



KENYATTA UNIVERSITY

UNIVERSITY EXAMINATIONS 2009/2010

FIRST SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR OF
SCIENCE (SPORTS SCIENCE)

SSS 204: BIOMECHANICS OF SPORTS 1

DATE: WEDNESDAY, 30TH DECEMBER 2009

TIME: 8.00 A.M. - 10.00 A.M.

INSTRUCTIONS: ANSWER ALL QUESTIONS. EACH QUESTION IN
A SEPARATE BOOKLET.

1. a) Show and explain the relationship of angular velocity to linear velocity.
(10 marks)

 b) Using examples explain the situations in which the following are
 desired in sports.
 - i) Lengthening the radius of rotation. (8 marks)
 - ii) Shortening the radius of rotation. (5 marks)

2. a) Distinguish between perfect vertical projectiles and perfect horizontal
 projectiles. (8 marks)

 b) Analyse the effect of the following on a projectile's trajectory
 - i) Angle of projection (10 marks)
 - ii) Relative height of projection (5 $\frac{1}{3}$ marks)

3. a) Expound on Newton's second and third laws of motion and explain their
 applications to sports and physical activities. (14 marks)

 b) Using examples, analyse resistive forces in physical activities and sports.
(9 marks)

4. a) Use an illustration to distinguish between maximum static friction (F_m) and kinetic friction. (15 marks)
- b) Explain the factors that affect the magnitude of the force of maximum static friction or kinetic friction. ($8\frac{1}{3}$ marks)
5. a) Describe buoyancy of a fluid. (6 marks)
- b) Analyse skin friction as it applies to sports and physical activities. (17 marks)
