Q. 1 A 35 years nulliparous woman presented with ill health and right sided chest pain. She has bloated face with anaemic look and rash over face. She was diagnosed by a pulmonologist as a case of tuberculous pleural effusion on the basis of exudative, lymphocytic effusion. She was on anti TB drugs (RHEZ) for the last two months with no response. On enquiry she also gives history of hair falling.

a) What is the most likely diagnosis?
b) What 3 tests you will perform to confirm your diagnosis?
c) Give 4 steps in the management of this patient?

Q. 2 A 30 years old female came to you with a relapse of smear positive PTB. She was started on category II treatment containing SHRZE. After 2 months of this treatment she started complaining of loss of visual acuity.

a) Name 5 Anti TB drugs which can cause optic neuritis.
b) How you will manage this case now?

Q. 3 A 31 year old female patient, smoker, presented with the complains of progressive dyspnea and chest pain. Chest radiograph showed left sided pleural effusion. A high resolution chest CT demonstrated diffuse air containing spaces. An abdominal Ultrasound shows hypoechoic lesion in the left kidney.

a) What investigations will you perform on the pleural fluid and what results do you expect?
b) What is the diagnosis? Explain by giving the favoring points to support your diagnosis?
c) What are the general recommendations and drugs options for this disease?
Q.4 A 28 years old admitted with chest pain, increasing shortness of breath with difficulty in climbing and walking. She had been well until 2 weeks before admission, when fever and a cough productive of white, non-bloody sputum developed. On admission her BP was 140/74 mmHg, pulse 127 beats per minute, temperature 38.9°C, respiratory rate 28 breaths per minute, and the SpO₂ 85% on room air. Her lips were dry. She was coughing and scattered wheezing were heard. She had few grouped herpetiform vesicles on the erythematous base along the lower chest wall on right side. She had absent knee and ankle reflexes bilaterally with intact sensation. Her CBC, electrolytes, glucose, LFTs were normal. Her forced vital capacity was 1.2 L/min. A chest x-ray showed patchy opacities in the left middle and lower lung zones and in the right lung base. BAL was hypocellular and cultures of the bronchial washing grew normal respiratory flora; fungal and mycobacterial cultures were negative. A sputum specimen showed no eosinophils. Cultures of the blood were sterile.

a) What is the clinical diagnosis?
b) What complications she had developed?
c) How will you confirm your diagnosis?
d) What is the management?
Q.5 A 37 year old female presented in emergency department after the patient’s daughter found her on a couch, unresponsive, with shaking extremities and drooling. The patient’s daughter reported that she had a headache, ear pain and left hip pain. She had dry cough for 4 months with no dyspnea and amenorrhea for last 2 years. On examination, the patient was agitated, confused. Temperature 37.1°C, BP 114/78 mm Hg, pulse 122 beats per minute, the respiratory rate 22 breaths per minute, and the oxygen saturation 97% on room air. There was right facial droop; the deep-tendon reflexes were 3+ throughout, and spasticity and clonus were evident in the right leg. Her CBC, serum glucose, electrolytes, potassium, and magnesium, LFTs, PFTs were normal. Her serum calcium was 11mg/dl. CSF examination revealed increased lymphocytes, which were predominantly mature. Flow cytometry showed T cells with a CD4:CD8 ratio of 3:4. A tuberculin skin test was negative. CT scan of the chest, abdomen, and pelvis showed bilateral hilar and mediastinal lymphadenopathy. ACE levels was 36 U per liter (normal range, 7 to 46). MRI showed abnormal enhancement involving the leptomeninges, the ependyma, and the parenchyma in both a linear and nodular pattern. There was thickening and diffuse linear and nodular enhancement of the pituitary stalk.

a) What are the differential diagnoses?
b) How will you confirm the diagnosis?
c) What is the treatment?
Q.6 A 37-year-old, right-handed woman was admitted to the hospital because of vertigo, left-sided weakness. She was in her usual state of health until 3 days before admission, when she suddenly had a sensation of the room spinning, associated with nausea and an unsteady gait. A dental procedure had been performed 9 days before presentation, with drainage of periodontal abscesses. She had had numerous episodes of epistaxis since childhood. She had a long history of anemia. On examination temperature was 38°C, with slight pallor and few dilated blood vessel visible on gingiva and on arm skin. She had GCS of 12/15 moving all four limbs with normal respiratory system. Her TLC was 16,500 per cubic millimeter, HB 10.1gm/dl, C-reactive protein level 13.2 mg per liter. MRI revealed a ring-enhancing mass, measuring 8 mm by 9 mm, in the right parietal lobe of the brain. CT scans of the chest showed an enhancing, lobulated mass in the right lower lobe of the lung.

a) What is the probable diagnosis?
b) How will you confirm diagnosis?

Q.7 Male 60, known Rheumatoid Arthritis presented with fever for 2 weeks, dry cough, and progressive dyspnea. He is on methotrexate 12.5 on alternate days; folic acid, 5 mg/wk; and prednisolone, 5 mg/d for the last 5 months. He was otherwise active, bicycling 20 miles each day, until his symptoms began.

His wife is recovering from Pseudomonas pneumonia. He keeps no pets and has no known allergies.

O/E anxious. 38.5 °C (101.3 °F) Pulse 110/min BP 130/60
Chest: diffuse fine crackles Heart: no pericardial friction rub or S3, no murmurs. Abdominal and neurologic examinations are normal.
Synovial swelling without warmth in both wrists and MCP joints
CXR: diffuse interstitial infiltrates

a) What is the most likely diagnosis?
b) How would you manage it?
Q.8  A 54 year banker presented with dyspnea, confusion and right sided chest pain on inspiration. He is a heavy smoker with 30-40 cig/day since his teens. He had lost 10 kg weight in the past 6 months. According to his wife he has become extremely thirsty and was waking several times at night to pass large volume of urine. His blood sugar was found to be in normal ranges several times.

a) What is the provisional underlying diagnosis?
b) Give five possible reasons for his confusion.
c) What is the most likely reason for his polyurea and polydipsia?
d) Name eight appropriate investigations that would help you in further management of the case.

Q.9  A 35 years old known asthmatic presents with fever, sudden shortness of breath, fever, wheezing and expectoration of brownish plugs. On examination, there is hyper resonant note on the right hemithorax with absent breath sounds. Chest X-ray shows patch of pneumonia on the left upper zone and pneumothorax on the right side. This patch of consolidation was present on the right side in the x-ray done two weeks ago. There is neutrophil leukocytosis along with 15% eosinophils.

a) What is the most likely diagnosis?
b) Write 4 tests helpful you to reach the diagnosis?
c) Write 4 steps for the management?

Q.10  67-year-old obese man with known chronic obstructive pulmonary disease (COPD) presents via ambulance. He is drowsy and his wife is unable to rouse him. You arrange a chest X-ray and blood gases:

pH 7.2
pCO₂ 80
pO₂ 54
HCO₃ 28

CXR: Hyperinflated Lung Fields

a) What is the blood gas results show?
b) What is the cause in the same patient?
c) Name five groups of conditions where you can see ventilatory failure?
d) What are the management steps in this patient?
Q.18 A 55 year old male, non smoker, presented with fever, cough and progressive weight loss for 2 months for which he took antibiotics without significant improvement. On chest examination there are basal crepts; rest of the physical examination was unremarkable. On investigation CBC’s/RFT’s and electrolytes are within normal limits, Radiology shows multiple bilateral sub-plural patchy alveolar opacities that are migratory. Spirometry reveals mild to moderate restriction.

a) What is your diagnosis with justification?
b) Give 3 differential diagnoses.
c) How will you treat this condition?

Q.19 A 45 years old healthy non-smoking male presents with 4 days history of non-productive cough and continuous fever. His wife also had similar febrile illness a week ago. For last 02 days he has developed maculopapular rash over his body. On examination his temp is 101°F. Cervical lymph nodes are enlarged. Chest is clear on auscultation. TLC is 9x10^9/L. Hb and platelets are normal. Chest X-ray reveals patchy opacities bilaterally.

a) What is the most likely cause of his Pneumonia? Please Justify your response.
b) Name 4 tests to confirm your diagnosis.
c) Name 3 antibiotics for treatment.
d) List six complications that can occur in this case.
e) How can you prevent transmission of infection to other family members? Mention 2 steps.

Q.20 An old age lady ex-smoker, diabetic, came in OPD with complaints of shortness of breath and cough with occasional streaks of blood. Chest x-ray show reticular pattern on right side with kerly B lines, blunting of both costophrenic angles. HRCT show smooth nodular septal thickening, fissural nodularity, few mediastinal lymphnodes and bilateral plural effusion.

a) What is the diagnosis?
b) What is the most common cause of this diagnosis?
c) Five causes of this HRCT chest findings.

THE END
Q.15 A 62 year old lady with 30 pack year history of smoking presented with cough. CT scan revealed right upper lobe mass and mediastinal lymph node in paratracheal, sub carinal and left hilar region, with no evidence of metastases. Bronchoscopy showed lesion at the level of carina. Immunohistochemistry of specimen showed positive immuno-reactivity for CK-7 and TTF-1, while negative for CK 5/6, P63, synaptophysin, and chromogranin.

a) What is the specific diagnosis?
b) TNM staging of the cancer.
c) Enlist neurological paraneoplastic syndromes associated with lung cancers.

Q.16 A 70 year old male complains about increasing dyspnea on exertion. The patient had worked in insulation plant for many years. 10 years previously; he suffered from MI. Radiology show moderate right sided plural effusion with mediastinal lymphadenopathy. Medical thoracoscopy showed diffuse nodular involvement of both plural layers with infiltration of pericardium and biopsy with immunohistology showed creatinine, keratin 5/6 and WT-1 positivity.

a) What is the diagnosis?
b) What are histopathological types of this tumor?
c) What are the treatment options available for this tumor and what treatment will you offer to this patient?

Q.17 A 50 year old HIV positive patient with CD4 count of 50 cells/µL and smoker 30 packs/year of history, presented with fever, cough, and hemoptysis. On examination there are reddish macules and plaque like lesions over both lower extremities. On chest examination he has findings of right sided plural effusion. CT scan show multiple peri-bronchovascular nodules, mediastinal lymphadenopathy and right sided pleural effusion. Bronchoscopy shows multiple raised lesions throughout tracheobronchial tree.

a) What is your diagnosis with justification?
b) List non infectious pulmonary conditions associated with HIV.
Q.13 You are called in emergency to see a non-smoker patient with low SpO₂. On inquiry patient stated that he was well 3 days earlier, when he developed fever, fatigue, headache, nasal and sinus congestion, sore throat, and a nonproductive cough. He did not have chills, gastrointestinal symptoms, shortness of breath, wheezing, night sweats, or chest discomfort, and he reported that his respiratory symptoms were not as severe as those he had had during a previous episode of pneumonia. He has type 1 diabetes mellitus for 17 years. Control of blood glucose levels had been poor, despite low hemoglobin A1c with raised plasma fructosamine level. Medications are human insulin analogue lispro, insulin glargine, lisinopril, metoprolol succinate, dapsone for diarrhea which develops when he eats wheat for five years and nitrates occasionally for chest pain for 2 years. He had received influenza and pneumococcal vaccines in the past. BP was 164/75 mm Hg, pulse 81 beats per minute, temperature 37.7°C, respiratory rate 12 breaths per minute, and the oxygen saturation (tested on multiple digits of both hands and feet) 85% on room air. Capillary refill occurred in 2 to 3 seconds, and there was no clubbing, cyanosis, or ulcerations. His chest and cardiac examination normal. He has Hb 13g/dl, Reticulocyte count 4%, Billirubin 2.4mg/dl, normal SGPT, SGOT, normal RFTS, LDH 402 U/Liter (N110- 210) normal echo, normal angiography for heart and peripheral vascular system. His ABGs were completely normal.

a) What is the diagnosis?
b) What are the other causes of your diagnosis?

Q.14 A 60 year old patient ex-smoker (20 pack year), known case of COPD on inhaler treatment, undergoing lung resection surgery for carcinoma of lung:

a) What preoperative FEV1 value is required for a patient to tolerate lobectomy or pneumonectomy?
b) List 5 risk factors for post operative pulmonary complication in a patient undergoing any surgery?.
c) List post operative pulmonary complications in patients undergoing surgery in general and lung resection surgery in particular?
Q.11 A 25 years-old primigravida presented with premature labour pains and was admitted in obstetric ward. She was given high doses of Salbutamol and steroids for 2 days. Next day she developed shortness of breath severe enough to lie flat. O/E she was tachypnoic and had tachycardia. Bilateral lower half crackles with occasional wheezes were audible.

a) What is the diagnosis?
b) How would you manage this case?
c) Name 5 drugs which can cause the same condition.

Q.12 A patient failed the standardized regimen of Z-Km-Lfx-Eto-Cs and remained sputum smear-positive after eight months of treatment. The DST revealed resistance to HRZE-S-Km-Cm-Lfx and susceptibility to Eto.

a) What is your diagnosis?
b) What are principles of treating this disease?
c) What is the role of surgery in this disease?