Q.1 A 40 years old man had a x-ray chest as part of routine annual checkup. A mass was seen and with the help of lateral x-ray, it was found in the anterior mediastinum.

a) Give 5 causes for this mass.
b) Enlist 5 investigations to confirm the cause.

Q.2 A 65 years old gentleman presented in the emergency department with worsening shortness of breath. He is a current smoker with smoking history of 100 pack years. On examination he was drowsy and cyanosed. ABGs showed pH of 7.28, paCO₂ 70 mmHg, PaO₂ 45 mmHg and HCO₃ 35 mEq/L.

a) What is the diagnosis?
b) How will you manage the case?

Q.3 A 20 years young boy came with low grade fever and cough and shortness of breath. The chest examination reveals scattered cre特有的 and fine mottling. His Mantoux test is negative.

a) What is the most likely diagnosis?
b) Give 5 other conditions associated with such findings.
c) What findings on bed side examination / test can help you to reach the diagnosis?
Q.4 A 45 years old male presented with history of dyspnea and hemoptysis. He also had history of recurrent sinusitis and epistaxis. There are nodules on chest x-ray, a few of which are cavitating.

a) What is the diagnosis?

b) How you will investigate and justify the investigation.

Q.5 A young male after being exposed to acid fumes in the factory, started having shortness of breath and extremely disturbing night cough. Spirometry showed obstructive pattern.

a) What is the diagnosis? Justify it.

b) What are other causative agents lead to this condition? Enlist four of them.

Q.6 A 28 years old female with history of recurrent abortions and recurrent DVT comes to emergency unit with sharp chest pain and low grade fever. Pain was worse on inspiration. Patient was discharged from emergency on pain killer and antibiotic. On third day patient again came with increasing breathlessness and fever. She also had history of arthralgia and skin rash for the last two years. Her chest x-ray showed bilateral pleural effusion. Blood CP showed Hb 8.9 g/dl, ESR 72 in 1st hour, platelet 72 x 10^9/L and TLC 0.7 x 10^9/L. LFTs showed bilirubin 1.8, LDH 720. Urine examination showed +++ protein and RBC cast.

a) What is the most likely diagnosis?

b) What is the cause of recurrent abortions and DVT?

c) What likely investigation would you like to do?

d) Enumerate pulmonary manifestations of the disease.
Q.7 A 50 years old man with 60 pack-years history of smoking came with facial plethora and shortness of breath for past 3 weeks. He has clubbing of fingers and raised JVP and dilated veins on upper chest. CT Chest shows mediastinal mass. He has clubbing with wrist tenderness. RR: 20/min, HR: 120/min, B.P: 130/80 mmHg, WBC: 12,000/cmm, Serum creatinine: 2 mg/dL.

a) What is the clinical diagnosis?

b) What is the significance of wrist tenderness with clubbing?

c) Comment on serum calcium level, its significance and why?

Q.8 A 45 years old female presented with 6 months history of dry cough, fever, night sweats, malaise, fatigue and weight loss. Physical examination reveals scattered bilateral crepts. Her WBC count is 6500/cmm containing 21% eosinophils. Her x-ray chest shows patchy areas of consolidation at the periphery of lungs.

a) What is the most likely diagnosis?

b) Give 3 differential diagnoses.

c) Name 2 investigations to confirm the diagnosis.

d) What is the treatment of choice?

e) What is the prognosis?

Q.9 A 30 years old banker with severe bilateral bronchiectasis underwent a double lung transplant. After 8 weeks, he developed fever, dyspnoea and non-responsive to antibiotics. Bronchoscopy BAL revealed bacteria, viruses, fungi and mycobacteria.

a) What is the most likely diagnosis?

b) Name one investigation to confirm the diagnosis with justification.

c) How will you treat this patient?
Q. 10 A 38 years old driver was admitted with a rash, anorexia, fever and headache and a 4 day history of dyspnoea. No chest pain or haemoptysis. He was a non-smoker and has had no significant past medical history. On examination he had a temperature 101°F, pulse 92, and BP 110/65 mmHg. There was a fine macular and papular rash over his trunk and arms with several target lesions. End inspiration crackles were heard at the right base. He was admitted to the hospital. On investigations, Hb 10 g/dl, WBC 10×10⁹/l, electrolytes and RFTs normal, liver function tests negative. Cold agglutinins positive and chest x-ray showed patchy right basal consolidation.

Six days after admission the patient developed increasing fatigue, dyspnoea, palpitations, dull central chest pain and myalgia. Pulse 120, and BP 90/60 mmHg. Chest sigs unchanged. First and second heart sounds normal but a soft third hear sound. Blood gases showed paO₂ 95 mmHg, paCO₂ 36 mmHg, chest x-ray no change. ECG demonstrated widespread T wave flattening and inversion. Echocardiography showed reduction in contraction of left ventricle.

a) Suggest a composite diagnosis?
b) What further investigations would you arrange to confirm the diagnosis?
Q.11 A young lady with history of asthma presented to emergency department with facial and neck swelling after severe bouts of cough for the last 1 day. On examination her respiratory rate is 30/min, pulse 115/min and crepitus is felt over the anterior chest extending to neck and face. There is also a crunching sound at the precordium, synchronous with the heart beat. Chest radiography does not show pneumothorax.

a) What is the most likely diagnosis?
b) What is this crepitus?
c) What is the crunching sound?
d) Name 3 steps in the underlying mechanism to develop this condition.

Q.12 A 38 years old patient was admitted in a medical ward with right sided pneumothorax. A chest tube was placed three days ago. Now you are called to examine this patient because lung has not re-expanded on his x-ray chest.

a) What 3 things you would look for regarding chest tube follow up in this patient?
b) List 3 causes of non-re-expansion of lung after chest tube placement.
c) How will you manage the above 3 causes (part b) of lung non-expansion after chest tube placement.

Q.13 A 45 year old lady with diagnosis of advanced CA breast, presented with worsening shortness of breath for the last 3 weeks. On room air O₂ saturation is 83% which increases to 94% with 5 litres/min oxygen. Her chest x-ray shows fine linear shadowing at the bases. Her echocardiography is normal.

a) What is the most likely diagnosis?
b) Name 4 other diseases that can have same manifestation.
c) How will you treat this patient?
Q.14 A 40 years bronchoscopy technician develops cough, dyspnoea, throat irritation and itchy eyes for the last 4 weeks. He had been working in the Bronchoscopic suit for the last 3 years. He has this symptomatology off and on which gets better at weekend.

a) What is the diagnosis?
b) What is the likely cause?
c) How will you confirm the cause?
d) Name other 4 hospital workers who can develop this symptomatology.

Q.15 A 36-year-old male who returned from South Africa after staying there for four years. He became very unwell with increasing shortness of breath associated with dry cough and retrosternal chest pain on deep breathing. On examination, he is pyrexial at 37.7 °C and cyanosed, with a respiratory rate of 40 breaths / min. Auscultation of the chest reveals no abnormality. Blood and sputum cultures are both negative. WBC count is marginally elevated. His chest X-ray shows bilateral perihilar infiltrates and pneumothorax of moderate size on the right side. Arterial blood gas analysis shows PaO₂ of 60 mm of Hg.

a) What is the likely diagnosis? Give four points in favor of diagnosis?
b) What is the nature of organism involved?
c) How can you confirm the diagnosis? List two other tests you will like to do.
d) List four steps in general management of this patient
e) What Specific drug should be used in this case and how? What are other alternate drugs if patient does not tolerate?
Q.16 A 56-year-old woman presented with severe shortness of breath. On examination, she is obese with a body mass index of 43 kg/m². Her Epworth Sleepiness score is 14. She is unable to lie flat, and there are generalized ronchi along with crackles at bases. There is no history of recent nausea, vomiting, or diarrhea. Her spirometry shows severe obstruction and restriction. Laboratory results are shown below:
Arterial blood gases on 2 L/min O₂, PaO₂ 86 mm Hg, PaCO₂ 59 mm Hg, pH 7.21, sodium 134 mmol/L, potassium 4.2 mmol/L, chloride 87 mmol/L, bicarbonate 38 mmol/L, blood urea nitrogen 5 mmol/L, creatinine 188.4 μmol/L. Chest x-ray shows normal. Electrocardiogram and echocardiography is normal. What is this acid base disorder, give its explanation? What three investigations would you like to carry out to reach the diagnosis. List six steps of management. List out four complications, she can suffer from.
Q.17 A 59 year old man presented with 3 weeks history of cough, progressive breathlessness and 3 episodes of hemoptysis in last 24 hours. His symptoms worsened over a period of 15 days inspite of 2 courses of antibiotics. He is a smoker with a history of 10 pack years with no past significant medical or surgical history. He is a motor mechanic.
On examination, he is pale with HR 100/min, B.P 160/110mmHg, R.R 32/min. Chest examination revealed reduced chest expansion, dull percussion note at the bases with bronchial breath sounds in the lower chest bilaterally. On investigation Hb 8.6g/dl, WCC 12 x 10^9/l, platelets 500 x 10^9/l, Na+137mmol/l, K+ 6 mmol/l, Urea 19 mmol/l, Creatinine 200 mmol/l, calcium 2.1 mmol/l, Phosphate 2 mmol/l, ECG, sinus tachycardia, CXR, bilateral alveolar shadows in the lower zones, Urine examination reveals proteins++, RBCs++, spirometry shows FEV1, 65% predicted, FVC, 60% predicted, TLC 68% predicted, RV 66% predicted, DLCO 110% predicted.

a) What is the most likely diagnosis?
b) Name three tests required to confirm the diagnosis.
c) Interpret the lung function tests of the patient.
d) Design the management plan.

Q.18 An elderly male alcoholic labourer with 25 pack years smoking presented with soft swelling in the anterior chest, it was associated with adjacent bone destruction. Examination of pus showed yellowish white flecks, hard to touch and about 2mm in diameter. He had history of trauma to his left big toe two years back.

a) What is the diagnosis?
b) What are the treatment options available for this condition?
Q. 19 A 25 year old male admitted in ICU with severe Falciparum Malaria. His MP became negative on Day 4. On day 5, he developed shortness of breath which was rapidly progressive leading to tracheal intubation and ventilation. Chest radiograph has bilateral alveolar shadowing consistent with pulmonary edema. Tracheal aspirate is negative for microbiology as hemoglobin, Fhein, is normal. His PaO₂ is 59 mmHg on FiO₂ of 100%.

a) What is the most likely diagnosis?
b) Enlist the diagnostic criteria of this condition?
c) Mention 3 risk factors for this condition.

Q. 20 A 70 year old male smoker requires surgery for bronchogenic carcinoma. His Pulmonary function tests as follows:

FVC 2.39 (33% predicted)
FEV1/FVC 38%
DLCO 50% of the predicted.

a) Can this patient tolerate wedge resection (yes/no)?
b) Can he tolerate lobectomy (yes/no)?
c) Can he undergo pneumonectomy (yes/no)?
d) Justify that pneumonectomy will endanger the patient life.