

Registered Pulmonary Function Technologist (RPFT)

1. Using a peak flowmeter, a pulmonary function technologist obtains the following:

<u>Trial</u>	<u>Flow (L/min)</u>
1	850
2	650
3	750

The technologist should

A. Conclude that bronchodilatation has occurred.

B. Report the average of the two best efforts.

C. Perform at least one more peak flow trial.

D. Report the patient's peak flow as 750 L/min.

Answer(s): C

2. A 54-year-old male with a normal ECG at rest develops dyspnea during an exercise (stress) test, and the following ECG pattern is noted at 25 watts:



25 mm/sec

25 mm/sec A pulmonary function technologist should

A. Continue the test until the subject reaches target heart rate.

B. Stop the test immediately; there is evidence of heart block.

C. Continue the test and obtain an arterial blood sample.

D. Stop the test immediately; there is evidence of ischemia.

Answer(s): B

3. A polarographic oxygen analyzer used to measure expired gas in a metabolic system should always be calibrated with

A. Gas concentrations higher and lower than the expected measurement

B. Oxygen mixtures containing 4% and 8% carbon dioxide

C. 100% oxygen and 100% nitrogen, fully saturated

D. Air and fully saturated 100% oxygen.

Answer(s): A

4. Successive peak flow measurements made with a peak flowmeter on a subject previously diagnosed as having asthma yield the following results:

Trial 1	6.27 L/sec
Trial 2	5.07 L/sec
Trial 3	4.38 L/sec

Which of the following is the best explanation for these?

A. Condensation of moisture in the peak flowmeter

B. Normal response

C. Improper calibration of the peak flowmeter

D. Increasing airways resistance in the subject

Answer(s): D

5. A patient with severe airflow limitation pants too rapidly (> 3 breaths/second) against a closed shutter in a body plethysmograph. Which of the following will occur?

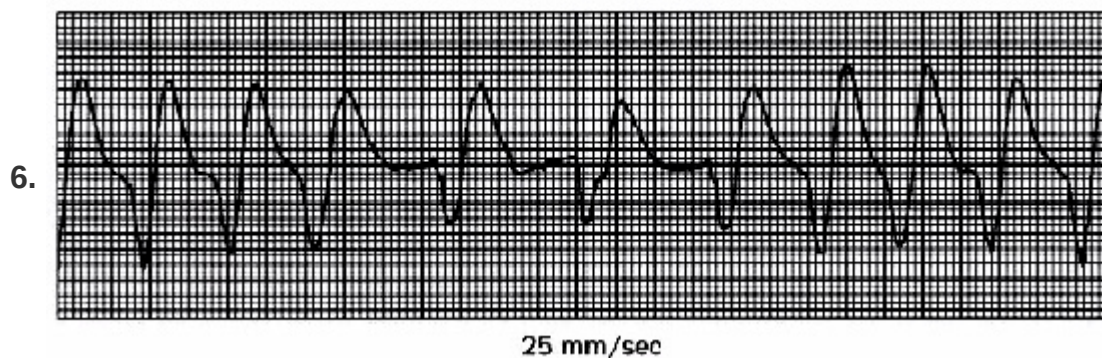
A. VTGunderestimation

B. VTGoverestimation

C. RAWunderestimation

D. RAWoverestimation

Answer(s): D



The ECG above is recorded during the recovery phase immediately following termination of an ergo meter exercise study. A pulmonary function technologist should

A. Initiate chest compressions

B. Have the patient lie down

C. Check the electrode connections

D. Continue the cool-down phase

Answer(s): A

7. A treadmill is set so that the belt rises 1 ft in a horizontal distance of 10 ft at 3 mph. The percent grade indicator should read

A. 30.0%

B. 1.0%

C. 3.0%

D. 10.0%

Answer(s): C

8. Which of the following is a suitable policy for following Standard Precautions in a pulmonary function laboratory?

A. Eye protection is required when obtaining ABGs from patients with hepatitis.

B. Reusable mouthpieces should be disposed when a patient has a history of tuberculosis.

C. Gloves are optional when obtaining arterial blood samples using a kit

D. Reusable mouthpieces should be disinfected between each patient.

Answer(s): B

9. Pulmonary function tests performed on a patient with tracheal stenosis may demonstrate increased

A. SVC.

B. Static compliance.

C. Raw.

D. FIF50.

Answer(s): D

10. Which of the following is the most reliable indicator that a patient has achieved his maximum exercise capacity during a progressive exercise (stress) test?

A. Respiratory exchange ratio greater than 0.8

B. Heart rate of 210/min

C. VO_2 remains stable with increasing workload

D. Minute ventilation greater than 170 L/min

Answer(s): C

11. A pulmonary function technologist is performing quality control on a nebulizer used in the 5-breath dosimeter bronchial challenge. The target output of the device is 0.09 mL, plus or minus 10%. After 10 actuations, the nebulizer output was 75 μ L with a 2.0 mL initial saline dose in the nebulizer. The technologist should

A. Open the vent before starting the bronchial challenge.

B. Add an exhalation filter and proceed with testing patients.

C. Clean and reevaluate this nebulizer.

D. Accept the results and begin using the device.

Answer(s): D

12. To assure linearity of an oxygen analyzer, calibrate with

A. Three test gases within the operating range of the instrument

B. Air

C. 100% O_2

D. Two test gases within the operating range of the instrument

Answer(s): A

13. At the end of a progressive exercise study of a healthy adult male, RER would be approximately what value?

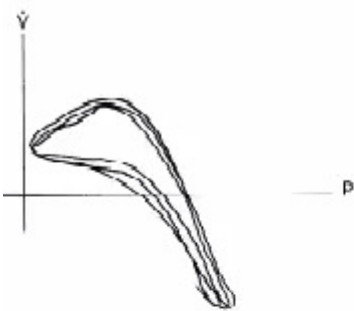
A. 1.65

B. 0.83

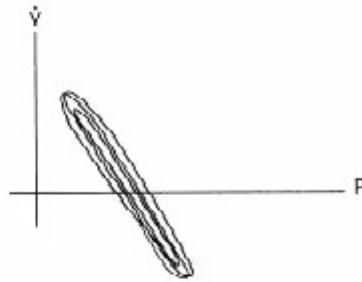
C. 1.00

D. 1.25

Answer(s): C

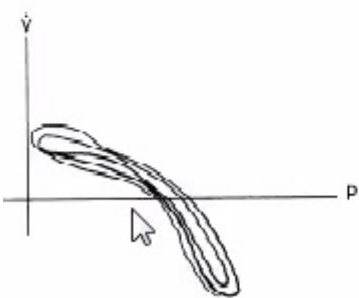


Tracing 1

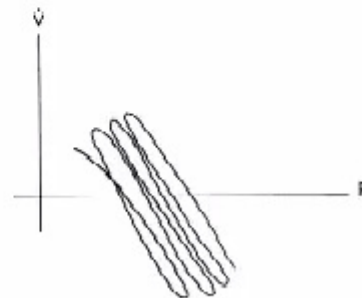


Tracing 2

14.



Tracing 3



Tracing 4

Which of the above patterns illustrates the effect of increasing temperature in the plethysmograph during airways resistance measurement?

A. 4

B. 3

C. 2

D. 1

Answer(s): A

15. The following test results are available for a 35-year-old subject who is applying for disability:

	<u>% Predicted</u>	<u>Blood Gas Values</u>	
VC	60%	pH	7.42
FRC	65%	PaCO ₂	36 torr
FEV ₁	70%	PaO ₂	65 torr
FVC	60%	HCO ₃ ⁻	23 mEq/L
MVV	88%	BE	-1 mEq/L
		Hb	14 g/dL

These findings are consistent with

A. A paralyzed hemidiaphragm

B. Occupational asthma

C. Pulmonary fibrosis

D. Poor effort

Answer(s): A

16. When performing quality control in a body plethysmograph using a 5-L isothermal bottle, the VT_G at shutter closure are as follows:

<u>Trial</u>	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>
VT _G (L)	4.91	5.09	5.04	4.86	5.01

A pulmonary function technologist should

A. Service the mouth pressure transducer.

B. Recalibrate the box pressure transducer.

C. Check biological control before beginning testing.

D. Proceed with patient testing.

Answer(s): A

17. A patient who smokes three packs of cigarettes a day has a DLcoOf 45% of predicted. The patient is referred for exercise (stress) testing. Which of the following should a pulmonary function technologist select to evaluate oxygenation?

A. Transcutaneous oxygen electrode

B. Arterial blood gas analysis

C. Pulse oximetry

D. End-tidal oxygen tension

Answer(s): B

18. The following blood gas report is questioned by the attending physician:

pH	7.43
PaCO₂	30 torr
PaO₂	92 torr
HCO₃⁻	19 mEq/L
BE	+3.5 mEq/L

Which of the following values is INCONSISTENT?

A. BE

B. pH

C. PaCO₂

D. HCO₃

Answer(s): A

19. While reviewing exercise data, a pulmonary function technologist notes that the patient's anaerobic threshold occurred at 35% of the patient's $\dot{V}O_{2\text{MAX}}$. This indicates the patient has

A. ventilatory limitation

B. cardiac limitation

C. a normal response to exercise

D. given a submaximal effort

Answer(s): B

20. The following arterial blood gas results are obtained during the final workload of a cardiopulmonary exercise test:

pH	7.31
PaCO₂	33 torr
PaO₂	93 torr
HCO₃⁻	16.1 mEq/L
SaO₂	97%
Hb	15.6 g/dL

Which of the following best explains these results?

A. IV solution has contaminated the blood sample.

B. Blood gas results are normal for someone at end-exercise.

C. The test indicates a right-to-left shunt.

D. There is air contamination since the PaCO₂ is so low.

Answer(s): B
