	Cognitive Level			Totals
Pulmonary Function Technology Examination Detailed Content Outline *Multiple-choice items are linked to open cells.*	Recall	Application	Analysis	
I. INSTRUMENTATION / EQUIPMENT	10	17	6	33
A. Set Up, Maintain, Calibrate	4	4	2	10
1. Body habitus equipment (for example, stadiometer, body weight scale, caliper)				
2. Blood gas analyzers				
3. Spirometers				
4. Aerosol delivery devices (for example, nebulizers, dosimeters)				
5. Metered dose or dry powder inhalers				
6. Valves (for example, directional, demand)				
7. Gas analyzers (for example, nitrogen, helium, oxygen, methane, CO)				
8. Body plethysmographs				
9. Exercise equipment (for example, treadmill, cycle ergometer)				
10. Field walking test equipment (for example, 6MWT, shuttle walk test)				
11. ECG monitors				
12. Gas delivery systems (for example, blenders, flowmeters)				
13. Pressure measuring devices (for example, manometers, transducers)				
14. Gas and water absorbers (for example, Drierite®, Nafion™, Perma Pure tubing)				
15. Emergency management equipment (for example, defibrillator, crash cart)				
16. Arterial / venous blood collection equipment				
17. Quality control devices (for example, calibration syringes, manometers, isothermal lung analog)				
18. Infection control materials / methods (for example, wipes, PPE, sterilization devices, filters)				

	Cognitive Level			Totals
Pulmonary Function Technology Examination Detailed Content Outline *Multiple-choice items are linked to open cells.*	Recall	Application	Analysis	
19. Monitors				
a. pulse oximeters				
b. blood pressure (for example, manual cuff, automated)				
B. Troubleshoot	3	7	3	13
1. Body habitus equipment (for example, stadiometer, body weight scale, caliper)				
2. Blood gas analyzers				
3. Spirometers				
4. Aerosol delivery devices (for example, nebulizers, dosimeters)				
5. Metered dose or dry powder inhalers				
6. Valves (for example, directional, demand)				
7. Gas analyzers (for example, nitrogen, helium, oxygen, methane, CO)				
8. Body plethysmographs				
9. Exercise equipment (for example, treadmill, cycle ergometer)				
10. Field walking test equipment (for example, 6MWT, shuttle walk test)				
11. ECG monitors				
12. Gas delivery systems (for example, blenders, flowmeters)				
13. Pressure measuring devices (for example, manometers, transducers)				
14. Gas and water absorbers (for example, Drierite®, Nafion ™, Perma Pure® tubing)				
15. Emergency management equipment (for example, defibrillator, crash cart)				
16. Arterial / venous blood collection equipment				
17. Quality control devices (for example, calibration syringes, manometers, isothermal lung analog)				
18. Infection control materials / methods (for example, wipes, PPE, sterilization devices, filters)				

Pulmonary Function Technology Examination Detailed Content Outline *Multiple-choice items are linked to open cells.*	Recall	Application	Analysis	Totals
19. Monitors				
a. pulse oximeters				
b. blood pressure (for example, manual cuff, automated)				
C. Perform Quality Control	3	6	1	10
1. Body habitus equipment (for example, stadiometer, body weight scale, caliper)				
2. Blood gas analyzers (for example, routine testing, proficiency testing)				
3. Spirometers				
4. Aerosol delivery devices (for example, nebulizers, dosimeters)				
5. Metered dose or dry powder inhalers				
6. Valves (for example, directional, demand)				
7. Gas analyzers (for example, nitrogen, helium, oxygen, methane, CO)				
8. Body plethysmographs				
9. Exercise equipment (for example, treadmill, cycle ergometer)				
10. Field walking test equipment (for example, 6MWT, shuttle walk test)				
II. Procedures	7	21	16	44
A. Select Test Protocols and Equipment	3	10	0	13
1. Body habitus measurements and estimates (for example, height, arm span, ulnar length, weight)				
2. Spirometry				
a. standard				
b. upright / supine				
3. Inhaled medication delivery (for example, MDI, DPI, nebulizers)				
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				

Pulmonary Function Technology Examination Detailed Content Outline *Multiple-choice items are linked to open cells.*	Cognitive Level			Totals
	Recall	Application	Analysis	
8. Static lung volumes				
a. gas dilution methods				
b. body plethysmography				
9. DLCO				
10. Instruction for home testing (for example, spirometry, pulse oximetry)				
11. Patient education (for example, medication delivery, travel, asthma)				
12. Oxygen assessment / titration at rest and / or exercise				
13. Exercise testing				
a. field walking test (for example, 6MWT, shuttle walk test)				
b. monitored (for example, ECG, blood pressure, SpO_2)				
14. Pulse oximetry				
15. Airway responsiveness				
a. bronchodilation studies				
b. bronchial provocation studies (for example, methacholine, exercise, EVH, mannitol)				
16. Airways resistance / conductance measurements by plethysmography				
17. Respiratory muscle strength (for example, MIP, MEP, cough peak flow)				
18. Patient safety (for example, standard precautions, adverse events / incidents, cross contamination)				
B. Perform the Procedure	3	6	8	17
1. Body habitus measurements and estimates (for example, height, arm span, ulnar length, weight)				
2. Spirometry				
a. standard				
b. upright / supine				
3. Inhaled medication delivery (for example, MDI, DPI, nebulizers)				

	Cognitive Level			Totals
Pulmonary Function Technology Examination Detailed Content Outline *Multiple-choice items are linked to open cells.*	Recall	Application	Analysis	
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. Instruction for home testing (for example, spirometry, pulse oximetry)			▒	▒
11. Patient education (for example, medication delivery, travel, asthma)			▒	▒
12. Oxygen assessment / titration at rest and / or exercise				▒
13. Exercise testing	▒	▒	▒	▒
a. field walking test (for example, 6MWT, shuttle walk test)			▒	▒
b. monitored (for example, ECG, blood pressure, SpO_2)				▒
14. Pulse oximetry			▒	▒
15. Airway responsiveness	▒	▒	▒	▒
a. bronchodilation studies			▒	▒
b. bronchial provocation studies (for example, methacholine, exercise, EVH, mannitol)				▒
16. Airways resistance / conductance measurements by plethysmography			▒	▒
17. Respiratory muscle strength (for example, MIP, MEP, cough peak flow)			▒	▒
18. Patient safety (for example, standard precautions, adverse events / incidents, cross contamination)			▒	▒

Pulmonary Function Technology Examination Detailed Content Outline *Multiple-choice items are linked to open cells.*	Cognitive Level			Totals
	Recall	Application	Analysis	
C. Evaluate Validity of Result	**1**	**5**	**8**	**14**
1. Body habitus measurements and estimates (for example, height, arm span, ulnar length, weight)				
2. Spirometry				
a. standard				
b. upright / supine				
3. Inhaled medication delivery (for example, MDI, DPI, nebulizers)				
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. Instruction for home testing (for example, spirometry, pulse oximetry)				
11. Patient education (for example, medication delivery, travel, asthma)				
12. Oxygen assessment / titration at rest and / or exercise				
13. Exercise testing				
a. field walking test (for example, 6MWT, shuttle walk test)				
b. monitored (for example, ECG, blood pressure, SpO_2)				
14. Pulse oximetry				
15. Airway responsiveness				
a. bronchodilation studies				
b. bronchial provocation studies (for example, methacholine, exercise, EVH, mannitol)				
16. Airways resistance / conductance measurements by plethysmography				

	Cognitive Level			Totals
Pulmonary Function Technology Examination Detailed Content Outline *Multiple-choice items are linked to open cells.*	Recall	Application	Analysis	
17. Respiratory muscle strength (for example, MIP, MEP, cough peak flow)				
18. Patient safety (for example, standard precautions, adverse events / incidents, cross contamination)				
III. Data Management	0	6	17	23
A. Calculate Results, Select Reference Ranges and Data	0	2	6	8
1. Blood gas				
2. CO-oximetry / hemoximetry				
3. Spirometry				
a. standard				
b. upright / supine comparison				
4. Static lung volumes				
a. gas dilution				
b. body plethysmography				
5. DLCO				
6. Home testing (for example, spirometry, pulse oximetry)				
7. Oxygen assessment / titration at rest and / or exercise				
8. Exercise test				
a. field walking test (for example, 6MWT, shuttle walk test)				
b. monitored (for example, ECG, blood pressure, SpO_2)				
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, cough peak flow)				

	Cognitive Level			Totals
Pulmonary Function Technology Examination Detailed Content Outline *Multiple-choice items are linked to open cells.*	Recall	Application	Analysis	
15. Safety data (for example, hand hygiene compliance, event management)				
16. Quality control procedures (for example, mechanical, biological)				
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)				
B. Evaluate Reliability of Results	**0**	**2**	**5**	**7**
1. Blood gas				
2. CO-oximetry / hemoximetry				
3. Spirometry				
a. standard				
b. upright / supine comparison				
4. Static lung volumes				
a. gas dilution				
b. body plethysmography				
5. DLCO				
6. Home testing (for example, spirometry, pulse oximetry)				
7. Oxygen assessment / titration at rest and / or exercise				
8. Exercise test				
a. field walking test (for example, 6MWT, shuttle walk test)				
b. monitored (for example, ECG, blood pressure, SpO_2)				
9. Blood pressure monitoring				
10. ECG analysis (for example, arrhythmia, rate, pattern)				
11. Pulse oximetry				

Pulmonary Function Technology Examination Detailed Content Outline *Multiple-choice items are linked to open cells.*	Cognitive Level			Totals
	Recall	Application	Analysis	
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, cough peak flow)				
15. Safety data (for example, hand hygiene compliance, event management)				
16. Quality control procedures (for example, mechanical, biological)				
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)				
C. **Evaluate Clinical Implications**	0	2	6	8
1. Blood gas				
2. CO-oximetry / hemoximetry				
3. Spirometry				
a. standard				
b. upright / supine comparison				
4. Static lung volumes				
a. gas dilution				
b. body plethysmography				
5. DLCO				
6. Home testing (for example, spirometry, pulse oximetry)				
7. Oxygen assessment / titration at rest and / or exercise				

	Cognitive Level			Totals
Pulmonary Function Technology Examination Detailed Content Outline *Multiple-choice items are linked to open cells.*	Recall	Application	Analysis	
8. Exercise test				
a. field walking test (for example, 6MWT, shuttle walk test)				
b. monitored (for example, ECG, blood pressure, SpO$_2$)				
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, cough peak flow)				
15. Safety data (for example, hand hygiene compliance, event management)				
16. Quality control procedures (for example, mechanical, biological)				
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)				
TOTAL	**17**	**44**	**39**	**100**

Additional Examination Form Specifications

Patient type	Items
Pediatric	10
General	90
Total	100

Topic	Maximum Items
Blood gas analysis	3
CO-oximetry / hemoximetry analysis	2