**FORM A** Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Anatomy and Physiology Quiz #3: 20 points

Multiple Choice (1 pt each): Choose the **one best** answer for each question, circle it on this test **write your written answers on the back of the scantron.** **Please double check your scantron for “smears”.**

1) Local hypoxia causes the vessels of the lung to\_\_\_\_\_\_\_and hypercapnia cause the vessels of the systemic circuit to\_\_\_\_.

a) Dilate, Dilate b) Constrict, Dilate c) Dilate, Constrict

2) Which of the following prevents alveoli from collapsing?

a) Surfactant b) Phospholipids c) Negative charges on phosphates d) B and C e) All of above

3) The \_\_\_\_\_is a structure that helps protect or clean air flow in the lung?

a) Epiglottis b) Cilia c) Nasal concha d) Mucus e) All of above

4) How will Pat’s ***breathing rate change*** if the tidal volume increased to 1.0 liters? (no exercise/pathology)

a) It will stay unchanged b) It will get faster than normal c) It will get slower than normal

5) Air flow through bronchiole is proportional to the radius to the \_\_\_\_power.

a) 1st b) 2nd c) 3rd d) 4th

6) Consider a cluster of alveoli during inspiration, the alveolus with the \_\_\_\_\_\_\_radius will inflate first.

a) Smallest b) Largest

7) What muscles are more important for generating forced inspirations and expirations during heavy exercise?

a) Diaphragm b) Intercostals c) Smooth muscle D) Elastin

8) When the diaphragm contracts a person will probably (assume open airways).

a) Inhale b) Exhale

9) With regards to Boyle’s Law of gases in the lung, if you decrease the thoracic volume, the air pressure \_\_\_\_\_\_\_\_\_ resulting in \_\_\_\_\_\_\_\_.

a) Increases, Inspiration b) Increases, Expiration c) Decreases, Expiration

10) If a person was hyperventilating, the affinity of oxygen for each hemoglobin would be \_\_\_\_\_\_, causing oxygen delivery to the brain to be\_\_\_\_\_\_\_\_\_.

a) Increased, Increased b) Increased, Decreased c) Decreased, Decreased

11) What type of pneumothorax has a hole in the thoracic wall that serves as a one way valve

a) Open b) Tension c) Closed d) Atelectasis

12) If you have asthma your FEV1 would probably be about what?

a) 90% of vital capacity b) 80% of vital capacity c) 60% of vital capacity

13) If blood flow to the brain stops immediately and completely (i.e. decapitation or heart attack), unconsciousness occurs in about \_\_\_\_\_\_\_ and brain cell deaths start in about \_\_\_\_\_\_.

a) 5 seconds, 15 minutes b) 3 minutes, 5 minutes c) 15 seconds, 5 minutes

14) The partial pressure of oxygen in a systemic artery is about\_\_\_\_\_mmHg in the arterial blood and the partial pressure of oxygen in a systemic vein is about \_\_\_\_\_\_ mmHg .

a) 40, 80 b) 40, 100 c) 95, 40 d) 95, 100 e) 160, 90

15) A complete failure to breath is called what?

a) Apnea b) Eupnea c) Breaking point d) Dead space e) Dyspnea

16) Where in your lung is the ventilation to perfusion ratio the lowest? (assume person is standing).

a) Top near clavicles b) Middle c) Bottom near diaphragm

17) What is NOT the normal (preferred) signal in the blood that stimulates inspiration (breathing), this molecule is only responsible for breathing if a person is in very deep anesthesia and has Cheyne-Stokes breathing.

a) Acidosis b) Protons c) Carbon dioxide D) Oxygen

18) \_\_\_\_\_\_\_refers to a normal quite breathing pattern of about 12 breaths/minute.

a) Eupnea b) Dyspnea c) Hypernea d) Breaking Point

19) For a healthy typical 157 pound person, the normal FVC, TV, IRV and ERV values are ABOUT what? (choose closest combination)

A) FVC=5.0 TV=1.0 IRV=1.5 ERV 1.5 liters

B) FVC=6.0 TV=0.5 IRV=2.0 ERV 4.0 liters

C) FVC=5.0 TV=0.5 IRV=2.5 ERV 2.0 liters

20) If a person had breathing rate of 8 breaths/minute, a tidal volume of 1L/breath and a cardiac output of 10 L/minute, their Ventilation/Perfusion ratio would be what?

A) Greater than ONE:Abnormal

B) A bit less than ONE:Normal

C) Much less than ONE:Abnormal

Extra Credit: 2 pts on back of scantron

In the lung of a normal person carbonic anhydrase will cause \_\_CO2\_\_\_to be produced.

In an active muscle carbonic anhydrase will tend to produce\_\_\_\_HCO3-\_\_.

This occurs because of limits of gas solubility in a fluid.