**FORM- A** Name: \_\_PRACTICE TEST\_\_\_ Anatomy and Physiology 212: Test #3 CH22,23 and 24: 50 points

**Put name one top and side of scantron, indicated test number as well.** YOU MAY WRITE ON THIS TEST, although it will not be given back. **Multiple Choice (1 pt each): Choose the one best answer for each question on scantron (double check for smears) and put “written” answers on the back of the scantron.**

1) What type of pneumothorax represents a hole in the thoracic wall that serves as a one way valve (air enters pleural cavity, but cannot escape…..***nasty!)***.

a) Open **b) Tension** c) Closed

2) 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**

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

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

4) If the atmospheric pressure was 760 mmHg, the partial pressure of oxygen in a normally ventilated alveoli would be about what?

a) 160 mmHg O2 **b) 105 mmHg O2** c) 10 mmHg O2

5) 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

6) A complete failure to breath is called what?

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

7) Where in your lung would the ventilation to perfusion ratio be the **worst**? (assume you are standing).

a) Top near clavicles **Lots or air and less perfusion due to effect of gravity**

b) Middle

**c) Bottom near diaphragm…low V/P ratio means less air and more blood than normal due to effect of gravity on blood pressure**

8) The respiratory centers of the \_\_\_\_\_\_\_\_determines when breathing occurs while you sleep by detecting changes in the blood pH (amount of CO2 and Protons).

**a) Medulla** b) Cerebral cortex c) Sympathetic chain ganglia of thorax

9) Pulmonary arterioles \_\_\_\_\_\_\_\_\_\_\_when they encounter hypoxia, this way blood is distributed away from regions that are not ventilated.

a) Vasoconstrict b) Vasodilate

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

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

11) \_\_\_\_\_\_\_hypoxia could be observed in a person who was unable to produce erythrocytes due to an inability to produce erythropoietin in the kidney?

a) Hypercapnic b) Ischemic **c) Anemic** d) Hypoxic

12) Mouth-to-mouth resuscitation is a \_\_\_\_\_\_\_pressure method for inflating another persons lungs.

**a) Positive air pressure** b) Negative air pressure

13) \_\_\_\_\_\_normally prevents pulmonary arterial blood from completely perfusing the top of the lung (assuming you are standing up).

a) Vasodilation **b) Gravity** c) Partial gas pressures d) Epinephrine

14) \_\_\_\_\_\_\_\_\_might painfully occur if you were 200 feet under water, took a deep breath, held it, and tried to reach the surface without exhaling any air out of your lungs.

a) Oxygen toxicity b) Lung collapse **c) Pulmonary barotrauma**  d) Decompression sickness

15) In the lung of a normal person carbonic anhydrase will cause \_\_\_\_\_to be produced and in the red blood cells of an active muscle carbonic anhydrase will tend to produce\_\_\_\_\_\_.

**a) CO2, HCO3-**  b) CO2, CO2 c)HCO3-, HCO3-

16) The lymphatic vessels drain their content into the blood where?

a) Hepatic portal b) Aorta c) Pulmonary Artery **d) Right Subclavian vein** e) Urethra

17) After an ankle sprain capillary permeability at the site of injury may increase causing plasma proteins to leak into the interstitium, so the interstitial \_\_\_\_\_\_\_pressure increases causing water to move\_\_\_\_\_\_\_\_the tissue interstitium.

a) Hydrostatic, Out of b) Colloid, Out of c) Hydrostatic, Into **d) Colloid, Into**

18) If a tissue was swollen, cool to the touch, and “pitting” was observed after you pushed on it with your finger, this swelling would be called what?

**a) Edema**  b) Inflammation

19) Where does filtration tend to occur in a normal capillary?

**a) At the end next to the arteriole**  b) At the end next to the venule

20) True/False: If a child was starving and unable to make plasma proteins, fluids would be more likely to be reabsorbed in their capillaries.

a) True **b) False**

21) If your bladder was over stretched, the parasympathetic nervous system would cause the internal urethral sphincter to \_\_\_\_\_\_\_\_and the smooth muscle of the bladder wall to \_\_\_\_\_\_\_ resulting in urination.

a) Contract, relax  **b) Relax, Contract**  c) Contract, Contract

22) Which of the following is the most abundant and the least toxic nitrogenous waste in the blood?

a) Uric acid **b) Urea** c) Ammonia d) Creatinine e) Albumin

23) Diuretics like furosemide cause what condition to occur?

a) Anuria **b) Polyuria**  c) Pyuria d) None of the above

24) If the afferent arteriole was dilated and the efferent arteriole was constricted, the GFR would….

**a) Increase**  b) Stay the same c) Decrease

25) True/False: After urine leaves the nephron, an additional amount of water and electrolytes can be reabsorbed in the bladder if you are very dehydrated.

A) True  **B) False**

26) If you produced 100 liters of glomerular filtrate in one day, how many liters of urine would you produce if you reabsorbed 90% of the GFR?

a) 1.0 L b) 2.0 L **c) 10 L** d) 20 L

27) If you were unable to produce any urine, you would have what condition?

a) Oligouria  **b) Anuria** c) Polyuria d) Diuresis e) Pyelitis

28) Which blood vessels take-up water that was reabsorbed from the descending loop of Henle and collecting duct?

a) Glomerular capillaries **b) Vasa recta**  c) Arcuate arteries d) Peritubular capillaries

29) When you are extremely dehydrated, blood is mostly sent to nephrons feeding\_\_\_\_\_\_ Loops of Henle, allowing you to generate urine with an osmolarity of up to\_\_\_\_\_\_.

a) Long, 400 b) Short, 400 **c) Long, 1200** d) Short, 1200

30) In a typically hydrated person, about what percent of the GFR is reabsorbed from each section? PCT-proximal convoluted tubule DCT-Distal Convoluted Tubule

PCT Loop of Henle DCT Collecting Duct

a) 25% 25% 25% 20%

b) 45% 25% 20% 5%

**c) 65% 20% 10% 3%**

d) 80% 5% 5% 10%

31) True/False: Aldosterone is a steroid hormone that increases sodium reabsorption, it is produced by the anterior pituitary and its production is inhibited by the presence of alcohol.

a) True **b) False**

32) True/False: The production of atrial natiuretic factor is likely to increase if you have poor left ventricular ejection and pooling of blood into the right side of the heart.

**a) True** b) False

33) The fenestrations found on the glomerular capillaries are lined with \_\_\_\_\_\_\_\_charges that help prevent plasma proteins from being accidentally filtered.

a) Positive **b) Negative**  c) Neutral

34) If you had only had one functional kidney, but were healthy otherwise, your net glomerular filtration rate would probably be\_\_\_\_\_\_and your total GFR in one day would be about \_\_\_\_\_\_?

a) 62.5 ml/min, 90 L/day b) 62.5 ml/min, 180 L/day

c) 125 ml/min, 900 L/day **d) 125 ml/min, 180 L/day**

35) If you reabsorbed 90% of your original GFR\_\_\_\_\_\_\_would ***BE THE LEAST LIKELY*** to occur.

**a) Formation of relatively isotonic urine** b) Formation of dark yellow urine

36) If your mean arterial blood pressure was\_\_\_\_\_you would just barely be able to produce a normal GFR.

a) 32 mmHg  **b) 72 mmHg**  c) 102 mmHg d) 182mmHg

37) Extreme dehydration results in the production of large amounts of antidiuretic hormone (ADH), which of the following is ***Least Likely to be*** an action of large amounts of ADH?

a) Aquaporin increases collecting duct permeability

b) Promotes sensation of thirst

**c) Increases GFR**

d) Vasoconstriction of arteries

38) Sodium levels inside the cytosol of the epithelial cells lining the Proximal Convoluted Tubule cells are normally maintained at very low levels by what transport process on the plasma membrane that faces the capillaries?

a) Osmosis b) Simple diffusion and aquaporin

**c) Antiport transport and Na+/K+-ATPase** d) Facilitated diffusion and Na+/glucose co-transport

39) True/False: When solutes, such as glucose and sodium, are reabsorbed by transport proteins along the nephron and collecting duct, water may passively follow the polar molecules out of the filtrate. This process is called “Solvent Drag”. **Glucose is only reabsorbed in the proximal convoluted tubule, therefore “false”**

A) True **B) False**

40) Which structure is water impermeable and pumps NaCl into the interstitium surrounding it using an expensive ATPase?

a) Proximal convoluted tubule b) Distal convoluted tubule

c) Collecting ducts

**d) Ascending loop of Henle**  e) Descending loop of Henle

41) True/False: Glucose is reabsorbed along the entire length of the nephron and collecting duct.

A) True **B) False**

42) Renin is produced (causing angiotensinogen to become Angiotensin I) when the flow rate of the distal convoluted tubule is too low. Where is the renin formed?

**a) Juxtaglomerular apparatus** b) Collecting duct

c) Adrenal cortex d) Anterior pituitary

43) If the H+-ATPase pumps of the collecting duct were very active in a person with uncontrolled diabetes. As a result the pH of the blood would hopefully become less**\_\_\_\_\_\_. a) Acidic** b) Basic ***IF BLOOD GET TOO ACIDIC your diabetic patient goes into a coma and rapidly dies.***

44) Which of the following functional groups would stabilize excess free protons in the urine?

a) NH3 b) NaHCO3 c) Na HPO4 d) A and B e) All of above could serve as buffers

44) Constricting smooth muscle at the \_\_\_\_\_\_\_would increase filtration and decrease reabsorption of interstitial fluids causing increased inflammation. a) Arteriole end of the capillary **b) Venular end of the capillary—as a result blood backs up into the capillary and fluid is squeezed into interstitium**

**From questions at Back of each Chapter: Fill in the blank**

45) The superior opening into the larynx is guarded by a tissue flap called the \_\_\_\_\_\_\_\_. **Epiglottis**

46) The \_\_\_\_\_\_\_is a group pf epithelial cells of the nephron loop that monitors the composition of tubular fluid.

**Juxtaglomerular Apparatus**

47) The most abundant cation in the ECF (extracellular fluid) is \_\_\_\_\_\_\_ and the most abundant cation in the ICF (intracellular fluid) is \_\_\_\_\_\_\_\_\_\_. ***From Bio 211: Sodium (Na+) outside cell and Potassium (k+) is more common inside the cell***

48) 3 points: **Written (typed if it appears on a D2L test)**:

Describe four different hormones, what they do, and how they would modify kidney function by being produced in larger OR SMALLER amounts as part of the bodies compensation for massive hemorrhage and shock. (***Assume you lost 3 or your 6 liters of blood….yikes!!!!!!***)

Be Specific (use names of hormones, enzymes, etc) and use 5-10 words for each item. A) B) C) D)

**Extra Credit: 2 points:**

**A)** If you felt sick and your cardiac output was 5 liters/minute, glomerular filtration rate was 60 ml/minute and your renal plasma flow was 500 ml/minute (***assume your hematocrit is 50%***). What was the problem? CHOOSE ONE

**X)** Normal GRF and Abnormal Renal Blood Flow

**Y)** Abnormal GFR and Normal Renal Blood Flow

**Z)** Abnormal GFR and Abnormal Renal Blood Flow

**1 pt B)** Consider a capillary: Blood pressure (hydrostatic) is 40 mmHg at the start of the capillary and 20 mmHg at the end of the capillary**,** Lymphatics ducts create a suction of 5 mmHg (hydrostatic)**, and** Plasma proteins (colloid) creates a force of 20 mmHg**.**

What is predominating at the ***arteriolar end (start)of this capillary***? Choose One: **Filtration** OR Reabsorption

***NET of these pressures pushes fluid from capillary into the interstitium***

**Form A**