Syllabus for PhD entrance Examination: PULMONARY MEDICINE

A. Infections

I. Tuberculosis

1. Etiopathogenesis, Diagnostic methods, Differential diagnosis, Management of pulmonary tuberculosis; RNTCP, DOTS, and DOTS-Plus, International Standards of TB Care, Complications in tuberculosis, Tuberculosis in children, Geriatric tuberculosis, Pleural and pericardial effusion and empyema
2. Mycobacteria other than tuberculosis
3. Extra-pulmonary tuberculosis
4. HIV and TB; interactions of antitubercular drugs with antiretrovirals
5. Diabetes mellitus and tuberculosis
6. Management of MDR and XDR tuberculosis

II. Non-tuberculous infections of the lungs

1. Approach to a patient with pulmonary infection, Community-acquired pneumonia, Hospital-associated pneumonia, ventilator-associated pneumonia, Unusual and atypical pneumonia including bacterial, viral, fungal and parasitic and ricketsial, anerobic
2. Bronchiectasis, lung abscess and other pulmonary suppurations, Acquired immunodeficiency syndrome and opportunistic infections in immuno-compromised host

B. Non-infectious Lung Diseases

I. Immunological disorders

Immune defence mechanisms of the lung, Sarcoidosis, Hypersensitivity pneumonitis and lung involvement, Eosinophilic pneumonias and tropical eosinophilia, pulmonary vasculitides, interstitial lung disease of other etiologies, Reactions of the interstitial space to injury, drugs, Occupational and environmental pulmonary diseases

II. Other non-infectious disorders of the lungs and airways

Aspiration and inhalational (non-occupational) diseases of the lung, Drug induced pulmonary diseases, Bullous lung disease, Uncommon pulmonary diseases (metabolic, immunological, unknown etiology), pulmonary haemorrhagic syndromes, Cystic fibrosis and disorders of ciliary motility, Obesity-related pulmonary disorders, Upper airways obstruction syndromes, Occupational lung diseases and pneumoconiosis, Air-pollution induced diseases, toxic lung and other inhalational injuries, Health hazards of smoking, Drug-induced lung diseases

C. Pulmonary Circulatory disorders

Pulmonary hypertension and corpulmonale, Pulmonary edema, Pulmonary thromboembolic diseases and infarction

Cardiac problems in a pulmonary patient and pulmonary complications produced by cardiac diseases

D. Obstructive diseases of the lungs

Asthma including allergic bronchopulmonary aspergillosis, specific allergen immunotherapy and immunomodulation. Chronic obstructive lung disease and diseases of small airways

Special aspects of management including Long term oxygen therapy, Inhalation therapy and Pulmonary rehabilitation

E. Tumors of the lungs

Comprehensive knowledge of neoplastic and non-neoplastic diseases of lung including epidemiology, natural history, staging, and principles of treatment (medical, surgical, and radiation)

F. Diseases of the mediastinum
Non-neoplastic disorders, Benign and malignant (primary and secondary) neoplasms and cysts

G. Disorders of the pleura
Pleural dynamics and effusions, Non-neoplastic and neoplastic pleural diseases, Pneumothorax Pyothorax and broncho-pleural fistula, Fibrothorax

H. Critical Care Pulmonary Medicine
Management of emergency problems of different pulmonary diseases, Adult respiratory distress syndrome, Respiratory failure in the patient with obstructive airway disease, Respiratory failure in other pulmonary diseases, Management of sepsis, Respiratory and haemodynamic monitoring in acute respiratory failure, Non-invasive and Mechanical ventilation, Principles of critical care, diagnosis and management of complications; severity of illness scoring systems, Ethical and end-of-life issues in critical care

I. Sleep-related pulmonary diseases
Polysomnography, Sleep apneas, Other sleep-disordered breathing syndromes

J. Preventive Pulmonology
Principles of smoking cessation and smoking cessation strategies, cardiopulmonary rehabilitation, Preventive aspects of pulmonary diseases, Vaccination in pulmonary diseases.

K. Surgical aspects of Pulmonary Medicine
Pre- and post-operative evaluation and management of thoracic surgical patients, Chest trauma/trauma related lung dysfunction, Lung transplantation

L. Basic Sciences
1. Development and Anatomy of Respiratory System
3. Assessment of pulmonary functions
4. Control of ventilation; pulmonary mechanics
5. Ventilation, pulmonary blood flow, gas exchange and transport
6. Physiology of sleep and its disorders
7. Pulmonary innervation and reflexes
8. Acute and chronic inflammation: Pathogenetic mechanisms in pulmonary diseases
9. Pathology aspects of Tuberculosis
10. Chronic bronchitis and emphysema, asthma, other airway diseases
11. Occupational lung diseases including Pneumoconiosis
12. Interstitial lung diseases including sarcoidosis, connective tissue diseases,pulmonary vasculitis syndromes, pulmonary eosinphilias
13. National Tuberculosis Control Programme and RNTCP; Epidemiological aspectsof BCG
14. Epidemiological aspects of pollution-related pulmonary diseases
15. Various mechanisms of hypersensitivity reactions seen in pulmonary diseases
16. Diagnostic tests in allergic diseases of lung - *in vitro* and *in vivo* tests, bronchialprovocation test
17. Immunology of tuberculosis, Sarcoidosis and other diseases with animmunological basis of pathogenesis
18. Pharmacology of antitubercular drugs
19. Bronchodilator and anti-inflammatory drugs used in pulmonary diseases