative. The LP revealed a CSF protein of 2.25g/l, a sugar of 0.5mmol/l, 28 lymphocytes and 30,000 red cells. CSF culture was negative and her cryptococcal antigen (CrAg) was negative in serum and CSF. The CT Brain scan revealed cerebral edema without hydrocephalus or focal lesions. Her ward doctors started ceftriaxone and hydrocortisone intravenously. Mrs A.N has been lying in her hospital bed for 10 days. She is not getting better. You have been asked to assist her doctors. Explain the clinical findings, the likely diagnosis (diagnoses) and provide your ward colleagues with a plan that will help this patient to recover. (12)
2 a) Discuss how you would approach a patient who has been on regimen 1 anti-TB treatment and developed jaundice under the following headings
   i) Possible causes. (3)
   ii) Investigations. (3.5)
   iii) Management. (8.5)

b) Briefly discuss cryptococcal meningitis under the following headings
   i) Clinical features. (2)
   ii) Investigations. (2)
   iii) Treatment and prevention. (6)

3 Write short notes on the following
   a) Hyperkalaemia under the headings
      i) Clinical Features. (4)
      ii) ECG changes. (7)
      iii) Therapy. (8)

b) Warfarin overdose. (25)

4 a) Write short notes on the clinical features of the following
   i) Psoriatic arthritis. (4)
   ii) Reactive arthritis. (3)

b) A 35-year-old female patient referred by local clinic to your outpatient department for opinion. She is on treatment for rheumatoid arthritis for five years and she is asymptomatic. She visited her local clinic for assessment of possible pregnancy. Her examination findings at the local clinic revealed that she is two months pregnant. Discuss the management of this patient under the following
   i) Drug classes for the management of rheumatoid arthritis which this patient may be taking. Give one example in each drug class mentioned. (8)
   ii) Mention three drugs for the management of rheumatoid arthritis which must be avoided in this patient. (3)

c) Discuss gouty arthritis under the following
   i) List three haematological conditions that can precipitate acute gouty arthritis. (3)
   ii) Explain why acute gouty arthritis commonly involves joints of lower extremities. (2)
   iii) Patients with acute gouty arthritis with tophi develop worsening of symptoms instead of improvement when given uric acid lowering agents. Explain this paradoxical association between acute gouty arthritis and initiation of uric acid lowering agents such as allopurinol in patients with tophi. (2)