



FACULTY OF SCIENCE

DEPARTMENT OF ZOOLOGY

MODULE	HPH3B20/PHS3B01 (Term 4 content)
CAMPUS	APK
EXAM	SUPPLEMENTARY EXAM 2015

DATE: TBA

SESSION: TBA

ASSESSOR(S)

Prof PR Teske

INTERNAL MODERATOR

Dr JC van Dyk

EXTERNAL MODERATOR

Prof A Fuller

DURATION: 1 HOUR

MARKS: 50

NUMBER OF PAGES: 3

INSTRUCTIONS: Answer all questions and write legibly

QUESTION 1

Briefly define the following (1-2 sentences each):

- 1.1** Hypertonic hyponatremia [2]
- 1.2** Chylomicron [2]
- 1.3** Marasmus [2]
- 1.4** Oncotic pressure [2]
- 1.5** Tetanus [2]
- 1.6** Glycogenolysis [2]
- 1.7** Kussmaul breathing [2]

QUESTION 2

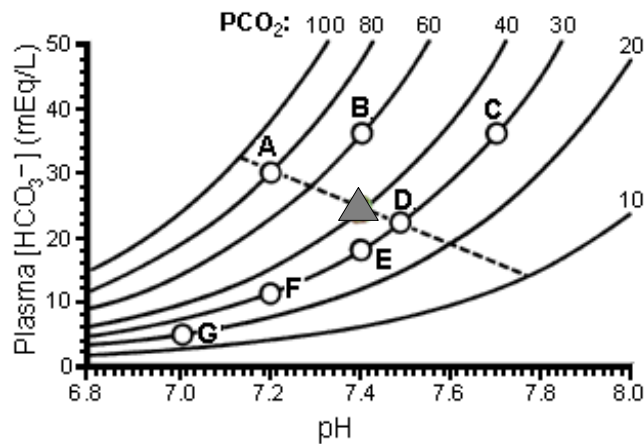
A patient suffers from frequent bone fractures and kidney stones. What is the most likely cause for this combination of symptoms, and what molecular processes are responsible for it? [5]

QUESTION 3

A patient arrives in hospital foaming at the mouth and hyperventilating. His serum bicarbonate levels and pH are both reduced. Explain in detail what is the most likely cause for these symptoms, what has happened to the acid-base balance in the patient's extracellular fluid, and how the body tries to compensate. [8]

QUESTION 4

The figure below is a Davenport Diagram, which is used to study acid-base imbalances. The grey triangle depicts the normal state. Suggest what may have happened in terms of acid-base imbalances at point B. Motivate your answer. [7]



QUESTION 5

[8]

Recent scientific advances have facilitated the development of new cancer treatments (in addition to traditional chemotherapy, radiation and surgery). List and briefly discuss four of these novel approaches (2 marks each).

QUESTION 6

[8]

Describe how each of the following aquatic organisms copes with an environmental salinity that slightly exceeds the salinity of seawater:

1. Stenohaline strict osmoconformer
 2. Euryhaline strict osmoconformer
 3. Shark (a hypo-ionic osmoconformer)
 4. *Oreochromis mossambicus* (bony fish; a hypo-osmotic osmoregulator)
 5. Sea turtle (reptile; also a hypo-osmotic osmoregulator)
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