Pulmonary Function Technology Examination
Detailed Content Outline

Multiple-choice items are linked to open cells

	Items			
	Recall	Application	Analysis	Total
I. INSTRUMENTATION / EQUIPMENT	**7**	**15**	**8**	**30**
A. Set Up, Maintain, Calibrate	**3**	**5**	**2**	**10**
1. Blood gas analyzers				
2. CO-oximeters / hemoximeters				
3. Spirometers (for example, diagnostic, screening, portable)				
4. Peak flow meters				
5. Aerosol delivery devices (for example, bronchodilator / bronchial challenge, dosimeters)				
6. Metered dose or dry powder inhalers				
7. Valves (for example, directional, demand)				
8. Gas analyzers				
a. DLCO (for example, gas chromatograph, infrared)				
b. gas dilution techniques (for example, nitrogen, helium, oxygen)				
c. exercise (for example, CO_2, O_2)				
9. Body plethysmographs				
10. Exercise equipment (for example, treadmill, cycle or arm ergometer)				
11. ECG monitors (for example, 3-lead, 12-lead)				
12. Metabolic measurement systems for exercise testing				
13. Gas delivery systems (for example, blenders, flowmeters)				
14. Pressure measuring devices (for example, manometers, transducers, strain gauges)				
15. Gas and water absorbers (for example, Drierite®, Permapure® tubing)				
16. Emergency management equipment (for example, defibrillator, crash cart)				
17. Flexible bronchoscopes and associated equipment				
18. Arterial / venous blood collection equipment				
19. Information systems equipment (for example, computers, data backup, networks, printers, security)				
20. Quality control devices (for example, calibration syringes, manometers, isothermal lung analog)				
21. Gas exchange validation device or DLCO simulator				
22. Infection control materials / methods (for example, sterilization devices, gowns, gloves, masks, filters)				
23. Monitors				
a. pulse oximeters				
b. blood pressure (for example, manual cuff, automated)				

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	Items			Total
	Recall	Application	Analysis	
B. Troubleshoot	**2**	**6**	**4**	**12**
1. Blood gas analyzers				
2. CO-oximeters / hemoximeters				
3. Spirometers (for example, diagnostic, screening, portable)				
4. Peak flow meters				
5. Aerosol delivery devices (for example, bronchodilator / bronchial challenge, dosimeters)				
6. Metered dose or dry powder inhalers				
7. Valves (for example, directional, demand)				
8. Gas analyzers				
a. DLCO (for example, gas chromatograph, infrared)				
b. gas dilution techniques (for example, nitrogen, helium, oxygen)				
c. exercise (for example, CO_2, O_2)				
9. Body plethysmographs				
10. Exercise equipment (for example, treadmill, cycle or arm ergometer)				
11. ECG monitors (for example, 3-lead, 12-lead)				
12. Metabolic measurement systems for exercise testing				
13. Gas delivery systems (for example, blenders, flowmeters)				
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	Recall	**Application**	**Analysis**	
C. Perform Quality Control	**2**	**4**	**2**	**8**
1. Blood gas analyzers				
2. CO-oximeters / hemoximeters				
3. Spirometers (for example, diagnostic, screening, portable)				
4. Peak flow meters				
5. Aerosol delivery devices (for example, bronchodilator / bronchial challenge, dosimeters)				
6. Metered dose or dry powder inhalers				
7. Valves (for example, directional, demand)				
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c. exercise (for example, CO_2, O_2)				
9. Body plethysmographs				
10. Exercise equipment (for example, treadmill, cycle or arm ergometer)				
11. ECG monitors (for example, 3-lead, 12-lead)				
12. Metabolic measurement systems for exercise testing				
II. Procedures	**8**	**19**	**18**	**45**
A. Select Test Protocols and Equipment	**3**	**7**	**5**	**15**
1. Spirometry (for example, VC, FVC, FEV_1, MVV, flow-volume loop)				
2. Bronchodilator delivery (for example, MDI, DPI, small volume nebulizers)				
3. End tidal CO_2				
4. Blood sample collection (for example, arterial, capillary)				
5. Sputum sample collection				
6. Blood gas analysis (for example, pH, PO_2, PCO_2)				
7. CO-oximetry / hemoximetry				
8. Static lung volumes				
a. gas dilution methods				
b. body plethysmography				
9. DLCO				
10. Smoking cessation counseling				
11. Patient education (for example, medication delivery, travel, asthma)				
12. Oxygen titration at rest and / or exercise				

Pulmonary Function Technology Examination Detailed Content Outline *Multiple-choice items are linked to open cells*	**Items**			**Total**
	Recall	**Application**	**Analysis**	
13. Exercise (stress) testing				
a. timed walking test (for example, 6MWT, shuttle walk)				
b. monitored (for example, ECG, blood pressure, SpO_2)				
c. cardiopulmonary exercise test (for example, VO_{2max} anaerobic threshold, VO_2, VCO_2, V_D / V_T)				
d. inspiratory capacity and flow-volume loops during cardiopulmonary exercise testing				
14. 12-lead ECG at rest				
15. Pulse oximetry				
16. Airway responsiveness				
a. bronchodilation studies				
b. bronchial provocation studies (for example, methacholine, exercise, EVH, mannitol)				
17. Airways resistance / conductance measurements by plethysmography				
18. Respiratory muscle strength (for example, MIP, MEP)				
19. Flexible bronchoscopy assistance (for example, patient monitoring, specimen preparation, topical anesthesia)				
20. Patient safety (for example, standard precautions, adverse events / incidents, cross contamination)				
B. Perform the Procedure	**3**	**6**	**6**	**15**
1. Spirometry (for example, VC, FVC, FEV_1, MVV, flow-volume loop)				
2. Bronchodilator delivery (for example, MDI, DPI, small volume nebulizers)				
3. End tidal CO_2				
4. Blood sample collection (for example, arterial, capillary)				
5. Sputum sample collection				
6. Blood gas analysis (for example, pH, PO_2, PCO_2)				
7. CO-oximetry / hemoximetry				
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17. Airways resistance / conductance measurements by plethysmography				
18. Respiratory muscle strength (for example, MIP, MEP)				
19. Flexible bronchoscopy assistance (for example, patient monitoring, specimen preparation, topical anesthesia)				
20. Patient safety (for example, standard precautions, adverse events / incidents, cross contamination)				
C. Evaluate Validity of Result	**2**	**6**	**7**	**15**
1. Spirometry (for example, VC, FVC, FEV_1, MVV, flow-volume loop)				
2. Bronchodilator delivery (for example, MDI, DPI, small volume nebulizers)				
3. End tidal CO_2				
4. Blood sample collection (for example, arterial, capillary)				
5. Sputum sample collection				
6. Blood gas analysis (for example, pH, PO_2, PCO_2)				
7. CO-oximetry / hemoximetry				
8. Static lung volumes				
a. gas dilution methods				
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18. Respiratory muscle strength (for example, MIP, MEP)				
19. Flexible bronchoscopy assistance (for example, patient monitoring, specimen preparation, topical anesthesia)				
20. Patient safety (for example, standard precautions, adverse events / incidents, cross contamination)				
III. Data Management	**1**	**10**	**14**	**25**
A. Calculate Results, Select Reference Ranges and Data	**1**	**4**	**3**	**8**
1. Blood gas results (for example, pH, PO_2, PCO_2)				
2. CO-oximetry / hemoximetry results (Hb, O_2Hb, COHb, MetHb)				
3. Spirometry data (for example, VC, FVC, FEV_1, MVV, flow-volume loops)				
4. Static lung volumes				
a. gas dilution				
b. body plethysmography				
5. DLCO				
6. Home pulmonary function data (for example, spirometry, peak flow)				
7. Oxygen titration at rest and / or exercise				
8. Exercise (stress) test				
a. timed walking test (for example, 6 MWT, shuttle walk)				
b. monitored (for example, ECG, blood pressure, SpO_2)				
c. cardiopulmonary exercise test (for example, VO_{2max} anaerobic threshold, VO_2, VCO_2, V_D / V_T)				

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	Recall	**Application**	**Analysis**	
d. inspiratory capacity and flow-volume loops during cardiopulmonary exercise testing				
9. Blood pressure monitoring				
10. ECG analysis (for example, arrhythmia, rate, pattern)				
11. Pulse oximetry				
12. Airway responsiveness				
a. bronchodilation studies				
b. bronchial provocation studies (for example, methacholine, exercise, EVH, mannitol)				
13. Airways resistance / conductance measurements by plethysmography				
14. Respiratory muscle strength (for example, MIP, MEP)				
15. Safety data (for example, hand hygiene compliance, event management)				
16. Quality control procedures (for example, mechanical or biologic)				
17. Serial pulmonary function testing (for example, trending a single patient)				
18. Clinical history and demographics (for example, age, race, sex, smoking history, medication, clinical indication)				
19. Laboratory quality management (for example, customer satisfaction, inventory control, standard operating procedures, department records)				
B. Evaluate Reliability of Results	**0**	**3**	**6**	**9**
1. Blood gas results (for example, pH, PO_2, PCO_2)				
2. CO-oximetry / hemoximetry results (Hb, O_2Hb, COHb, MetHb)				
3. Spirometry data (for example, VC, FVC, FEV_1, MVV, flow-volume loops)				
4. Static lung volumes				
a. gas dilution				
b. body plethysmography				
5. DLCO				
6. Home pulmonary function data (for example, spirometry, peak flow)				
7. Oxygen titration at rest and / or exercise				
8. Exercise (stress) test				
a. timed walking test (for example, 6 MWT, shuttle walk)				
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14. Respiratory muscle strength (for example, MIP, MEP)				
15. Safety data (for example, hand hygiene compliance, event management)				
16. Quality control procedures (for example, mechanical or biologic)				
17. Serial pulmonary function testing (for example, trending a single patient)				
18. Clinical history and demographics (for example, age, race, sex, smoking history, medication, clinical indication)				
19. Laboratory quality management (for example, customer satisfaction, inventory control, standard operating procedures, department records)				
C. Evaluate Clinical Implications	**0**	**3**	**5**	**8**
1. Blood gas results (for example, pH, PO_2, PCO_2)				
2. CO-oximetry / hemoximetry results (Hb, O_2Hb, COHb, MetHb)				
3. Spirometry data (for example, VC, FVC, FEV_1, MVV, flow-volume loops)				
4. Static lung volumes				
a. gas dilution				
b. body plethysmography				
5. DLCO				
6. Home pulmonary function data (for example, spirometry, peak flow)				
7. Oxygen titration at rest and / or exercise				
8. Exercise (stress) test				
a. timed walking test (for example, 6 MWT, shuttle walk)				
b. monitored (for example, ECG, blood pressure, SpO_2)				
c. cardiopulmonary exercise test (for example, VO_{2max} anaerobic threshold, VO_2, VCO_2, V_D / V_T)				

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15. Safety data (for example, hand hygiene compliance, event management)				
16. Quality control procedures (for example, mechanical or biologic)				
17. Serial pulmonary function testing (for example, trending a single patient)				
18. Clinical history and demographics (for example, age, race, sex, smoking history, medication, clinical indication)				
19. Laboratory quality management (for example, customer satisfaction, inventory control, standard operating procedures, department records)				
TOTAL	**16**	**44**	**40**	**100**

Specifications by Patient Age

Patient	**Items**
Pediatric	10
General	90
Total	**100**

Pulmonary Function Technologists
Admission Requirements

1. Applicants shall be 18 years of age or older.
2. Applicants shall satisfy ONE of the following:
    - Have a minimum of an associate degree from a respiratory therapy education program 1) supported or accredited by the Commission on Accreditation for Respiratory Care (CoARC), or 2) accredited by the Commission on Accreditation of Allied Health Education Programs (CAAHEP) and graduated on or before November 11, 2009

      OR
    - Be a Certified Respiratory Therapist (CRT) or Registered Respiratory Therapist (RRT) credentialed by the NBRC.

      OR
    - Complete 62 semester hours of college credit from a college or university accredited by its regional association or its equivalent, including college credit level courses in biology, chemistry and mathematics. A minimum of six months of clinical experience* in the field of pulmonary function technology is also required prior to applying for the examination.

** Clinical experience is defined as a minimum of eight hours per week for a calendar year in pulmonary technology under the supervision of a medical director of a pulmonary function laboratory or a special care area acceptable to the Board. Clinical experience must be completed before the candidate applies for this examination.*

Pulmonary Function Technologists
Examination Fees

New Applicant	Repeat Applicant
$200	$170