



FACULTY OF SCIENCE

DEPARTMENT OF ZOOLOGY

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| MODULE | HPH3B20 |
| CAMPUS | APK |
| EXAM | NOVEMBER 2014 |

DATE: 01/11/2014

SESSION 12:30

ASSESSOR(S)

DR PR TESKE

INTERNAL MODERATOR

DR JC VAN DYK

EXTERNAL MODERATOR

PROF A FULLER

DURATION: 1 HOUR

MARKS 50

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 Kussmaul breathing
- 1.2 Biotransformation
- 1.3 Hypothermia
- 1.4 Mixed acid-base disorder
- 1.5 Chemotherapy

Question 2

The hormone aldosterone is primarily involved in the retention of water in the kidneys. Why then can the overproduction of aldosterone (=aldosteronism) result in alkalosis? **(4)**

Question 3

Explain in detail why the intravenous administration of saline (salt solution) can result in the shriveling of red blood cells. **(4)**

Question 4

Prepare a table comparing kwashiorkor and marasmus in terms of the following: a) Nutrient(s) insufficient in diet; b) typical age of child, c) main cause of nutrient deficiency; d)-e) common symptoms include (yes/no): d) swelling of abdomen; e) skin lesions. **(10)**

Question 5

A 70 year old man with a long history of heavy smoking is admitted to hospital. The patient breathes heavily and states that he is suffering from strong diarrhoea. A blood test shows that the man has a reduced pH (= elevated H^+) and a reduced bicarbonate (HCO_3^-) level. Explain in detail what is the most likely cause for these symptoms, what has happened to the man's acid-base balance, what this type of disorder is called, and how the body tries to compensate. **(8)**

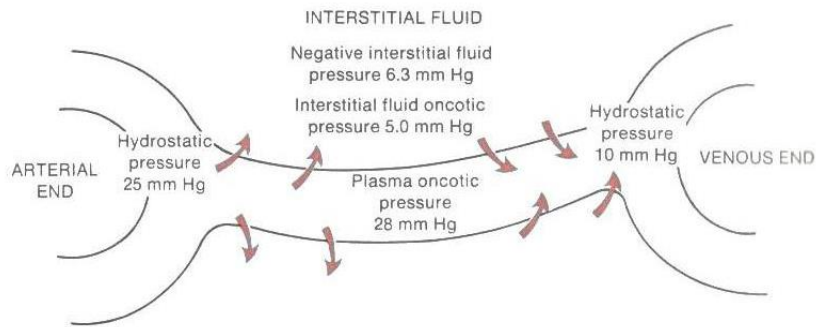
Question 6

Recent scientific advances have facilitated the development of new cancer treatments (in addition to traditional chemotherapy, radiation and surgery). List and briefly discuss three of these novel approaches. **(9)**

Question 7

The following figure illustrates two mechanisms by which water can move between different fluid compartments in the capillary beds. Explain which they are, and briefly discuss how they facilitate the supply of peripheral cells with oxygen and the removal of carbon dioxide.

(5)



Total marks (50)
