



## **FACULTY OF SCIENCE**

### **DEPARTMENT OF ZOOLOGY**

<b>MODULE</b>	<b>HPH3B20</b>
<b>CAMPUS</b>	<b>APK</b>
<b>SSA EXAM</b>	<b>DECEMBER 2014</b>

**DATE: 01/12/2014**

**SESSION 12:30**

**ASSESSOR(S)**

**DR PR TESKE**

**INTERNAL MODERATOR**

**DR JC VAN DYK**

**EXTERNAL MODERATOR**

**PROF A FULLER**

**DURATION: 1 HOUR**

**MARKS 50**

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**NUMBER OF PAGES: 3 PAGES**

**INSTRUCTIONS: Answer all the questions.**

**Question 1****(10)**

Define and briefly discuss the following (1-2 sentences each):

- 1.1. Hyperparathyroidism
- 1.2. Chylomicron
- 1.3. Ventromedial nuclei
- 1.4. Marasmus
- 1.5. Oncotic pressure

**Question 2**

Filtration, active transport, diffusion and osmosis all take place in the kidneys. Give one example for each type of solute/solvent movement. **(4)**

**Question 3**

Explain what a “failure to compensate”-type mixed acid-base disorder is, list all possible combinations of acidosis and alkalosis that fall into this category, and give an example of such a disorder. **(6)**

**Question 4**

Describe the effect of hypercalcemia on nerve cells. **(5)**

**Question 5**

A 45-year-old female patient is undergoing a kidney operation and her ventilation is fully controlled mechanically. A blood test reveals that her plasma pH is lower than normal and that both  $\text{HCO}_3^-$  and  $\text{PCO}_2$  are both elevated. Explain what are the most likely reasons for these symptoms, what this disorder is called, what has happened to the patient's acid-based balance, and how the body tries to compensate. **(7)**

**Question 6**

Recent scientific advances have facilitated the development of new cancer treatments (in addition to traditional chemotherapy, radiation and surgery). List and briefly discuss two of these novel approaches. **(6)**

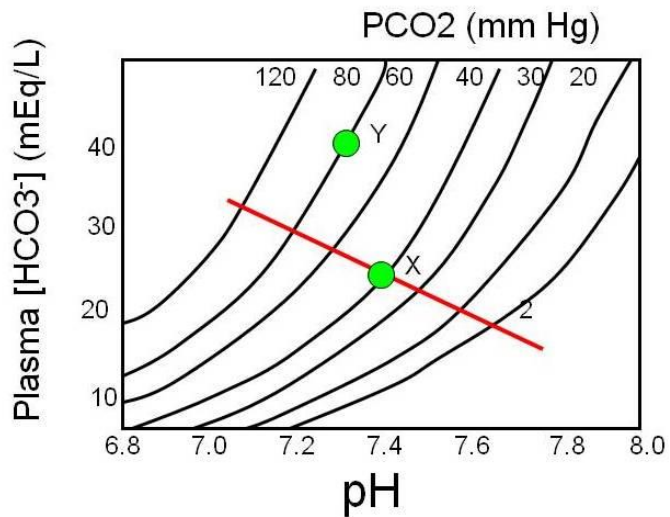
**Question 7**

Describe the three stages of starvation, focusing particularly on the compounds that are metabolised at each stage. **(8)**

### Question 8

The figure below is a Davenport diagram, which is used to study acid-base imbalances, with point X representing the normal state. Briefly explain what point Y depicts, what causes this type of imbalance, and what has happened to  $\text{CO}_2$  levels and  $\text{H}^+$  ion concentration in the extracellular fluid.

(4)



Total marks (50)