**ATAR PHYSICAL EDUCATION STUDIES**

**UNIT 3 & 4 INVESTIGATION**

Sports Psychology and Biomechanics

**Activity 1**

Watch the film **Remember the Titans**

Using Clickview watch the film ‘Remember the Titans’. Prepare notes that will enable you to complete responses in class to the following:

**Sports Psychology**

* Carron’s model of group cohesion - factors affecting group cohesion
* strategies to improve and measure group cohesion
* Mental skills strategies used pre-, during and post-performance to manage stress, motivation, concentration, and self-confidence.
* Arousal levels and regulation of.

Biomechanics

* Bernoulli’s principle and the Magnus effect
* Coefficient of restitution

**Activity 2**

In class extended response

You will have 55min to answer the following questions relating to the film Remember the Titans. No Notes to be used in this section of the investigation.

**Question 1.**

Discuss how Carron’s model of group cohesion may have helped the Titans to come together for a successful season. Use examples form the film. (12 marks)

3 marks per factor Answers could include:

Environmental: normative forces that bring a team together

* Selection criteria
* Fitness and training expectations
* Prestige of playing college football and representing the school

Personal factors: individual characteristics of team members

* Motives for participating
* Aspirations
* Individual differences

Leadership factors: the style of leadership used by the coaching staff and leaders of the group

* Relationships
* Leadership type
* Leadership groups

Team factors: characteristics or factors relating to the group

* Team identity
* How long a team has been together
* Shared vision and goals
* Shared understanding of strategies and tactics
* Reward for effort

**Question 2**

1. Outline the strategy used by Coach Boone to measure the cohesiveness of his team. (2 marks)

1 mark questionnaire;

1 mark he assigned a partner of alternative race to every player, specific questions were asked of each player to determine how well the players know each other

1. Suggest an alternative method that may have been used to measure group cohesion and explain how this could be done. (2 marks)

1 mark sociogram

1 mark plot all team members on the graph following camp to see how connected they now are and what gaps in connections there may be

Question 3

Although only 11 players are allowed on the field at any one time on game day teams can have up to 46 players in rotation. With a group of this size social loafing is likely to occur. Define social loafing and discuss 2 strategies Coach Boone may incorporate to reduce the incidence of social loafing. (3 marks)

1 mark definition of social loafing; the lessening of an individual’s effort when in a group or team

1 mark discussion of each strategy to reduce social loafing (max of 2)

**Question 4**

The state championship is the biggest game of the year. Titans captain Garry has just had a serious car accident and will never be able to play again. Explain as the team psychologist how you would ensure the team are mentally prepared for the state title game with reference to **three** arousal regulation strategies in your response. (6 marks)

1 mark for each appropriate arousal regulation strategy (max of 3)

1 mark for the justification of each strategy (max of 3)

**Question 5**

As the team psychologist you have been asked by Coach Boone to help athletes improve their performance through goal setting. Create an example of a performance goal a Titans player could set and explain the expected psychological outcomes. (4 marks)

1 mark for the identification of the SMARTER strategy of goal setting

1 mark for stating how performance goals can increase motivation

1 mark for performance goals decreasing anxiety

1 mark for an example of an appropriate performance related goal

Question 6

The longest recorded punt kick in the NFL is 89m. To achieve such distances the player kicking the ball will strike the underside of the ball with considerable force. State the biomechanical principle involved when striking the underside of the ball, and discuss with aid of a diagram how this may assist the ball in travelling such long distances (8 marks)

1 mark stating magnus effect

1 mark indicating the ball being struck on the underside produces back spin on the ball

1 mark for connection to Bernoulli’s principle (air pressure differential)

1 mark backspin and resulting lift increases flight time

4 marks for diagram

* Correct direction of spin
* Lift force
* Zone of low pressure – fast flow
* Zone of high pressure – slower moving air

**Question 7**

The NFL has strict rules regarding the balls that may be used for a game. Balls are to be inflated to between 12.5 and 13.5 ponds. They are made of urethane bladder surrounded by a pebble grained leather casing. The only exception to these rules occurs when a replacement ball is used during a punt. In this instance the replacement ball is inflated to a slightly higher pressure.

1. Define coefficient of Restitution

(1 mark)

1 mark for definition; COR is the measure of how much energy remains following the collision of two objects (or similar)

1. Explain why a punter may call for the replacement ball to be used and what effect this may have on the outcome of the kick. Discuss 1 other of the other regulations stated above that may have an impact on the desired outcome of maximum distance of an NFL punt

(3 marks)

1 mark for higher pressure results in higher COR1 mark for higher cor resulting in greater distance of punt 1 mark for the COR being influenced by the materials of the ball

1. The Titans often played in near freezing conditions. Discuss if the air temperature would have any effect on the coefficient of restitution when the ball is being punted. (2 marks)

1 mark for Cooler objects have lower COR 1 mark the freezing conditions will cool the objects resulting in potentially shorter punt as the COR is lower