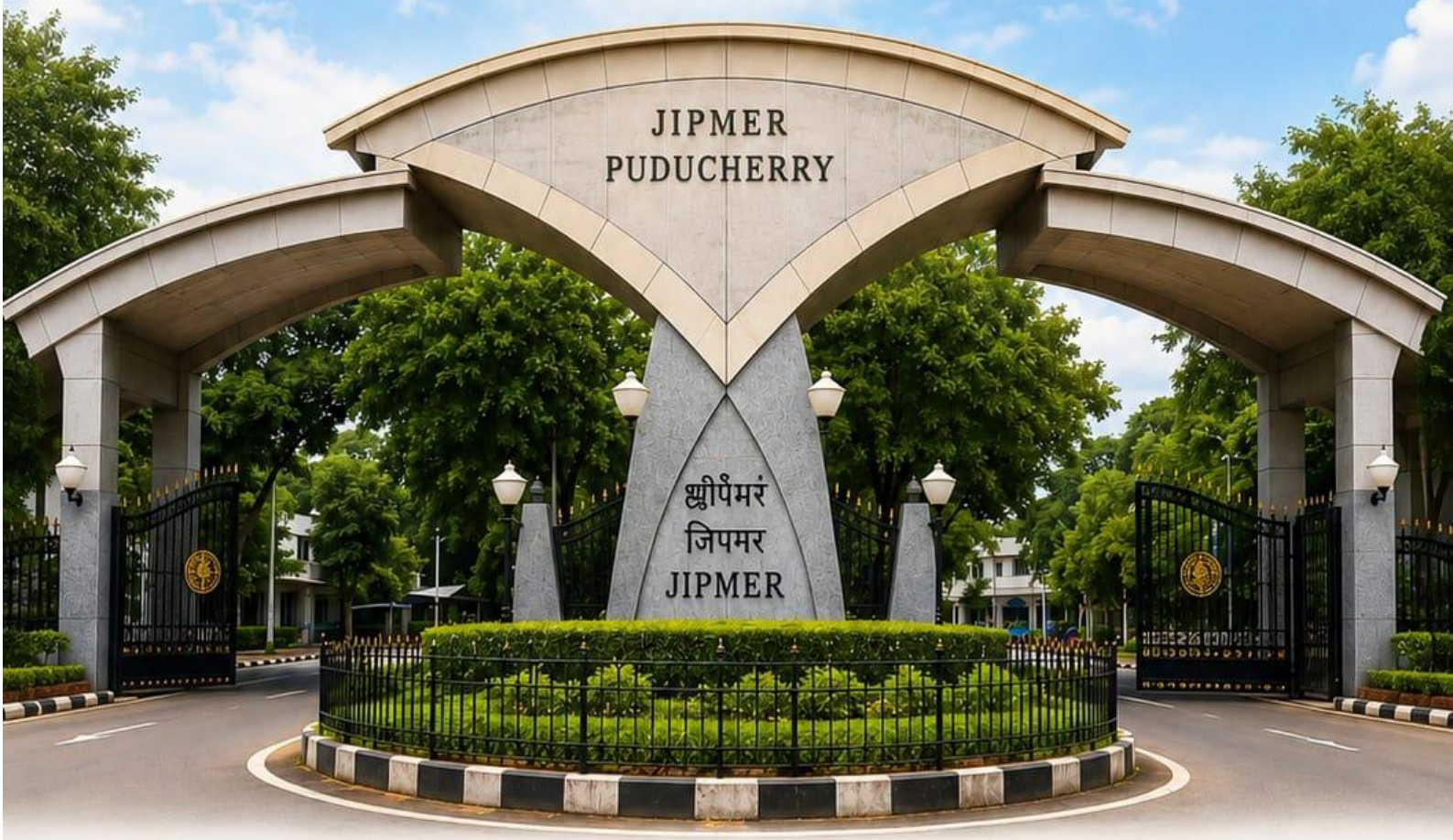
# CURRICULUM
# POSTGRADUATE

## MD Pulmonary Medicine

From July 2026 session




JAWAHARLAL INSTITUTE OF POSTGRADUATE MEDICAL EDUCATION AND RESEARCH (JIPMER),
PUDUCHERRY – 605 006.

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This curriculum was approved at the 19th meeting of the Standing Academic Committee held on 28th January 2026 and ratified at the 22nd meeting of the Governing Body and will be applicable for students joining MD Pulmonary Medicine from the July 2026 session.

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## GOAL OF THE COURSE

- To train a postgraduate to possess knowledge, skills, attitudes, values and responsiveness to meet the following needs in the society
- To diagnose and treat efficiently and ethically the common respiratory related illness seen in community
- To be aware of all the recent advances and on-going studies pertaining to pulmonary medicine as well as the national programme involving the specialty of pulmonary medicine
- Contribute to the community by training and implementing the preventive measures for preventable respiratory diseases
- Scholarship in pulmonary medicine (life-long learner, teacher, researcher)

# TERMINOLOGY

## Key-capabilities

1. They refer to the practices carried out by the specialists as part of their professional services. They represent the services required from them, by patients, students, other medical/paramedical staff or the society in general.
2. Thus, they refer to the specific tasks that the postgraduate will be expected to do after he completes the course.
3. For the purpose of training, the tasks are broken down into units that have distinct cognitive concepts, unless they are predominantly procedural or attitude based.

## Core ideas in practice of Key-capabilities

They refer to the ideas that underly the practice of the specialists. They include ideas and concepts about structure and functioning of organs and organ systems in health and diseases, classification of diseases, equipment, tests, drugs etc.

## COURSE CONTENT:

1. Key-capabilities (outline below, details in Annexure 1 (Part A))
2. Core ideas in the practice of key-capabilities (outline below, details in Annexure 1 (Part B))
3. Peripheral postings (details in Annexure 1 (Part C) and under 'Educational strategy)

(Please refer Annexure 1 for details)

**OUTLINE**

| **KEY-CAPABILITIES** | |
|---|---|
| 1 | Basic sciences related to Pulmonary Medicine |
| 2 | Approach to the patient with respiratory signs and symptoms |
| 3 | Diagnostic workup |
| 4 | Intervention skills |
| 5 | Respiratory Critical Care ICU |
| 6 | Pulmonary Emergency |
| 7 | Quality audit and regulatory guidelines |
| 8 | Quality Control of equipment |
| 9 | Teaching |
| 10 | IT skills |
| 11 | Scholarship |
| 12 | Soft skills |
| Learning objectives for key-capabilities in practice of respiratory medicine | |

| **CORE IDEAS IN THE PRACTICE OF KEY-CAPABILITIES** | |
|---|---|
| 1 | Anatomy including embryology, physiology, pharmacology, microbiology, epidemiology and pathology |
| 2 | Radiology including chest x ray, ultrasound, CT |
| 3 | Approach to the patient with respiratory signs and symptoms |
| 4 | Diagnostic workup of respiratory disease including radiology, ABG, bronchoscopy, EBUS, Thoracoscopy, PFT, CPET, PSG |
| 5 | Intervention skills including image guided FNAC and biopsy, ICTD, IPC, nebulization, oxygen therapy, airway management, Deaddiction techniques, pulmonary rehabilitation |
| 6 | Pulmonary Critical Care ICU-methods of ventilation, management of sepsis, arterial catheterization, central venous catheters, end of life care |
| 7 | Pulmonary Emergency- foreign body aspiration, chest trauma, Acute Pulmonary embolism, massive haemoptysis |
| 8 | Quality audit and regulatory guidelines, Quality control of equipment |
| 9 | Teaching, IT skills, Scholarship, Soft skills |

## LEARNING RESOURCES

**List of Recommended Books and Journals for MD**

| Sl. No. | Book | Author | Edition | Publisher |
|---|---|---|---|---|
| 1. | Tuberculosis | Rom and Gary | Latest | - |
| 2. | Sleep Medicine | Teofilo Lee Chiong | Latest | - |
| 3. | Principle of chest X ray diagnosis | George Simon | Latest | - |
| 4. | Textbook of pleural diseases | Richard w light and Y C Garry | Latest | - |
| 5. | Clinical Mycology | Anaissie, M C Ginnis, P Faller | Latest | - |
| 6. | Clinical assessment in respiratory care | Wilkins, Sheldon, Krider | Latest | - |
| 7. | Respiratory medicine | G John Gibson, Duncan | Latest | - |
| 8. | Auscultation skills – breath and heart sounds | Springhouse corporation | Latest | - |
| 9. | ICU Manual | A P Jain, Rajnish Joshi, AshishGoel | Latest | - |
| 10. | Pleural diseases | Richard w light | Latest | - |
| 11. | Pulmonary rehabilitation | John e Hodgkin, Bartolome Celli, Gerilynm | Latest | - |
| 12. | Procedures in respiratory Medicine | Warren m gold | Latest | - |
| 13. | Asthma - Its pathology and Treatment | Kalonier, Barnes, Persson | Latest | - |
| 14. | Diagnostic Bronchoscopy | Peter Stadling | Latest | - |
| 15. | Dynamic bronchoscopy | M.A. Dedkoc | Latest | - |
| 16. | Interpretation of Pulmonary function | R E Hyatt, P.D Scanlon | Latest | - |
| 17. | Respiratory diseases | Crofton and Douglus | Latest | - |
| 18. | Pulmonary function testing-principles and Practice | S.A. Conrod | Latest | - |
| 19. | Lung function for clinician | Hughes | Latest | - |
| 20. | Textbook of Preventive and Social Medicine | J.E.Park | Latest | - |
| 21. | Pharmacology and pharmaco therapeutics Vol I & 2 | Satoskar and Bhandarkar | Latest | - |
| 22. | The mediastinum | Heitzman | Latest | - |

| | | | | |
|---|---|---|---|---|
| 23. | Pulmonary diseases and disorders Vol 1 and 2 | A P Fishman | Latest | - |
| 24. | Harrisons principles of Internal medicine | Braunwald | Latest | - |
| 25. | Surgery of the chest | Gibbson | Latest | - |
| 26. | Fundamentals of chest Roentgenology | Felson | Latest | - |
| 27. | Segmental Anatomy of lungs | Boyden | Latest | - |
| 28. | Alberts clinical respiratory medicine | Albert, Spiro, Jeld | Latest | - |
| 29. | Imaging of diseases of the chest | David M. Hamsell | Latest | - |
| 30. | Synopsis of diseases of the chest | Fraser | Latest | - |
| 31. | Tuberculosis | Sharma & Mohan | Latest | - |
| 32. | Felson's Principle of chest Roentgenology | Goodman | Latest | - |
| 33. | Management of Mechanically ventilated patient | Pierce | Latest | - |
| 34. | Respiratory care of Anatomy and Physiology | Beachey | Latest | - |
| 35. | Macleods clinical Examinations | Dougles | Latest | - |
| 36. | Chamberlain's Symptom and sign in clinical medicine | Ogilive | Latest | - |
| 37. | Tuberculosis Management | Toman | Latest | - |
| 38. | Computed Tomography and MRI of thorax | Naidich | Latest | - |
| 39. | Diagnosis of diseases of chest | FRASER | Latest | - |
| 40. | Imaging of diffuse lung diseases | Lynch | Latest | - |
| 41. | TB Handbook | WHO | Latest | - |
| 42. | Murray and Nadel textbook of respiratory medicine | Madon | Latest | - |
| 43. | Cardiovascular and pulmonary physical therapy | DELURK | Latest | - |
| 44. | Principles and Practice of Interventional Pulmonology | Armin Ernst, Felix JfHerth | Latest | Springer |
| 45. | Lung Ultrasound in the Critically Ill: The BLUE Protocol | Daniel A. LICHtenstein | Latest | Springer |

**List of journals**

1. American Journal of Respiratory and Critical Care Medicine
2. Chest
3. Indian Journal of Chest Diseases and Allied Sciences
4. Indian Journal of Tuberculosis
5. Lung India
6. Respiratory Medicine
7. Thorax
8. Tuberculosis
9. Journal of Chronic Obstructive Pulmonary Disease
10. New England Journal of Medicine
11. Journal of sleep medicine
12. Journal of IUATLD
13. JAMA
14. Lancet respiratory medicine
15. European Respiratory Journal
16. The Lancet Respiratory Medicine
17. European Respiratory Review
18. Respiratory Research
19. Respirology
20. ERJ Open Research
21. Lung Cancer
22. American Journal of Respiratory cell & Molecular Biology
23. BMC Pulmonary Medicine
24. BMJ Respiratory Research
25. Journal of Bronchology & Interventional Pulmonology
26. The Egyptian Journal of Bronchology
27. Current Opinion in Pulmonary Medicine
28. Current Respiratory Medicine Reviews

## EDUCATIONAL STRATEGY

| **Academic Activity** | Day | Timing |
|---|---|---|
| Academic seminars on basic sciences of respiratory medicine, Journal clubs | Monday | 3.00-4.30 PM |
| Academic seminars on pulmonology including recent advances, critical care and sleep medicine | Wednesday | 3.00-4.30 PM |
| Group Case Discussions -At multi-levels | | |
| Case studies | Saturday | 11 AM to 2 PM |
| Bed-side discussion | Every day -ward round | 9.00-11 AM |
| Multi-disciplinary tumour clinics | Thursday (MDT) | 2.30-4.30 PM |
| Treatment planning meet | Monday-Saturday | 11:30 AM-1.00 PM |

***Formative assessment is done for each of the above activities and feedback is given**
Posting within Department and peripheral posting

| **Semester** | **Out patient** | **ward** | **ICU** | **EMS** | **PROCEDURE** | **MINOR OT** | **PERIPHERAL POSTING** |
|---|---|---|---|---|---|---|---|
| 1$^{ST}$ SEM | 6WEEKS | 6WEEKS | - | 6WEEKS | 6WEEKS | - | - |
| 2$^{ND}$ SEM | 6WEEKS | 6WEEKS | - | 6WEEKS | 6WEEKS | 1 WEEK | 3WEEKS |
| 3$^{RD}$ SEM | 4WEEKS | 4WEEKS | 4WEEKS | 2WEEKS | 2WEEKS | 4WEEKS | 6WEEKS |
| 4$^{TH}$ SEM | 4WEEKS | 4WEEKS | 4WEEKS | 4WEEKS | 2WEEKS | 3WEEKS | 5WEEKS |
| 5$^{TH}$ SEM | 6WEEKS | 4WEEKS | 4WEEKS | 4WEEKS | 2WEEKS | 6WEEKS | - |
| 6$^{TH}$ SEM | 6WEEKS | 6WEEKS | 4WEEKS | 4WEEKS | - | 6WEEKS | - |

The postgraduate residents will be posted in different workplaces of the department on rotation at frequent intervals through the course. He/she will achieve the objectives of the posting in all these workplaces.

| First Postgraduate Year (PGY1) | Second Postgraduate Year (PGY2) | Third Postgraduate Year (PGY3) |
|---|---|---|
| 1. Follow-up OPD/Clinics<br>2. Ward<br>3. EMS<br>4. Day-care procedure<br>5. Peripheral posting<br>6. Multi-Disciplinary Tumour Clinics (MDT)<br>7. PFT lab | 1. Follow-up OPD/Clinics<br>2. Ward<br>3. ICU<br>4. EMS<br>5. Day-care procedure<br>6. Minor OT<br>7. peripheral posting<br>8. Multi-Disciplinary Tumour Clinics (MDT)<br>9. PFT lab<br>10. Sleep lab | 1. Follow-up OPD/Clinics<br>2. Ward<br>3. ICU<br>4. EMS<br>5. Day-care procedure<br>6. Minor OT<br>7. Multi-Disciplinary Tumour Clinics (MDT)<br>8. Sleep lab |

**Peripheral posting**

(Please refer Annexure 1C (Part C) for details)

**Dissertation**

- A research project should be undertaken and dissertation must be submitted as per Postgraduate Research Monitoring Committee (PGRMC) guidelines of JIPMER.
- Two hard copies of the dissertation, prepared from the research project, should be submitted to the Dean (Academics) JIPMER, at two and half years of the course to become eligible to appear for the final examination at the end of the course, as per the guidelines of JIPMER.
- Six monthly interim presentations of the dissertations will be done to monitor the progress of the research work and take corrective measures when faced with difficulties.
- **Please refer to Postgraduate Dissertation Regulations and Postgraduate Examination Regulations document for further details**

## WORKPLACE OBSERVATION

**Logbook**

(Please refer Annexure 2 for sample forms)

1. A consolidated record of the number of cases, done independently and with assistance, of each procedure type, is entered as per the format in Annexure 2. Each entry is made with date and certified by faculty.

2. Detailed workup of selected cases (2 cases, selected every month from the posting in different places) will be maintained by the student and entered in the logbook.

3. Record of academic activities (at department, institute or outside institute level) to be entered in the logbook are as follows
   i. Presentation in department seminars
   ii. Presentation in journal clubs along with Title, Journal and Issue presented
   iii. Conferences attended - National/International
   iv. Papers presented at conferences with title, name and issue of the journal, certified by faculty.
   v. Papers published with title, name and issue of the journal, certified by the faculty
   vi. Peripheral postings - Feedback forms obtained for academic presentations in other departments and during peripheral postings will be attached as annexure.

4. Record of co-scholastic activities, if any

**Workplace observation scheme (submitted along with internal assessment marks)**
(Please refer Annexure 3 for sample forms)

The day-to-day activities in practice and learning of the student will be observed and recorded in the "workplace observation form" at the end of every posting or monthly
Assessment of logbook is to be done at the same time instances, and entry made in the "workplace observation form" by the faculty.
Feedback, as part of formative assessment is given to students, by faculty, during these time instances.

## ASSESSMENT

### Marks

| Exam | Marks | Description |
|---|---|---|
| Theory exit examination | 400 marks | This is the written exam at the end of the course. Four theory examination papers as given in the curriculum document of the course. |
| Practical exit exam | 400 marks | This is the practical examination at the end of the course. The detailed scheme is given in the curriculum document of the course. |
| Internal Assessment | Internal assessment Theory: 50 marks | Two exams should be conducted - one at the end of first year and the other at the end of second year.<br><br>Portions for the examination and pattern of the examination must be notified to the students at least one month in advance.<br>The pattern of the internal assessment test will be similar to one paper of the theory exit examination.<br><br>Two faculty members will evaluate the paper of each candidate in a blinded manner and the average of the 2 scores will be taken as the final score for the internal assessment. If a resident miss one of the tests due to medical reasons (medical certificate from a faculty member of the treating department and duly forwarded by the HoD to the Dean |

| | | |
|---|---|---|
| | | (Academic)), he/she can be permitted to appear in the test that is held for the next batch 6 months later. This can be permitted only once in the course period. If a resident does not attend an internal assessment test, or if he/she fails to attend the rescheduled test due to medical reasons, the score will be considered as 0 for the test. No retests or re-evaluation will be permitted under any circumstances.<br><br>The internal assessment marks should be communicated to the students within two months of conducting the exams.<br><br>Internal assessment test marks will be added to the final aggregate to the tune of 100 marks (theory and practical). There is no cut off of internal assessment test scores for determining eligibility to appear in the exit examination or to decide pass/fail solely based on the internal assessment test scores.<br><br>However, when a student secures less than 50% marks in the internal assessment or when any concern is formally raised by the student with the Dean office, a review board with at least 3 faculty members should be constituted to review the student's performance with the student, recommend appropriate remedial measures, document the remedial plan, and submit a signed copy of the document to the Dean's Office.<br><br>Additional periodic assessments can be held as part of formative assessment. Scores of these tests will not be considered for internal assessment and will not be considered for replacing scores of any of the internal assessment tests.<br><br>Information to be provided to the Dean Office, before the final examination.<br>1. Dates of internal assessment examinations conducted<br>2. Names of faculty members involved in assessment against each date<br>3. Marks obtained by students in theory, practical and workplace-based observation in each exam session<br>4. Internal assessment marks for each student for Theory, Practical and Workplace based assessment. An average of the two theory and practical tests will be used to calculate scores for 50 and 25 marks respectively. Cumulative workplace-based assessment scores will be determined for 25 marks. |

| | | |
|---|---|---|
| | | 5. Copy of review documentations for periods of low performance of a student, if any, with remedial measures suggested by the departmental committee. |
| Internal Assessment (Practical and Workplace-based assessment) | Internal assessment Practical: 25 marks<br><br>Internal assessment Workplace-based assessment: 25 marks | For practical examinations, all members of the faculty of the department, from Assistant Professor to the senior-most faculty, shall participate in internal assessment on a rotating basis. The assessment shall be planned such that multiple faculty members are engaged for each student and different faculty members are engaged for the two assessments, wherever feasible. The pattern prescribed in the curriculum document shall be followed for practical assessments and the score shall be adjusted for 25 marks.<br><br>Workplace-based assessment marks are given based on practice of the profession and affective domain attributes in the workplace and in the learning environment.<br>Workplace observation proforma should be provided to students at the time of joining the department.<br>The method of workplace observation should be explained to the students at the beginning of the course. |
| Dissertation | 100 marks | Dissertation marks will be calculated by the average of the scores provided by 2 external examiners.<br>Approval of the dissertation with more than 50% scores awarded by the external examiners will be one of the eligibility criteria for appearing for the exit examination of the discipline. |
| Total | 1000 marks | **Criteria for PASS:**<br>1. (a) A candidate will need to pass the final Theory Exit Exam and Practical Exit Exam independently. (b) A minimum of 50% marks in 'Theory Exit exam' (a minimum of 40% in each of the four papers) and 50% in 'Practical Exit exam' separately shall be mandatory<br>2. A candidate should also score 50% or above in the final aggregate marks (500 out of 1000) to pass in the degree course.<br>If a student secures a pass score in theory and practical examination but fails in the aggregate score, he/she can re-appear in the exit examination of the subsequent session. There is no provision to improve internal assessment or dissertation scores. |
| **Please refer to Postgraduate Examination Regulations document for further details** | | |

## Syllabus for Exams

## Theory Exit Exam

Written exam is conducted in the form of four papers as described below:

Paper I: General Pulmonary Medicine and Basic Sciences;
Paper II: Pulmonary Infections including Tuberculosis and Medical Emergencies;
Paper III: Non Infectious Pulmonary Disorders and Critical Care Medicine;
Paper IV: Recent Advances in Pulmonary Medicine, and Research Methodology.

## Practical Exit Exam

| | **Marks** |
|---|---|
| **Long case ( 1 case * 150 )** | **150** |
| **Short case (2 cases * 75)** | **150** |
| **Spotters, viva voice** | **100** |
| **Total** | **400** |

**Spotters will include:**

1. Chest x ray, CT interpretation
2. Interpretation of ABG, PFT, PSG reports
3. Instruments, medications
4. General viva voice regarding pulmonary medicine

# MODEL THEORY QUESTION PAPERS

## PAPER-I

## General Pulmonary Medicine and Basic Sciences

Time: Three hours Maximum: 100 marks

**Attempt all questions**

**Use illustration and flowcharts wherever necessary**

Write short notes on: (10 x 10 = 100)

1. Describe with diagrams the ultra-structure of cilia in Respiratory Tract. What are the common development defects encountered? Describe ciliary dyskinetic diseases?
2. Adventitious lung sounds
3. Measurement of small airway function
4. Oncogenes and lung cancer
5. Antitussives
6. TH2 Cells
7. Tumour Necrosis Factor
8. Pulmonary vasodilators
9. Levofloxacin
10. Capnography

## PAPER II

## Pulmonary Infections including Tuberculosis

Time: Three hours Maximum: 100 marks

**Attempt all questions**

**Use illustration and flowcharts wherever necessary**

Write short notes on: (10 x 10 = 100)

1. Electron microscopic structure of Mycobacteria.
2. Diagnosis of atypical mycobacterial infection?
3. Role of surgery in TB
4. Lupus vulgaris
5. MGIT
6. Management of Pneumothorax and radiological findings
7. Endotracheal Tube blockage in ICU
8. Management of Haemothorax
9. Define Acute severe asthma and its Management
10. Flail Chest

## PAPER III

## Non-Infectious Pulmonary Disorders and Pulmonary Critical Care Medicine

Time: Three hours Maximum: 100 marks

**Attempt all questions**

**Use illustration and flowcharts wherever necessary**

Write short notes on: (10 x 10 = 100)

1. Fibrinolytic and irrigation therapy in empyema?
2. Friedlander ‘s Pneumonia.
3. Hamman Rich Syndrome
4. Devise a management plan for Pulmonary Artery hypertension?
5. Complications of Mechanical Ventilation?
6. E-Cigarettes and Smoking cessation
7. Partial liquid ventilation
8. Ultrasound in Respiratory diseases.
9. Fever in ICU
10. NIV in COPD

## PAPER IV

### Recent Advances in Pulmonary Medicine, and Research Methodology

Time: Three hours Maximum: 100 marks

**Attempt all questions**

**Use illustration and flowcharts wherever necessary**

Write short notes on: (10 x 10 = 100)

1. National Emphysema Treatment Trial
2. Define Sample Size
3. Diagnosis and management of avian flu
4. Relationship between smoking and ILD.
5. Role of Lasers in Lung diseases.
6. Confidence Interval
7. Role of Newer LAMA's in COPD
8. Pneumonia Severity Index
9. Radio Frequency Ablation in Lung.
10. Stratified Random Sampling

# Annexure 1 (Part A)

| KEY-CAPABILITIES | |
|---|---|
| 1 | Basic sciences related to Pulmonary Medicine |
| 2 | Approach to the patient with respiratory signs and symptoms |
| 3 | Diagnostic workup |
| 4 | Intervention skills |
| 5 | Pulmonary Critical Care ICU |
| 6 | Pulmonary Emergency |
| 7 | Quality audit and regulatory guidelines |
| 8 | Quality Control of equipment |
| 9 | Teaching |
| 10 | IT skills |
| 11 | Scholarship |
| 12 | Soft skills |

**Levels of performance:** 1-knows; 2-can do with strict supervision; 3- can do with loose supervision; 4-can do independently; 5-can teach

# Mapping of key capabilities - MD Pulmonary Medicine

| S.no | Key capabilities | Minimum expected performance at months | | | | | |
|---|---|---|---|---|---|---|---|
| | | 6 | 12 | 18 | 24 | 30 | 36 |
| 1 | **Basic sciences related to Pulmonary Medicine** | | | | | | |
| | Anatomy and physiology of pulmonary system | 1 | 2 | 4 | 5 | 5 | 5 |
| | Pharmacology of Pulmonary Medicine | 1 | 3 | 4 | 5 | 5 | 5 |
| | Embryology correlation with anatomy that are of relevance for congenital abnormalities | 1 | 3 | 4 | 5 | 5 | 5 |
| | Pathology of Pulmonary Diseases | 1 | 2 | 3 | 4 | 5 | 5 |
| | X-ray anatomy of pulmonary systems | 1 | 2 | 3 | 5 | 5 | 5 |
| | CT anatomy of Chest | | 1 | 2 | 3 | 5 | 5 |
| 2 | **APPROACH TO THE PATIENT WITH RESPIRATORY SIGNS AND SYMPTOMS** | | | | | | |
| | Basic signs and symptoms of lung diseases | 1 | 2 | 3 | 5 | 5 | 5 |
| | Pathogenesis evaluation of dyspnoea and abnormal breathing patterns | 1 | 2 | 3 | 4 | 5 | 5 |
| | Pulmonary manifestations of systemic diseases | 1 | 2 | 3 | 4 | 5 | 5 |
| | Approach to a patient with lung malignancy | | 1 | 2 | 3 | 4 | 5 |

**Levels of performance:** 1-knows; 2-can do with strict supervision; 3- can do with loose supervision; 4-can do independently; 5-can teach

| S.no | Key capabilities | Minimum expected performance at months | | | | | |
|---|---|---|---|---|---|---|---|
| | | 6 | 12 | 18 | 24 | 30 | 36 |
| | Approach to a patient with pleural disease | | 1 | 2 | 3 | 4 | 5 |
| | Approach to a patient with diffuse parenchymal lung disease | 1 | 2 | 2 | 3 | 5 | 5 |
| | Approach to patient with Tuberculosis and other infectious diseases | 1 | 2 | 3 | 3 | 4 | 5 |
| | Approach to patient with pulmonary vascular disease | | 1 | 2 | 3 | 4 | 5 |
| | Approach to patient with obstructive airway diseases | 1 | 2 | 3 | 4 | 5 | 5 |
| | Approach to patient with environmental exposure, occupational lung diseases | | 1 | 2 | 3 | 4 | 5 |
| | Approach to patient with sleep disorder | | 1 | 2 | 2 | 3 | 4 |
| | Critical Care Pulmonary Medicine | | 1 | 2 | 2 | 3 | 5 |
| | Surgical aspect of chest medicine | | 1 | 2 | 2 | 3 | 4 |
| 3 | **Diagnostic workup** | | | | | | |
| | Tracheo-Bronchial Secretion | | 1 | 2 | 3 | 4 | 5 |
| | ECG, ECHO in Pulmonary Diseases: Indications, patient preparation, interpretations of results | | 1 | 2 | 3 | 4 | 5 |
| | Radiographic Evaluation of the Chest and Computer Tomography, PET-CT, Radionucleotide scans and MRI | | 1 | 2 | 3 | 4 | 5 |

**Levels of performance:** 1-knows; 2-can do with strict supervision; 3- can do with loose supervision; 4-can do independently; 5-can teach

| S.no | Key capabilities | Minimum expected performance at months | | | | | |
|---|---|---|---|---|---|---|---|
| | | **6** | **12** | **18** | **24** | **30** | **36** |
| | Endoscopy and Related Procedures (Bronchoscopy: Thoracoscopy, EBUS): Indications, patient preparation, interpretations of results | | | 1 | 2 | 2 | 3 |
| | Pulmonary function test (spirometry, lung volumes and diffusion studies, 6MWT, CPET, sleep study) | 1 | 1 | 2 | 2 | 3 | 4 |
| | Bronchial Angiography/ Embolization: Indications, patient preparation, interpretations of results | | | 1 | 1 | 2 | 2 |
| | US guided Thoracentesis, pleural biopsy, lung biopsy: Indications, patient preparation, interpretations of results | | 1 | 2 | 2 | 3 | 4 |
| | CT guided FNAC/ Biopsy: Indications, patient preparation, interpretations of results | | | 1 | 1 | 2 | 3 |
| | Arterial blood gas analysis: Indications, patient preparation, interpretations of results | | 1 | 1 | 2 | 3 | 4 |
| | Gram ‘s stain, Zeihl-Neelsen stain for AFB, Fluorescent Microscope fungus stain, Gomori stain for P. carinii, cytology for neoplastic cells | 1 | 1 | 2 | 3 | 5 | 5 |
| | Immunological Test | | 1 | 1 | 1 | 2 | 2 |
| 4. | **Intervention skills** | | | | | | |
| | US guided FNAC and biopsy: Indications, patient preparation, interpretations of results | 1 | 2 | 3 | 4 | 5 | 5 |
| | CT guided lung FNAC and biopsy: Indications, patient preparation, interpretations of results | | | 1 | | 2 | 3 |
| | Intercostal tube drainage/ pigtail insertion/ Indwelling pleural catheter/ Pleurodesis: | | 1 | 2 | 2 | 3 | 4 |

**Levels of performance:** 1-knows; 2-can do with strict supervision; 3- can do with loose supervision; 4-can do independently; 5-can teach

| S.no | Key capabilities | Minimum expected performance at months | | | | | |
|---|---|---|---|---|---|---|---|
| | | 6 | 12 | 18 | 24 | 30 | 36 |
| | Indications, patient preparation, interpretations of results | | | | | | |
| | Airway management | | 1 | 1 | 2 | 3 | 4 |
| | Oxygen therapy/ Nebulization | 1 | 1 | 2 | 2 | 3 | 4 |
| | Pulmonary Rehabilitation | | | | | | |
| 5. | **Pulmonary Critical Care ICU** | | | | | | |
| | Endo tracheal intubation: Indications, patient preparation, care of ET Tube | 1 | 2 | 3 | 4 | 5 | 5 |
| | Central venous catheter under strict septic precautions | 1 | 2 | 3 | 4 | 4 | 5 |
| | Invasive ventilation modes-indications, contraindications, procedure | 1 | 1 | 2 | 3 | 4 | 5 |
| | Non-invasive ventilation-indications, contraindications | 1 | 2 | 3 | 4 | 4 | 5 |
| | Sepsis-principle, diagnosis, treatment | 1 | 1 | 2 | 3 | 4 | 5 |
| | Weaning from ventilator-indications, contraindications, procedure | 1 | 1 | 2 | 3 | 4 | 5 |
| | Arterial catheterization for invasive blood pressure monitoring purpose (IBP) | 1 | 1 | 2 | 3 | 4 | 5 |
| | Cardiac resuscitation: CPR, approach to arrhythmias, use of defibrillator | 1 | 2 | 3 | 4 | 4 | 5 |
| | Care of ventilator: calibration, leak test | 1 | 1 | 3 | 4 | 4 | 5 |
| | Principles of total parenteral (TPS) nutrition | 1 | 1 | 2 | 2 | 3 | 3 |
| | Tracheostomy, Transtracheal aspiration | 1 | 1 | 2 | 2 | 3 | 4 |
| | End of Life Care | 1 | 2 | 2 | 3 | 3 | 4 |

**Levels of performance:** 1-knows; 2-can do with strict supervision; 3- can do with loose supervision; 4-can do independently; 5-can teach

| S.no | Key capabilities | Minimum expected performance at months | | | | | |
|---|---|---|---|---|---|---|---|
| | | 6 | 12 | 18 | 24 | 30 | 36 |
| 6. | **Pulmonary Emergency** | | | | | | |
| | BLS, ACLS Certification | 1 | 2 | 5 | 5 | 5 | 5 |
| | Acute Respiratory Failure management | 1 | 2 | 3 | 4 | 4 | 5 |
| | Chest Trauma | 1 | 2 | 3 | 4 | 4 | 5 |
| | Acute Pulmonary embolism | 1 | 1 | 2 | 2 | 3 | 3 |
| | Poisoning | 1 | 1 | 2 | 2 | 3 | 3 |
| | Foreign Body aspiration | 1 | 1 | 2 | 2 | 3 | 3 |
| | Massive Haemoptysis | 1 | 2 | 2 | 3 | 3 | 4 |
| 7. | **Quality audit and regulatory guidelines** | | | | | | |
| | PC-PNDT act | 1 | | | | | |
| | Radiation protection | 1 | | | | | |
| | Essential National Health Programmes | 1 | 2 | 3 | 3 | 3 | 4 |
| 8. | **Quality Control of equipment** | | | | | | |
| | Spirometry/ body box/ sleep machine | 1 | 1 | 2 | 2 | 3 | 4 |
| | ABG analyser | 1 | 1 | 2 | 2 | 3 | 4 |
| | Ultrasound | 1 | 2 | 3 | 4 | | |
| | Bronchoscope/ EBUS/ Thoracoscope | | 1 | 2 | 2 | 3 | 3 |
| | NIV and ventilators | | 1 | 2 | 2 | 3 | 3 |
| | Oxygen delivery devices/ nebulizers | 1 | 1 | 2 | 2 | 3 | 3 |
| 9. | **Teaching** | | | | | | |
| | Workplace teaching | 1 | 2 | 4 | | | |
| | Large group teaching | 1 | 2 | 4 | | | |

**Levels of performance:** 1-knows; 2-can do with strict supervision; 3- can do with loose supervision; 4-can do independently; 5-can teach

| S.no | Key capabilities | Minimum expected performance at months | | | | | |
|---|---|---|---|---|---|---|---|
| | | **6** | **12** | **18** | **24** | **30** | **36** |
| 10. | **IT skills** | | | | | | |
| | PACS information technology | 1 | 1 | 2 | 2 | 3 | 4 |
| 11. | **Scholarship** | | | | | | |
| | Protocol writing and presentation | 1 | 2 | | | | |
| | Dissertation writing | | | | | 3 | 4 |
| | Critiquing a research paper | | | 2 | 3 | | |
| | Journal publication | | | 2 | 3 | | |
| | Publication Ethics | | | 1 | 2 | 3 | 3 |
| 12. | **Soft skills** | | | | | | |
| | Communication, Empathy, and Teamwork, along with professional attributes like Work ethic, Time management, Leadership, Resilience, Professionalism, Culture awareness and Adaptability | 1 | 2 | 3 | 4 | 4 | 4 |

## LEARNING OBJECTIVES FOR KEY CAPABILITIES

**First 6 months (Orientation programme):**

- Attending PG orientation programme. (Covering the main teaching methods, issues relating to establishing rapport with the patients, ethical issues involved in rendering the patient care services, research methodology)
- Care of indoor patients under guidance of seniors
- Taking case-history, working up indoor cases, writing admission and discharge summaries
- Learning day care procedures in the department
- Attending emergency and referral calls under the supervision of Senior Resident / Faculty
- Attending grand/ward rounds and assisting in carrying out the instructions by seniors
- Attending Out Patient Department patients under the supervision of seniors
- Keeping records and maintenance of ward, OPD, and emergency statistics
- Preparation of Dissertation protocol and getting it approved by the Post Graduate Research Monitoring Committee (PGRMC) and the Institute Ethics Committee (IEC)

**After 6 months to the end of the course:**

- Presenting indoor patients in ward rounds
- Attending OPD patients
- Doing emergency duties of 24hr duration by rotation among all residents
- Presenting seminars, journal clubs, cases on rotation basis
- Attending Inter-departmental meetings (clinico-pathological/clinico-radiological/tumour board)
- Attending and presenting in departmental Audit.
- Ensuring proper management of indoor patients and proper record keeping.
- Attending medical care review meetings, Central Academic programmes and other guest lectures organized by institute
- Taking clinical classes for undergraduate students posted in Pulmonary Medicine
- Properly carrying out dissertation work and submitting in scheduled time
- Taking interest in research work, publishing review articles / case reports in journals
- Attending conferences, work-shops and CMEs.
- Maintaining a Log Book
- Learning to perform various diagnostic and therapeutic procedures under supervision and independently
- To get updated with latest guidelines and recent advances in Pulmonary Medicine and Critical Care Medicine
- Peripheral postings

The following skill should be possessed by candidate appearing for M.D (Pulmonary Medicine)

1. **Communication skills**
   a) Communication with peer Group by way of:
      - Case presentation
      - Clinico-pathological exercise
      - Seminars & small conferences

- Bereavement care:
    a) Breaking bad news
    b) Referral for counselling

b) Communication with students and colleagues:

- Undergraduate teaching
- Demonstrations

c) Research Communication:

- Gathering and compiling data, analysis and presentation, designing a research protocol.
- Writing a structured abstract

d) Communications with patients:

To adopt ethical principles and maintain proper etiquette in dealings with patients, relatives to respect the rights of the patient including the right to information and second opinion

2. **Administrative skills:**

a) Stores and equipment

- Knowledge about requirement, estimation of cost and expenditure and equipment and maintenance
- Procurement and maintenance
- Medico-legal aspects of diseases
- Staff management
- Information technology and health informatics
- Public relation and media

b) Knowledge about essential National Health Programmes

3. **Teaching skills:**

- Lecture preparation
- Small group techniques
- Presentation technique
- Teaching critique
- Departmental teaching programme
- Professional development

4. **Clinical and procedural skills.**

a) General skills
b) Specific skills in Respiratory Medicine

**GENERAL SKILLS**

1. General Medicine: History taking, methodological clinical examination, fundus examination, liver biopsy, L.P. sternal puncture for bone-morrow examination, catheterization and bedside investigations
2. Cardiology: Interpretation of ECG in relation to respiratory diseases, Echo, usage of Defibrillator
3. Radiology: X-ray reading, positioning, fluoroscopy, barium swallow, CT scan and Ultra Sonography, MRI, Lung Scan, PET scan, bronchial artery embolization and Pulmonary-angiography
4. ENT/ Anaesthesiology: Intubation, tracheostomy, transtracheal aspiration, sinus examination
5. Cardiovascular and Thoracic Surgery: Bronchoscopy, Thoracoscopy, pulmonary resection, post-operative care and pre-operative evaluation, ECMO, pleurodesis, decortication, BPF, lung transplant.

These skills are acquired by the candidates by working in parent and allied departments.

**SPECIFIC SKILLS in Pulmonary Medicine:**

**1. Skill to perform diagnostic Procedures:**

- Sputum examination with ZN stain, fluorescent microscopy, examination of the body fluids for AFB and malignant cells
- Newer diagnostic techniques for tuberculosis including molecular techniques
- FNAC of Lung and lymph node
- Evaluation of diagnostic tests
- Sleep lab and sleep clinic
- Exercise testing
- Respiratory muscle function tests
- Pulmonary function test and interpretation
- BCG Vaccination
- Mantoux testing, interferon gamma release assays
- Imaging: interpretation of plain radiography and basic Ultra sound, CT, PET scan, MRI
- Arterial blood gas analysis
- Simple haematological tests
- Immunological and serological tests
- Bronchoprovocation test
- Bronchoscopy: fibreoptic/rigid, diagnostic and therapeutic
- ECG, 2D and doppler echocardiography
- Venous doppler ultrasound
- Skin tests for hypersensitivity
- Sputum induction and non-invasive monitoring of airway inflammation
- Medical thoracoscopy

2. **Therapeutic Procedures:**
   - Thoracentesis
   - Basic ultrasonography of thorax
   - Tube Thoracostomy
   - Medical Thoracoscopy
   - Rehabilitation exercise
   - Postural drainage
   - Bronchoscopy aspiration and lavage, interventional bronchoscopy including endobronchial ultrasound (EBUS), argon plasma coagulation and cryotherapy procedures
   - Pleural biopsy, lymph node biopsy
   - Critical care
   - Management issues and basic nursing and asepsis, cross infection and iatrogenic problems.
   - Life support system management
   - Principles of total parenteral (TPS) nutrition
   - Emergency central line insertion
   - Endobronchial interventions - Endo bronchial valve placement, Narrow band imaging, Bronchial Thermoplasty, BPF closure with fibrin glue
   - Administration of inhalational therapy
   - Administration of CPAP and Bi-level PAP
   - Monitoring and emergency procedures in intensive care

Apart from these skills, the candidate should possess skill for rapid diagnosis and decision making which is useful in outpatient department and as a part of inpatient management; he/she should have the following skills.

- Case sheet writing, clinical examination, diagnosis, investigation and managements.
- Presenting cases
- Problem based approach towards day-to-day management
- Bedside diagnostic and therapeutic procedures
- Minor surgical procedures
- End of life decisions

# Annexure 1 (Part B)

| CORE IDEAS IN THE PRACTICE OF KEY-CAPABILITIES |
|---|
| **Basic sciences** related to Pulmonary Medicine: Anatomy including embryology, physiology, pharmacology, microbiology, epidemiology and pathology |
| **Radiology** including chest x ray, ultrasound, CT |
| **Approach to the patient** with respiratory signs and symptoms |
| **Diagnostic workup** of respiratory disease including radiology, ABG, bronchoscopy, EBUS, Thoracoscopy, PFT, CPET, PSG |
| **Intervention skills** including image guided FNAC and biopsy, ICTD, IPC, nebulization, oxygen therapy, airway management, Deaddiction techniques, pulmonary rehabilitation |
| **Pulmonary Critical Care ICU**-methods of ventilation, management of sepsis, arterial catheterization, central venous catheters, end of life care |
| **Pulmonary Emergency**- foreign body aspiration, chest trauma, Acute Pulmonary embolism, massive haemoptysis |
| **Quality audit and regulatory guidelines** |
| **Quality Control of equipment** |
| **Teaching,** |
| **IT skills** |
| **Scholarship** |
| **Soft Skills** |

**Levels of performance:** 1-knows; 2-can do with strict supervision; 3- can do with loose supervision; 4-can do independently; 5-can teach

## CORE IDEAS IN THE PRACTICE OF KEY-CAPABILITIES

| S.no | Key capabilities | Minimum expected performance at months | | | | | |
|---|---|---|---|---|---|---|---|
| | | 6 | 12 | 18 | 24 | 30 | 36 |
| 1 | **Basic sciences related to Pulmonary Medicine** | | | | | | |
| | Anatomy of pulmonary system<br>-normal anatomy of upper aerodigestive tract, chest and embryological development of respiratory system including heart and diaphragm<br>- congenital anomalies of respiratory system<br>Physiology of the respiratory system<br>-1.Assessment of pulmonary functions<br>2. Control of ventilation;<br>pulmonary mechanics<br>3. Ventilation, pulmonary blood flow, gas exchange and transport<br>4. Non-respiratory metabolic functions of lung<br>5. Principles of electrocardiography<br>6. Inhalation kinetics and its implication in aerosol therapy, and sputum induction etc.<br>7. Acid-base and electrolyte balance<br>8. Physiology of sleep and its disorders<br>9. Pulmonary innervation and reflexes<br>10. Pulmonary defence mechanisms<br>11. Principles of exercise physiology and testing 12. Physiological changes in pregnancy, high altitude, aging<br>13. Physiological basis of pulmonary symptoms | 1 | 2 | 4 | 5 | 5 | 5 |
| | Pharmacology of Pulmonary Medicine<br>1. Pharmacology of antimicrobial drugs<br>2. Pharmacology of antitubercular drugs<br>3. Pharmacology of antineoplastic and immunosuppressant drugs<br>4. Bronchodilator and anti-inflammatory drugs used in pulmonary diseases<br>5. Drugs used in viral, fungal and parasitic infections<br>6. Other drugs pharmacokinetics and drugs interaction of commonly used drugs in pulmonary diseases | 1 | 3 | 4 | 5 | 5 | 5 |

**Levels of performance:** 1-knows; 2-can do with strict supervision; 3- can do with loose supervision; 4-can do independently; 5-can teach

| S.no | Key capabilities | Minimum expected performance at months | | | | | |
|---|---|---|---|---|---|---|---|
| | | 6 | 12 | 18 | 24 | 30 | 36 |
| | 7. Pharmacovigilance | | | | | | |
| | Microbiology<br>1. Mycobacterium tuberculosis and other mycobacteria<br>2. Bacteria causing pulmonary diseases<br>3. Atypical organisms and respiratory tract infections<br>4. Anaerobes in pleuro-pulmonary infections<br>5. Laboratory diagnosis of non-tubercular infections of respiratory tract<br>6. Laboratory diagnosis of TB including staining, culture and drug sensitivity testing<br>7. Virulence and pathogenicity of mycobacteria 8. Respiratory viruses: Viral diseases of the respiratory system and diagnostic methods<br>9. Respiratory fungi: (i) Classification of fungal diseases of lung: candidiasis, Actinomycosis, Nocardiosis, Aspergillosis, Blastomycosis etc. (ii) Laboratory diagnostic procedures in pulmonary mycosis<br>10. Opportunistic infections in the immuno-compromised individuals<br>11. HIV and AIDS. Virological aspects, immuno-pathogenesis, diagnosis<br>12. parasitic diseases of the lung | 1 | 3 | 4 | 5 | 5 | 5 |
| | Pathology of Pulmonary Diseases including but not limited to<br>1.Acute and chronic inflammation: Pathogenetic mechanisms in pulmonary diseases<br>2. Pathology aspects of Tuberculosis<br>3. Pathology aspects of Pneumonias and bronchopulmonary suppuration<br>4. Chronic bronchitis and emphysema, asthma, other airway diseases<br>5. Occupational lung diseases including Pneumoconiosis<br>6. Interstitial lung diseases including sarcoidosis, connective tissue diseases, pulmonary vasculitis syndromes, pulmonary eosinophilia | 1 | 2 | 3 | 4 | 5 | 5 |

**Levels of performance:** 1-knows; 2-can do with strict supervision; 3- can do with loose supervision; 4-can do independently; 5-can teach

| S.no | Key capabilities | Minimum expected performance at months | | | | | |
|---|---|---|---|---|---|---|---|
| | | 6 | 12 | 18 | 24 | 30 | 36 |
| | 7. Tumours of the lung, mediastinum and pleura | | | | | | |
| | Epidemiology<br>1. Epidemiological terms and their definitions<br>2. Epidemiological methods<br>3. Epidemiology of tuberculosis, pneumoconiosis, asthma, lung cancer, COPD and other pulmonary diseases<br>4. National Tuberculosis Control Programme and RNTCP; Epidemiological aspects of BCG<br>5. Epidemiological aspects of pollution-related pulmonary diseases<br>6. Research methodology, statistics and study designs | 1 | 2 | 3 | 4 | 5 | 5 |
| | Allergy and Immunology<br>1. Various mechanisms of hypersensitivity reactions seen in pulmonary diseases<br>2. Diagnostic tests in allergic diseases of lung - in vitro and in vivo tests, bronchial provocation test 3. Immunology of tuberculosis, Sarcoidosis and other diseases with an immunological basis of pathogenesis | 1 | 2 | 3 | 4 | 5 | 5 |
| 2 | **Radiology** | | | | | | |
| | X-ray anatomy of pulmonary systems<br>X ray acquisition techniques, positioning and physics related to imaging<br>1. Infectious diseases including tuberculosis<br>2. Interstitial lung diseases<br>3. Pulmonary vascular diseases<br>4. Occupational lung diseases<br>5. Lung cancer<br>6. Sleep disorder breathing<br>7. Obstructive airway disease<br>8. Pleural, mediastinal and chest wall diseases | 1 | 2 | 3 | 5 | 5 | 5 |
| | CT anatomy of Chest<br>1. Infectious diseases including tuberculosis<br>2. Interstitial lung diseases<br>3. Pulmonary vascular diseases | | 1 | 2 | 3 | 5 | 5 |

**Levels of performance:** 1-knows; 2-can do with strict supervision; 3- can do with loose supervision; 4-can do independently; 5-can teach

| S.no | Key capabilities | Minimum expected performance at months | | | | | |
|---|---|---|---|---|---|---|---|
| | | 6 | 12 | 18 | 24 | 30 | 36 |
| | 4. Occupational lung diseases<br>5. Lung cancer<br>6. Sleep disorder breathing<br>7. Obstructive airway disease<br>8. Pleural, mediastinal and chest wall diseases<br>A. Contrast techniques and precautions<br>B. Importance of secondary pulmonary lobule in various lung diseases<br>C. Detect findings suggestive of interstitial lung diseases from HRCT images and describe patterns as per latest guidelines. Perform lung cancer screening as per latest guidelines (guidelines gives in Annexure 1 PART B) | | | | | | |
| | Ultrasound of thorax:<br>1. USG controls - gain and TGC, frequency, focus, depth<br>2. Acquire images using transthoracic low and high frequency probes<br>3. Doppler -colour and spectral optimisation (beam steering, angle correction, PRF, baseline, wall filter)<br>4. Indications, patient preparation, interpretations of results | 1 | 2 | 3 | 4 | 5 | 5 |
| 3 | **APPROACH TO THE PATIENT WITH RESPIRATORY SIGNS AND SYMPTOMS** | | | | | | |
| | Basic signs and symptoms of lung diseases<br>Pathogenesis evaluation of dyspnoea and abnormal breathing patterns<br>- Pulmonary manifestations of systemic diseases<br>- Approach to a patient with lung malignancy<br>- Approach to a patient with pleural disease<br>- Approach to a patient with diffuse parenchymal lung disease<br>- Approach to patient with Tuberculosis and other infectious diseases<br>- Approach to patient with pulmonary | 1 | 2 | 3 | 5 | 5 | 5 |

**Levels of performance:** 1-knows; 2-can do with strict supervision; 3- can do with loose supervision; 4-can do independently; 5-can teach

| S.no | Key capabilities | Minimum expected performance at months | | | | | |
|---|---|---|---|---|---|---|---|
| | | 6 | 12 | 18 | 24 | 30 | 36 |
| | vascular disease<br>- Approach to patient with obstructive airway diseases<br>- Approach to patient with environmental exposure, occupational lung diseases<br>- Approach to patient with sleep disorder<br>- Critical Care Pulmonary Medicine<br>- Surgical aspect of chest medicine | | | | | | |
| 3 | **Diagnostic workup** | | | | | | |
| | Tracheo-Bronchial Secretion/Transbronchial Aspirations<br>-obtaining appropriate specimen by induced sputum, mini BAL, Tracheal aspirate<br>-perform gram stain, fluorescent microscopy, ZN staining, KOH staining<br>-obtaining nasopharyngeal swab | | 1 | 2 | 3 | 4 | 5 |
| | ECG, ECHO in Pulmonary Diseases<br>Indications, patient preparation, interpretations of results<br>- Interpretation of ECG<br>- Identifying normal and abnormal rhythm, axis deviation, ventricular hypertrophy<br>- Identification of pulmonary embolism<br>- Identification of pulmonary hypertension<br>- Identification of RA,RV dilation<br>- Identifying elevated pulmonary artery pressures<br>- Identification of ejection fraction<br>- Identification of right heart failure | | 1 | 2 | 3 | 4 | 5 |
| | Radiographic Evaluation of the Chest and Computer Tomography, PET-CT, Radionucleotide scans and MRI<br>-Airway related - emphysema, Bronchiectasis and associated (Kartagener's syndrome, cystic fibrosis, alpha antitrypsin deficiency), ABPA<br>Pneumonia – viral, bacterial (including actinomycosis, tuberculosis), fungal | | 1 | 2 | 3 | 4 | 5 |

**Levels of performance:** 1-knows; 2-can do with strict supervision; 3- can do with loose supervision; 4-can do independently; 5-can teach

| S.no | Key capabilities | Minimum expected performance at months | | | | | |
|---|---|---|---|---|---|---|---|
| | | 6 | 12 | 18 | 24 | 30 | 36 |
| | (aspergillosis, mucormycosis, pneumocystis), parasitic(hydatid)<br>Pulmonary oedema, ARDS<br>Congenital - CPAM, congenital lobar emphysema, sequestration Trauma chest, foreign body inhalation, lipoid pneumonia<br>Infections in immunocompromised<br>ILDs – (1) exposure related - Occupational/ radiation/ drug induced/ avocational (2) Autoimmune and connective tissue diseases - RA, SLE, Sjogren, vasculitis associated disease, HP (3) idiopathic (4) neurofibromatosis, LAM, LCH, eosinophilic pneumonia<br>Pulmonary thromboembolism<br>Other pulmonary vascular - Pulmonary hypertension, pulmonary veno- occlusive, pulmonary capillary haemangiomatosis, excipient disease<br>Tumour of Lung and mediastinum: Lung cancer, Lymphangitis carcinomatoses, neuroendocrine tumours, mesothelioma, metastasis, neoplastic lymphoproliferative disorders, fibrous tumour of the pleura, Kaposi sarcoma<br>Other Congenital/inherited -Birt-Hogg-Dube syndrome, Hermansky-Pudlak syndrome, Tuberous sclerosis, primary Childhood ILDS, familial idiopathic pulmonary fibrosis, surfactant deficiency, primary ciliary dyskinesia, chronic granulomatous disease<br>Other lung diseases - Amyloidosis, light chain deposition, alveolar microlithiasis, metastatic pulmonary ossification, idiopathic pulmonary hemosiderosis, diffuse pulmonary ossification | | | | | | |
| | Endoscopy and Related Procedures (Bronchoscopy: Thoracoscopy, EBUS)<br>-indications and contraindications for the procedure<br>- obtain informed consent<br>- pre procedure work up<br>-bronchoscopic inspection of the trachea bronchial tree | | | 1 | 2 | 2 | 3 |

**Levels of performance:** 1-knows; 2-can do with strict supervision; 3- can do with loose supervision; 4-can do independently; 5-can teach

| S.no | Key capabilities | Minimum expected performance at months | | | | | |
|---|---|---|---|---|---|---|---|
| | | 6 | 12 | 18 | 24 | 30 | 36 |
| | -performing bronchial wash, bronchoalveolar lavage<br>- transbronchial and endobronchial biopsy<br>- identification of mediastinal nodes by EBUS<br>- performing EBUS guided FNAC, TBB<br>-inspection of the thorax by semi rigid thoracoscope<br>- performing thoracoscopic biopsy<br>- performing pleurodesis through thoracoscope<br>-post procedure care and management of complications | | | | | | |
| | Pulmonary function test (spirometry, lung volumes and diffusion studies, 6MWT, CPET, sleep study)<br>- indications and contraindications for the procedure<br>- obtain informed consent<br>- pre procedure work up<br>identification of normal spirometry<br>- normal spirometry curves and flow volume loops<br>-interpretation of obstructive, restrictive and mixed airflow limitation<br>- identify impaired diffusion conditions<br>- Identify intraparenchymal and extra parenchymal restriction<br>- perform body plethysmography<br>- estimation of total lung capacity<br>-instructions to do 6MWT<br>Utility of 6MWT<br>-Utility of CPET<br>- pre-op evaluation of lung resection cases<br>- perform level 1 sleep studies<br>- identification of obstructive and central sleep apnoea<br>-identification of obesity hypoventilation syndrome<br>-CPAP titration | 1 | 1 | 2 | 2 | 3 | 4 |
| | Bronchial Angiography/ Embolization<br>- Identifying indications and contraindications for embolization<br>- Post procedure care | | | 1 | 1 | 2 | 2 |

**Levels of performance:** 1-knows; 2-can do with strict supervision; 3- can do with loose supervision; 4-can do independently; 5-can teach

| S.no | Key capabilities | Minimum expected performance at months | | | | | |
|---|---|---|---|---|---|---|---|
| | | 6 | 12 | 18 | 24 | 30 | 36 |
| | US guided Thoracentesis, pleural biopsy, lung biopsy<br>- indications and contraindications for the procedure<br>- obtain informed consent<br>- pre procedure work up<br>identify and quantify pleural effusion<br>- identify pneumothorax<br>- diagnostic and therapeutic aspiration of pleural effusion and pneumothorax<br>-USG-guided pleural biopsy and lung biopsy/ lung FNAC<br>-management of post procedure complications<br>- rapid onsite evaluation of FNAC slides for adequacy | | 1 | 2 | 2 | 3 | 4 |
| | CT guided FNAC/ Biopsy<br>indications and contraindications for the procedure<br>- obtain informed consent<br>- pre procedure work up<br>- CT guided pleural biopsy and lung biopsy/ lung FNAC<br>- -management of post procedure complications<br>- - rapid onsite evaluation of FNAC slides for adequacy | | 1 | 1 | 2 | 2 | 3 |
| | Arterial blood gas analysis<br>- Obtain proper sampling and transport<br>- Maintenance of ABG machine<br>- Interpretation of common acid base disorders | | 1 | 1 | 2 | 3 | 4 |
| | Gram ‘s stain, Zeihl-Neelsen stain for AFB, Fluorescent Microscope fungus stain, Gomori stain for P. carinii, cytology for neoplastic cells<br>- Obtain proper samples<br>- Transport of the samples<br>- Identification of common respiratory pathogens | 1 | 1 | 2 | 3 | 5 | 5 |
| | Immunological Test<br>- Perform and interpret TST<br>- Interpretation of ANA blot | | 1 | 1 | 2 | 2 | 3 |

**Levels of performance:** 1-knows; 2-can do with strict supervision; 3- can do with loose supervision; 4-can do independently; 5-can teach

| S.no | Key capabilities | Minimum expected performance at months | | | | | |
|---|---|---|---|---|---|---|---|
| | | 6 | 12 | 18 | 24 | 30 | 36 |
| 4. | **Intervention skills** | | | | | | |
| | US guided FNAC and biopsy<br>- indications and contraindications for the procedure<br>- obtain informed consent<br>- pre procedure work up<br>USG-guided pleural biopsy and lung biopsy/ lung FNAC<br>-management of post procedure complications<br>- rapid onsite evaluation of FNAC slides for adequacy | 1 | 2 | 3 | 4 | 5 | 5 |
| | CT guided lung FNAC and biopsy<br>indications and contraindications for the procedure<br>- obtain informed consent<br>- pre procedure work up<br>- management of post procedure complications<br>- rapid onsite evaluation of FNAC slides for adequacy | 1 | 1 | 1 | | 2 | 3 |
| | Intercostal tube drainage/ pigtail insertion/ Indwelling pleural catheter/ Pleurodesis<br>-indications and contraindications for the procedure<br>- obtain informed consent<br>- pre procedure work up<br>- performing ICTD/pigtail/IPC placement<br>- indications and agents for pleurodesis<br>- identify post procedure complications and management of the same | 1 | 1 | 2 | 2 | 3 | 4 |
| | Airway management | | 1 | 1 | 2 | 3 | 4 |
| | Oxygen therapy/ Nebulization<br>- Indications of oxygen therapy<br>- Controlled oxygen therapy<br>- Principles of venturi mask, NRBM, nasal cannula, face mask<br>- Complications of oxygen therapy including fire hazard<br>- Long term oxygen therapy | 1 | 1 | 2 | 2 | 3 | 4 |

**Levels of performance:** 1-knows; 2-can do with strict supervision; 3- can do with loose supervision; 4-can do independently; 5-can teach

| S.no | Key capabilities | Minimum expected performance at months | | | | | |
|---|---|---|---|---|---|---|---|
| | | 6 | 12 | 18 | 24 | 30 | 36 |
| | - Use and maintenance of jet and ultrasonic nebulizer | | | | | | |
| | Pulmonary Rehabilitation<br>- Indications and contraindications for rehabilitation<br>- Bicycle ergometry, treadmill, upper limb muscle training<br>- -postural drainage, chest physiotherapy, breathing exercise<br>- - nutritional advice | 1 | 1 | 2 | 3 | 4 | 5 |
| | Deaddiction clinic<br>- Smoking cessation techniques<br>- Counselling<br>- Nicotine replacement therapy | 1 | 2 | 3 | 4 | 5 | 5 |
| 5. | **Pulmonary Critical Care ICU** | | | | | | |
| | Endo tracheal intubation<br>- Indications for invasive ventilation for management of Chronic obstructive pulmonary diseases, ILD and acute hypoxemic respiratory failure like ARDS<br>- Identify the correct size ET tubes in males and females<br>- Perform intubation including difficult intubation scenarios: short neck, obese and rigid mandibular joint using bougie or ramp technique, sniffing position<br>- Proper placement/ positioning of the ET without any complications<br>- Identify do not resuscitate conditions like multi organ dysfunction due to sepsis, stage 4 lung cancer and disseminated fungal or tuberculosis infection<br>- management of prolonged ventilation in scenarios: critical illness neuropathy, chest wall disorders like scoliosis, COPD, OHS and bronchiectasis | 1 | 2 | 3 | 4 | 5 | 5 |

**Levels of performance:** 1-knows; 2-can do with strict supervision; 3- can do with loose supervision; 4-can do independently; 5-can teach

| S.no | Key capabilities | Minimum expected performance at months | | | | | |
|---|---|---|---|---|---|---|---|
| | | 6 | 12 | 18 | 24 | 30 | 36 |
| | central venous catheter under strict septic precautions<br>- Indications and contraindications of CVC using 7f or 8f size placement to internal jugular vein and femoral vein (for dialysis) using aseptic precautions and checklist<br>- Image guided placement of IJV CVC for hypotension, sepsis, intravenous drug delivery | 1 | 2 | 3 | 4 | 4 | 5 |
| | Invasive ventilation modes<br>Indications, Monitoring, wave forms & Precautions<br>Modes: volume control, pressure control, pressure support | | 1 | 2 | 3 | 4 | 5 |
| | Non-invasive ventilation<br>-indications, contraindications<br>-NIV type: bilevel (s/t), CPAP, bilevel (s)<br>In conditions: acute exacerbation of COPD, bronchiectasis or acute cardiogenic pulmonary oedema, immunocompromised | 1 | 2 | 3 | 4 | 4 | 5 |
| | Sepsis-principle, diagnosis, treatment<br>-Sepsis cause: pneumonia, septic emboli, bronchiectasis infective exacerbation, empyema, covid-19 | 1 | 1 | 2 | 3 | 4 | 5 |
| | Weaning from ventilator-indications, contraindications, procedure<br>-Weaning from ventilator: in acute hypoxemic respiratory failure like severe pneumonia and acute type 2 respiratory failure like COPD | | 1 | 2 | 3 | 4 | 5 |
| | Arterial catheterization for invasive blood pressure monitoring purpose (IBP)<br>-Arterial catheterization using for invasive blood pressure monitoring purpose (IBP) using arterial catheters with introducer sheath of size 6F or 8F in septic shock cases to radial artery and femoral artery<br>-Procedure, post procedure complications | | 1 | 2 | 3 | 4 | 5 |
| | Cardiac resuscitation: CPR, approach to arrhythmias, use of defibrillator<br>- approach to arrhythmias like SVT, AF, | 1 | 2 | 3 | 4 | 4 | 5 |

**Levels of performance:** 1-knows; 2-can do with strict supervision; 3- can do with loose supervision; 4-can do independently; 5-can teach

| S.no | Key capabilities | Minimum expected performance at months | | | | | |
|---|---|---|---|---|---|---|---|
| | | 6 | 12 | 18 | 24 | 30 | 36 |
| | VT, VF: drug doses for medical treatment and indications for electric cardioversion using portable defibrillator machine<br>- use of defibrillator for pulseless VT, VF and Tachyarrhythmias with complications like hypotension, chest pain, syncope | | | | | | |
| | Care of ventilator: calibration, leak test | 1 | 1 | 3 | 4 | 4 | 5 |
| | Principles of total parenteral (TPS) nutrition<br>-In conditions like abdominal tuberculosis, post surgery, acute pancreatitis and severe clostridium | 1 | 1 | 2 | 2 | 3 | 3 |
| | Tracheostomy, Transtracheal aspiration<br>-Surgical elective Tracheostomy indications and contraindications,<br>Post procedure care in severe COPD, bronchiectasis, critical illness myopathy, and chest wall disorders: change of tube, use of suction, incision site care and nebulization use, chest physiotherapy, bronchial hygiene<br>-transtracheal aspiration, mini-BAL in pneumonia: indications, contraindications | 1 | 1 | 2 | 2 | 3 | 4 |
| | End of Life Care<br>- End of Life Care in lung cancer, COPD with cardiac failure, ILD: palliative treatment, pain, agitation and dyspnea management. | 1 | 2 | 2 | 3 | 3 | 4 |
| 6. | **Pulmonary Emergency** | | | | | | |
| | BLS, ACLS Certification | 1 | 2 | 5 | 5 | 5 | 5 |
| | Acute Respiratory Failure management<br>-Acute Respiratory Failure management: intravenous drugs, ventilation support: non-invasive, invasive, aerosol therapy, intubation | 1 | 2 | 3 | 4 | 4 | 5 |
| | Chest Trauma<br>-flail chest, diaphragm palsy, haemothorax, pneumothorax management. | 1 | 2 | 3 | 4 | 4 | 5 |

**Levels of performance:** 1-knows; 2-can do with strict supervision; 3- can do with loose supervision; 4-can do independently; 5-can teach

| S.no | Key capabilities | Minimum expected performance at months | | | | | |
|---|---|---|---|---|---|---|---|
| | | 6 | 12 | 18 | 24 | 30 | 36 |
| | Acute Pulmonary embolism<br>- Acute Pulmonary thrombo-embolism- clinical approach, diagnosis and management including those with hemodynamic instability<br>- Thrombolysis and oral anticoagulation in acute and chronic pte: drugs, indications, duration | 1 | 1 | 2 | 2 | 3 | 3 |
| | Poisoning | 1 | 1 | 2 | 2 | 3 | 3 |
| | Foreign Body aspiration<br>- Approach to diagnosis, retrieval using flexible bronchoscopy and biopsy needle and management of acute respiratory distress | 1 | 1 | 2 | 2 | 3 | 3 |
| | Massive Haemoptysis<br>- Should know indications for CTBA, flexible bronchoscopy and bronchial artery embolization<br>Stabilize patient: blood transfusion, volume resuscitation, intubation, proper positioning | 1 | 2 | 2 | 3 | 3 | 4 |
| 7. | **Quality audit and regulatory guidelines** | | | | | | |
| | PC-PNDT act | 1 | | | | | |
| | Radiation protection | 1 | 1 | 2 | 2 | 3 | 4 |
| | Essential National Health Programmes<br>-national tuberculosis elimination programme<br>- DOTS referral<br>-programmatic management of drug resistant tuberculosis | 1 | 2 | 3 | 3 | 3 | 4 |
| 8. | **Quality Control of equipment** | | | | | | |
| | Spirometry/ body box/ sleep machine | 1 | 1 | 2 | 2 | 3 | 4 |
| | ABG analyser | 1 | 1 | 2 | 2 | 3 | 4 |
| | Ultrasound | 1 | 2 | 3 | 4 | 4 | 5 |
| | Bronchoscope/ EBUS/ Thoracoscope | 1 | 1 | 2 | 2 | 3 | 3 |
| | NIV and ventilators | 1 | 1 | 2 | 2 | 3 | 3 |
| | Oxygen delivery devices/ nebulizers | 1 | 1 | 2 | 2 | 3 | 3 |

**Levels of performance:** 1-knows; 2-can do with strict supervision; 3- can do with loose supervision; 4-can do independently; 5-can teach

| S.no | Key capabilities | Minimum expected performance at months | | | | | |
|---|---|---|---|---|---|---|---|
| | | 6 | 12 | 18 | 24 | 30 | 36 |
| 9. | **Teaching** | | | | | | |
| | Workplace teaching | 1 | 2 | 4 | | | |
| | Large group teaching | 1 | 2 | 4 | | | |
| 10. | **IT skills** | | | | | | |
| | PACS information technology | | | | 1 | | |
| 11. | **Scholarship** | | | | | | |
| | Protocol writing and presentation | 1 | 2 | | | | |
| | Dissertation writing | | | | | 3 | 4 |
| | Critiquing a research paper | | | 2 | 3 | | |
| | Journal publication | | | 2 | 3 | | |
| | Publication Ethics | | | 1 | 2 | 3 | 3 |
| 12. | **Soft skills** | | | | | | |
| | Communication, Empathy, and Teamwork, along with professional attributes like Work ethic, Time management, Leadership, Resilience, Professionalism, Culture awareness and Adaptability | 1 | 2 | 3 | 4 | 4 | 5 |

# Annexure 1 (Part C)

**Learning Objectives-Peripheral posing for MD Pulmonary medicine**

| | | |
|---|---|---|
| 1. | General Medicine (15 days in ICU and 15days ward) | 30 days |
| 2. | Cardiology | 7 days |
| 3. | Cardiothoracic & Vascular Surgery | 7 days |
| 4. | Radio-diagnosis | 7 days |
| 5. | Critical Care Unit | 30 days |
| 6. | Intermediate Reference Laboratory of State Government, Pondicherry | 7 days |
| 7. | Preventive & Social Medicine | 14 days |
| | | 120 days |

The candidates should be posted in the Outpatient, Inpatient, Emergency room and Intensive Care Unit where he/she learns clinical decision making, therapeutic decision in routine ward work and emergencies.

## Peripheral Posting

The postgraduate residents will be posted in different departments/divisions of the hospital/institute during the first two years of their course. The resident will be assessed for their knowledge, skills and performance in the department of peripheral posting. Attendance and feedback from these postings will be sent by respective departments to Pulmonary medicine.

| **Department** | **Basic Objectives** | **Duration (days)** |
|---|---|---|
| General Medicine | History taking, methodological clinical examination, fundus examination, liver biopsy, L.P. sternal puncture for bone-morrow examination, catheterization and bedside investigations | 30 |
| Cardiology | Basics of Echo, ECG, CPET, diagnosis and management of pulmonary hypertension, acute cardiac events, pulmonary embolism, heart failure | 7 |
| Cardiothoracic & Vascular Surgery | Surgical management of lung conditions including post op care of thoracic surgeries | 7 |
| Radio-diagnosis | Interpretation of chest radiology including CXR, CT Chest, MRI, USG. Interventional radiology procedures with respect to respiratory diseases. | 7 |
| Critical Care Unit | Management of critically ill patients, basics of ventilator strategies, fluid resuscitation, electrolyte abnormalities. monitoring in ICU, procedures in ICU (central line, arterial line, difficult intubation, tracheostomy etc..) | 30 |
| Intermediate Reference Laboratory of State Government, Pondicherry | Advanced Diagnostics in drug resistant TB | 7 |
| Preventive & Social Medicine | Exposure to national programs with regard to respiratory diseases and implementation of the same (ex. NTEP, PMDT). Active case finding approach. | 14 |

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# Annexure 2

The numbers performed independently and with assistance in each of the postings are entered.

| No. | I: independently, A: assisted | | Numbers in nth posting | | | | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|
| | **Procedures** | | **1st** | **2nd** | **3rd** | **4th** | **5th** | **6th** | **7th** | |
| 1 | Diagnostic aspiration | I | | | | | | | | |
| | | A | | | | | | | | |
| 2 | Therapeutic aspiration | I | | | | | | | | |
| | | A | | | | | | | | |
| 3 | Closed pleural biopsy | I | | | | | | | | |
| | | A | | | | | | | | |
| 4 | spirometry | I | | | | | | | | |
| | | A | | | | | | | | |
| 5 | Diffusion studies | I | | | | | | | | |
| | | A | | | | | | | | |
| 6 | Body plethysmography | I | | | | | | | | |
| | | A | | | | | | | | |
| 7 | Sleep studies | I | | | | | | | | |
| | | A | | | | | | | | |
| 8 | Arterial blood gas analysis | I | | | | | | | | |
| | | A | | | | | | | | |
| 9 | Exercise testing | I | | | | | | | | |
| | | A | | | | | | | | |
| 10 | USG-guided FNAC/BIOPSY | I | | | | | | | | |
| | | A | | | | | | | | |
| 11 | CT guided FNAC/Biopsy | I | | | | | | | | |
| | | A | | | | | | | | |
| 12 | Indwelling pleural catheter | I | | | | | | | | |
| | | A | | | | | | | | |
| 13 | Intercostal tube drainage | I | | | | | | | | |
| | | A | | | | | | | | |
| 14 | Chemical pleurodesis | I | | | | | | | | |
| | | A | | | | | | | | |
| 15 | Flexible bronchoscopy | I | | | | | | | | |
| | | A | | | | | | | | |
| 16 | Bronchoalveolar lavage | I | | | | | | | | |
| | | A | | | | | | | | |

| No. | I: independently, A: assisted | | Numbers in nth posting | | | | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|
| | **Procedures** | | **1st** | **2nd** | **3rd** | **4th** | **5th** | **6th** | **7th** | |
| 17 | Bronchial washing | I | | | | | | | | |
| | | A | | | | | | | | |
| 18 | Bronchial brushing | I | | | | | | | | |
| | | A | | | | | | | | |
| 19 | Endobronchial needle aspiration | I | | | | | | | | |
| | | A | | | | | | | | |
| 20 | Transbronchial needle aspiration | I | | | | | | | | |
| | | A | | | | | | | | |
| 21 | Endobronchial needle biopsy | I | | | | | | | | |
| | | A | | | | | | | | |
| 22 | Transbronchial lung biopsy | I | | | | | | | | |
| | | A | | | | | | | | |
| 23 | Endobronchial ultrasound | I | | | | | | | | |
| | | A | | | | | | | | |
| 24 | Mantoux test | I | | | | | | | | |
| | | A | | | | | | | | |
| 25 | AFB Staining | I | | | | | | | | |
| | | A | | | | | | | | |
| 26 | Induced sputum | I | | | | | | | | |
| | | A | | | | | | | | |
| 27 | nebulization | I | | | | | | | | |
| | | A | | | | | | | | |
| 28 | Endotracheal intubation | I | | | | | | | | |
| | | A | | | | | | | | |
| 29 | Central line placement | I | | | | | | | | |
| | | A | | | | | | | | |
| 30 | Arterial line placement | I | | | | | | | | |
| | | A | | | | | | | | |
| 31 | Difficult intubation | I | | | | | | | | |
| | | A | | | | | | | | |
| 32 | NIV initiation | I | | | | | | | | |
| | | A | | | | | | | | |
| 33 | Sputum gram stain and microscopy | I | | | | | | | | |
| | | A | | | | | | | | |

| No. | I: independently, A: assisted | | Numbers in nth posting | | | | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|
| | **Procedures** | | **1st** | **2nd** | **3rd** | **4th** | **5th** | **6th** | **7th** | |
| 34 | tracheostomy, transtracheal aspiration | I | | | | | | | | |
| | | A | | | | | | | | |
| 35 | Smoking cessation techniques | I | | | | | | | | |
| | | A | | | | | | | | |
| 36 | Postural drainage | I | | | | | | | | |
| | | A | | | | | | | | |
| 37 | Rehabilitation exercise | I | | | | | | | | |
| | | A | | | | | | | | |
| | | A | | | | | | | | |
| | Any other procedures | | | | | | | | | |

# Annexure 3
# (Sample forms)

**JIPMER Pulmonary medicine workplace observation**

Name of student and semester: Month/year:

Modality: Authorised leaves:

Reporting time: Unauthorised leave:

*** Scoring criteria: (with example in) item 3. Report quality**

| Score 0 | Score 1 | Score 2 | Score 3 |
|---|---|---|---|
| (does **not attempt** to meet expectations) | (Attempting to, but **yet to meet** expectations) | (**meets expectation**) | (Proficient, independently exhibits responsibility and standards **beyond** minimum expectations) |

| | Pl. give a reflection/narrative of your experience during posting, at the back of page (optional) | **0** | **1** | **2** | **3** |
|---|---|---|---|---|---|
| | **Clinical work** | | | | |
| 1 | History, clinical examination and analysis of data for clinical diagnosis | | | | |
| 2 | Knowledge about common clinical problems, symptom complexes, diagnostic reasoning | | | | |
| 3 | Various investigations and interpretations | | | | |
| 4 | Completeness of records | | | | |
| 5 | Completeness of FOLLOW-UP of cases | | | | |
| 6 | Day care/ICU/Minor OT procedures, post procedure care of the patient and maintenance of records | | | | |
| | **Teamwork, leadership, communication and attitude** | | | | |
| 7 | Quality of seminars led by the student/participation in seminars of others | | | | |
| 8 | Co-ordination and communication with hospital personnel, peer group, patients and relatives | | | | |
| 9 | Compassion and respect to patients | | | | |
| 10 | Accepts feedback, self-reflects and demonstrates willingness to change | | | | |
| | **Total marks 10*3 = 30 marks** | | | | |
| | **Logbook (20 marks)** | | | | |
| | Total ( out of 50 marks) and faculty sign | | | | |

| Date and topic of seminar/case presentation (**score as per criteria* (0/1/2/3/**) | Clarity of idea in student | Communication skill/ aids | Moderator sign/name |
|---|---|---|---|
| | | | |
| | | | |