



KENYATTA UNIVERSITY
UNIVERSITY EXAMINATIONS 2008/2009
SECOND SEMESTER EXAMINATION FOR THE DEGREE OF
BACHELOR OF SCIENCE
(SPORTS SCIENCE)

SSS 402: HYDRODYNAMICS AND AQUATIC ACTIVITIES

DATE: **Wednesday 8th April 2009**

TIME: **11.00am-1.00pm**

INSTRUCTIONS

ANSWER ANY THREE QUESTIONS

ANSWER EACH QUESTION ON A SEPARATE BOOKLET

1. Using breaststroke and back crawl stroke analyze profile drag [23¹/₃]

2. a) Explain the weight density of water. [16marks]
 b) State the Archimedes principle and explain its implications to aquatic activities. [8marks]

3. a) Distinguish amongst the three types of floaters. [12marks]
 b) A 22kg girl with a body volume of 0.25m³ is holding a large quantity of inspired air in her lungs. Determine:
 i) Her floating ability if γ equals 9810N/M³. [5marks]
 ii) How much she could weigh and still be able to float given her body volume. [6marks]

4. Expound on the hydrodynamic considerations that must be met when designing aquatic exercise for deep water and shallow water performance. [23¹/₃]

5. a) Analyze the following expression as used in aquatic activities:
 $v=d/s \times s/min$ [11marks]
 b) Explain the factors that influence aquatic efficiency. [12marks]

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