Q.1 A 62-year-old male smoker, peon in a bank with a long history of treatment for depression presented with complaints of severe insomnia, polyuria and polydipsia for 5 months. He also had history of seasonal exacerbation of asthma for 10 years aggravated by smoking and dust. There was also complaint of cough and some sputum. He drank a glass of water with every bout of coughing. On examination his BP was 190/115 mmHg and he was afebrile. On chest examination there was harsh vesicular breathing. Rest of the systemic examination was unremarkable. His 24 hours urine output was 9 liters with an intake of approximately 10 liters. Blood glucose was normal and CXR showed increased lung marking shadows bilaterally.

a) What is the differential diagnosis? Give brief justification in 1-2 lines.
b) How will you investigate him? Give justification in maximum 2 lines.
c) What is the treatment?

Q.2 A 35-year-old male, manager of a tourism company visited medical outpatients department with 8 months history of weakness, fatigue and weight loss. He was anorexic and had recently lost interest in all physical activities. He also had low grade fever and difficulty in walking due to proximal muscle weakness. There was no history of alcohol or recreational drug use. On examination he was irritable and restless, pulse was 84/min, BP 94/62 mmHg, temperature 37.4°C, respiratory rate was 16/min and he was moderately anaemic. Generalized cervical lymph node enlargement and some darkening of complexion were also noted. Investigations reveal Hb 10.5 g/dl, WBC 3000×10^3/μl, neutrophils 60%, monocytes 5%, eosinophils 12%, basophils 1%, lymphocytes 38%, Platelets 145000×10^3/μl, direct Coomb’s test positive, Na 120 mmol/L, K 5.1 mmol/L and Ca 10.9 mg/dl.

a) What are 3 differential diagnoses?
b) How will you investigate this case? Give justification.
c) How will you manage this case?
Q.3 A 45-year-old man presented with one year history of snoring and unrefreshing sleep. There was a history of witnessed apnoeic episodes. His Epworth sleepiness score was 7/24. His body mass index was 40 kg/m². His overnight sleep study demonstrated a 4% desaturation index of ten events per hour.

a) Which management option is most likely to improve his sleep quality and what are the indications for its use?

b) What different surgical procedures, if needed, may be performed on this patient?

Q.4 A 50 year old unemployed man presents to hospital. He gives history of weight loss over the past four months and also complains of weakness. Specially, he has had difficulty climbing upstairs and in rising from his armchair at home. He finds that weakness is more prominent at the end of the day. He has smoked 20 cigarettes daily for 40 years. His blood pressure is 197/98 mmHg. Investigations are as follows:

<table>
<thead>
<tr>
<th>Test</th>
<th>Value</th>
<th>Normal Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hemoglobin</td>
<td>9.9 g/dL</td>
<td>(13.0-16.0)</td>
</tr>
<tr>
<td>White cell count</td>
<td>9.8x10⁹/L</td>
<td>(4-10x10⁹)</td>
</tr>
<tr>
<td>Platelets</td>
<td>350x10⁹/L</td>
<td>(150-400x10⁹)</td>
</tr>
<tr>
<td>Sodium</td>
<td>145 mmol/L</td>
<td>(137-144)</td>
</tr>
<tr>
<td>Potassium</td>
<td>2.8 mmol/L</td>
<td>(3.5-4.9)</td>
</tr>
<tr>
<td>Urea</td>
<td>4.1 mmol/L</td>
<td>(2.5-7.5)</td>
</tr>
<tr>
<td>Creatinine</td>
<td>120 μmol/L</td>
<td>(60-110)</td>
</tr>
<tr>
<td>Bicarbonate</td>
<td>35 mmol/L</td>
<td>(20-28)</td>
</tr>
<tr>
<td>Glucose</td>
<td>12.9 mmol/L</td>
<td>(3.0-6.0)</td>
</tr>
</tbody>
</table>

a) What is the diagnosis?

b) Which investigations would be most useful in establishing the cause of his illness?
A 52-year-old man was admitted to this hospital because of weakness and swelling in his legs. The patient had been in his usual health until 9 months earlier, when leg edema and weakness developed, associated with weight gain. His physician prescribed diuretic agents; the edema improved and the patient lost weight, but the leg weakness worsened and the patient had difficulty climbing stairs and standing up from a seated position. Laboratory tests revealed hypokalemia. The diuretics were discontinued, and potassium supplementation was started. Approximately 6 months after the onset of symptoms, erythema and swelling developed in both hands. The patient was admitted to hospital, where a diagnosis of cellulitis caused by methicillin-sensitive Staphylococcus aureus was made, and treated with IV antibiotics. Six days after discharge, the patient came to the emergency department at this hospital because of debilitating weakness in his legs and hips; he was unable to stand and had edema of the legs with extension to the waist. He reported increased irritability and bruising on his arms. On examination BP was 160/100 mmHg and the other vital signs were normal; the face was round and full; and the abdomen was obese, with dark abdominal stretch marks greater than 1 cm in width, and multiple ecchymoses. Distal leg strength was grade 4; there was 3+ edema extending to the hips bilaterally. The remainder of the examination was normal.

Glucose 175 mg/dl  
Hb 11.4 g/dl  
TLC 14400 count/mm³ (4-11000)  
Calcium 8.4 mg/dl (8.5-10.5)  
Phosphate 2.2 mg/dl (2.6-4.5)  
Cortisol (9am) 36.5 µg/dl (5-25)

a) What is the differential diagnosis?  
b) List with justification (one line each) 5 further points in the history which would yield useful clues.  
c) c)List 5 further investigations and dynamic testing which you will perform. Give interpretation (2 lines each).
Q.6 A 35-year-old man was referred to the Endocrinologist after his spouse had persuaded him to see his doctor. His spouse had commented that the patient had no interest in sex, had lost interest in social life and was commonly asleep in the evenings. His total serum testosterone was 3 nmol/L (86 ng/dL) with an SHBG in the upper part of the normal range. The levels of both gonadotrophins were three times the upper limit of normal. On further questioning the man who was tall, had never really felt much sex drive. He only needed to shave once a week to avoid facial hair growth. On examination bilateral gynaecomastia was noted and both testes were small.

a) Where is the site of pathology?
b) What is the most likely diagnosis and how might this be investigated further?
c) What treatment and advice are needed?
d) What other abnormalities require surveillance?

Q.7 A 28 years old man presented to surgical emergency with facture neck of femur following a minor trauma. He gave a history of generalized joint pains, more so of small joints for 1½ years, for which he had been using analgesics with inadequate relief. He also gave h/o polydipsia, polyuria (4 litres/day), off & on abdominal pain, constipation and retrosternal burning. No history of weight loss, anorexia, lumps and bumps in body. No history of cough, breathlessness, rash, use of diuretics/steroids or any drugs regularly. Vitally he is stable and systemic review is unremarkable except fracture. Investigations reveal Hb 0.6 g/dl, serum calcium 11.8 mg/dl, WCC 7.6x10^9/L, serum phosphate 2.9 mg/dl, platelets 306x10^9/L, serum albumin 3.6x10^9/L, ALP 5864 IU/L.

a) What further investigation you will do?
b) What is the diagnosis? Justify.
c) How will you manage this patient?
d) What are associations of this condition?
Q.8 A 42-year-old female with no prior comorbidities presented with complaint of swelling in front of neck for last 3 months that gradually increased in size. She started noticing some swallowing difficulty that made her visit to a doctor. She also had back pain, body aches and joint pains. No history of heat/cold intolerance. No bowel or menstrual disturbance. On examination a young female with average built, hoarse voice, weight 70 Kg, BP 140/90 mmHg, pulse 80/min regular. She had mildly pallor, JVP was not raised, normal reflexes, CVS and chest examination unremarkable. There was a lump in left lobe of thyroid, firm, nontender, eye signs -ve. A single lymph node was also palpable in the left anterior angle of neck.

a) What is the diagnosis? Please justify in 2 lines.
b) How will you investigate? Please justify in maximum 2 lines.
c) How will you manage this case?

Q.9 A 79-year-old man with a history of atrial fibrillation who is currently taking warfarin is presented to the emergency department (ED) following 2 syncopal episodes. Each episode was without any preceding prodromal symptoms. His first syncopal episode occurred while in the bathroom shaving in the morning. He awakened on the bathroom floor after an undetermined amount of time and was able to crawl to the kitchen and took a glass of orange juice, which led to an improvement of his status. On evaluation by the emergency medical service (EMS), the patient was noted to have a blood glucose of 20 mg/dL (1.11 mmol/L), for which he received 1 ampule of 50% dextrose. He became alert and responsive immediately after being treated with dextrose. Plain-film radiography of the chest demonstrates a mass in the lower left chest, Computed tomography (CT) scanning of the chest reveals a mass measuring 6.5 x 4.5 x 4.1 in (16.4 x 11.4 x 10.4 cm) in the left lower lobe consistent with a hematoma versus tumor.

a) What is the patient’s clinical diagnosis and cause of his recurrent syncopal episodes?
b) What is the differential diagnosis and what is the most likely underlying cause? Please justify in 2 lines.
Q. 10 In evaluating a 50-year-old man with type 2 DM and no known history of CAD, you note that his fasting lipid profile shows the following:

<table>
<thead>
<tr>
<th>Lipid</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>LDL</td>
<td>150 mg/dl</td>
</tr>
<tr>
<td>Total cholesterol</td>
<td>230 mg/dl</td>
</tr>
<tr>
<td>Triglycerides</td>
<td>255 mg/dl</td>
</tr>
<tr>
<td>HDL</td>
<td>31 mg/dl</td>
</tr>
<tr>
<td>HbA1c</td>
<td>9.2%</td>
</tr>
</tbody>
</table>

a) What is ADA recommended target lipid level in this case?
b) What is IDF recommended glycemic target in this case?
c) Name 4 commonly used statins.
d) What are acute and chronic adverse effects of statins?