NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY

SSC2212

FACULTY OF APPLIED SCIENCES

BACHELOR OF SCIENCE HONOURS DEGREE EXAMINATIONS

DEPARTMENT OF SPORTS SCIENCE AND COACHING

THEORY: SSC2212: SPORTS SPECIALITY MODULE (TRACK AND FIELD ATHLETICS – THROWS)

MAY 2006

3 HOURS (100 MARKS)

INSTRUCTIONS

Answer any four questions only. Each question carries 25 marks. Where a question contains subdivisions, the mark value for each subdivision is given in brackets. Illustrate your answer where appropriate with large clearly labeled diagrams.

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1. a) Discuss research findings on the effects of velocity of release on the distance traveled by a shot. (7 marks)

   b) Briefly explain the training aspects which a coach needs to observe to ensure each of the biomechanical requirements listed below for the shot put in the Linear Technique.
   - (i) Achieving optimal initial acceleration of the shot/athlete system. (3 marks)
   - (ii) Reduction of vertical loss of velocity. (3 marks)
   - (iii) Building up torque between shoulders. (3 marks)
   - (iv) Optimal length of path of shot in the delivery. (3 marks)
   - (v) Greatest possible acceleration of shot by optimizing the transfer of forces from legs via the hip, torso and shoulders to the throwing arm and shot. (3 marks)
   - (vi) Optimal angle of release by elevating centre of mass in delivery. (3 marks)

2. a) Give a detailed exposition of the test battery that you would recommend to a coach to use regularly to monitor the fitness of a javelin thrower. (10 marks)

   b) Identify and explain exercises for the following general strength resistance training for javelin.
   - (i) Basic barbell exercises to develop complex strength. (3 marks)
   - (ii) Basic barbell exercises to develop upper body strength. (3 marks)
   - (iii) Basic barbell exercise to develop leg strength (3 marks)
   - (iv) Strengthening of straight abdominal and back muscles. (3 marks)
   - (v) Strengthening of oblique torso muscles. (3 marks)

3. Strength and speed feature as part of the demand profile for discus. Identify the sub components of each of these two and discuss their training goals and contents. (25 marks)

4. a) Outline the characteristic features of the phases of the discus throwing technique. (13 marks)

   b) Design a one week shot put training plan for the preparation period 1, with one rest day. (12 marks)

5. a) Discuss a six step teaching progression that a coach can use to teach the hammer throw to a group of beginners. (25 marks)

6. In the hammer throw the distance of each throw is determined by the four factors below, show how each one of them contributes to the distance traveled by the hammer.
   (i) Release velocity (7 marks)
   (ii) Release angle (6 marks)
   (iii) Release height (6 marks)
   (iv) Aerodynamics of the implement, wind conditions and gravity. (6 marks)

END OF EXAMINATION QUESTION PAPER