



NATIONAL SENIOR CERTIFICATE EXAMINATION
NOVEMBER 2011

SPORT AND EXERCISE SCIENCE: PAPER II

MARKING GUIDELINES

Time: 2 hours

150 marks

These marking guidelines were used as the basis for the official IEB marking session. They were prepared for use by examiners and sub-examiners, all of whom were required to attend a rigorous standardisation meeting to ensure that the guidelines were consistently and fairly interpreted and applied in the marking of candidates' scripts.

At standardisation meetings, decisions are taken regarding the allocation of marks in the interests of fairness to all candidates in the context of an entirely summative assessment.

The IEB will not enter into any discussions or correspondence about any marking guidelines. It is acknowledged that there may be different views about some matters of emphasis or detail in the guidelines, and different interpretations of the application thereof. Hence, the specific mark allocations have been omitted.

QUESTION 1

- 1.1 1.1.1 Self-talk – this is what a person says internally to themselves. A person that worries about a particular aspect of their game is more likely to continue having problems compared to someone who concentrates on the technique they have to perform. If he/she worries about failing and making another mistake, they are focusing on the risks of failing rather than the rewards of succeeding.
He/she would need to change negative thoughts – replace a negative thought with a positive thought. This will decrease anxiety and allow him/her to focus on the technical aspects.
Use technical cues, e.g. 'eyes on the ball' or 'feel the grip' to refocus.
Use focus words, e.g. 'concentrate' to control emotions and refocus on the present situation. (5)
- 1.1.2 Motivation – a person's desire to complete a task. (1)
- 1.1.3 High levels of motivation can allow an athlete to attain exceptional results. Highly motivated athletes will stick to an activity even when things aren't going well.
Low levels will mean an athlete won't put in the required effort needed to perform at their best. Low motivation will result in a tendency to give up. (3)
- 1.1.4 Environment
Course condition
Weather
Intrinsic factors: mental state, health conditions, injury
Extrinsic factors: money, (lack thereof) opportunity, etc. (3)
- 1.2 1.2.1 Winning isn't the only reason for competing. A medal is an extrinsic reward. All athletes should have intrinsic reasons for competing too. If the athlete did his/her best, then they needn't feel disappointed. Similarly if the athlete has trained correctly, then there should be no regrets. It is also an experience to be able to compete against the best in the world and compare yourself to them. (4)
- 1.2.2 Talk to the athlete and praise him/her for the dedication in preparing for the event. Explain that it is a stepping stone towards achieving a medal in the future. That experience was one of the main reasons for competing so that the athlete is not overawed at the next Olympics when they will be physically; mentally and emotionally better prepared for this level of competition.
Give the athlete some time off and then resume training, remembering to refer back to the Olympics and the experiences gained.
Set new goals – SMARTER goals.

Educate the athlete's family on how to deal with him/her.
Ensure that the athlete gets a chance to talk about the event and his/her feelings. (5)

- 1.3 1.3.1 Any appropriate example is acceptable, e.g.
 The position of the player calling for the ball.
 Taking a shot at goal.
 Where the goal posts are in relation to you. (2)
- 1.3.2 Any appropriate example is acceptable, e.g.
 The type of pass you intend using.
 The weather
 The coach shouting instructions
 What the opposition has done in the game so far. (2)
- [25]**

QUESTION 2

- Traffic – police, beacons, flagmen at intersections; create cycle lane?
 - Sharp corners
 - Spectator safety at corners, block crowds off the road
 - Road surface – sand/gravel, potholes, bumps
 - Weather – hot – drinks, wet = slippery
- [5]**

QUESTION 3

3.1

| Intensity | Duration |
|---|---|
| As the athlete's fitness improves, intensity can increase. | The training should last long enough for improvements to occur |
| The training must include enough rest to allow the body time to recover | The length of the training session must depend on what aspect of fitness is being developed |
| Depends on fitness levels | The amount of time/duration spent training will depend on the age, maturity and/or experience of the athlete. |
| | Duration also depends on the type of training, e.g. volume can be greater for low intensity activities. |
| | Depends on fitness levels |

- The training must match the requirements for the sport (5)
- 3.2 Safe and effective level to work at before overloading takes place. (2)
- 3.3 The state where an athlete has been stressed repeatedly by training to a point where rest is no longer adequate to allow for recovery. (2)
- 3.4
- Prolonged fatigue
 - Performance decreases or levels off
 - Battle to sleep
 - Depressed
 - Muscle soreness
 - Weight loss/loss of appetite
 - Increased injuries
 - Increased frequencies of colds and flu
- (4)

[13]

QUESTION 4

1. Raising the front leg – this moves the centre of gravity outside the base of support. This unstable position is enhanced by raising the arms above the head.
2. Kicking the rear leg up – gymnast steps forward and puts hands on the floor. This creates a pivot for the body to rotate around. Rear leg swings up and back. The foot that is still on the floor pushes, creating a reaction force from the floor that aids in rotating the body upward.
3. Handstand position – The gymnast needs to use enough force/momentum in steps 1 and 2 to overcome the resistance of the body weight acting through the COG. Balance is maintained by small forces acting around the wrists/fingers on the floor. The gymnast may splay the fingers to increase the size of the base of support.
4. Initiating the roll – the base of support is small and the COG is high so the gymnast is unstable. By moving the feet/legs the gymnast starts the roll. The gymnast must be careful not to allow the COG to move too far from the hands in case the movement occurs too quickly and control is lost.
5. Control of the motion – the size of the tuck depends on the momentum generated when the body started rolling. If they are in control, they will tuck tighter. This will make the gymnast roll faster.
6. Stop and stand – This stage relies on there being enough momentum to allow the gymnast to stand after rolling. The gymnast now needs to stop the rotation or they will land on their face. Rotation needs to be reduced to zero to stand without overbalancing.

[20]**Question 4 Rubric**

| | 6 – 7 | 4 – 5 | 2 – 1 | 1 |
|--|--|--|--|---|
| Content: Knowledge thoroughness | All 7 stages are covered. Information shows insight. | ¾ of stages are covered. Some information shows insight. | Half of the stages are covered. Very little evidence of insight. | Up to 1/3 of the stages are covered. Little evidence of insight |
| Biomechanical features provided | All 7 stages have features provided. | ¾ of stages have features provided. | Half the stages have features provided. | Up to 1/3 of the stages have features provided. |
| Coaching points provided | All 7 stages have coaching points provided. | ¾ stages have coaching points provided. | Half the stages have coaching points provided. | Up to 1/3 of the stages have coaching points provided. |
| Answer tabulated | 1 | | Answer not tabulated. | 0 |

[20]**QUESTION 5**

To gain maximum momentum, the force needs to be generated by:

- Using as many segments of the body as possible
- Use the large muscles first, then the smaller muscles last but fastest. In other words use the muscles in the correct sequence.
- Use correct timing
- Use the greatest range of motion

[4]

QUESTION 6

- 6.1 Forming – group gets together and tries to assess each other
 Storming – leaders try to assert themselves. This leads to arguments
 Norming – the group becomes united and knit. Decide on group values, etc.
 Performing – as a united group, they start to perform well. (8)

- 6.2 Bonding activities – could be social, e.g. a braai
 – could be by doing something pleasurable together, e.g. play golf or another fun activity
 – could be fun competition like tug-o-war, Survivor, etc.
 Candidates can get creative here (8)
[16]

QUESTION 7 MULTIPLE CHOICE

| | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|
| 7.1 | 7.2 | 7.3 | 7.4 | 7.5 | 7.6 | 7.7 | 7.8 | 7.9 | 7.10 |
| C | C | E | B | A | B | C | E | B | E |

[10]

QUESTION 8 DEFINITIONS

- 8.1 It is the point at which all parts of an object are equally balanced. (2)
 8.2 It is a condition caused by low blood sugar levels. (2)
 8.3 Athlete experiencing pain and discomfort from 24 to 48 hours after training. (2)
 8.4 Osteoporosis is a bone condition that results in weak/porous bones that break easily. (2)

[8]

QUESTION 9 CENTRE OF GRAVITY

9.1 9.1.1

Player A



Player B



(2)

9.1.2 Player B

(1)

9.1.3 Player B has a wider base of support and her line of gravity falls within her base of support. She has both feet planted on the ground.

(3)

9.1.4 Depending on which way the player moves, the centre of gravity moves too. It could either make the player more stable or make the player even more unbalanced.

(2)

9.1.5 Stability allows a person to move quickly. The muscles will move more effectively from a stable base when initiating movement. If a person is unstable, their success at performing a skill usually suffers. This is due to the person being unbalanced or off balance and therefore they aren't in control. Those that are more stable can apply more force and complete a skill successfully. The lower the centre of gravity the more stable the person is.

(4)

9.2 9.2.1 B – the heavier person / the one with larger mass.

(1)

9.2.2 Newton's First Law states that an object will remain at rest or in uniform motion in a straight line unless acted upon by an external force. The smaller/lighter person is more likely to fall over because he has smaller mass and therefore has less inertia.

(3)

9.2.3 Advantages – when being tackled
 – When tackling
 Disadvantages – more energy is needed to carry a large person around the field
 – So they need to be fitter

(2)

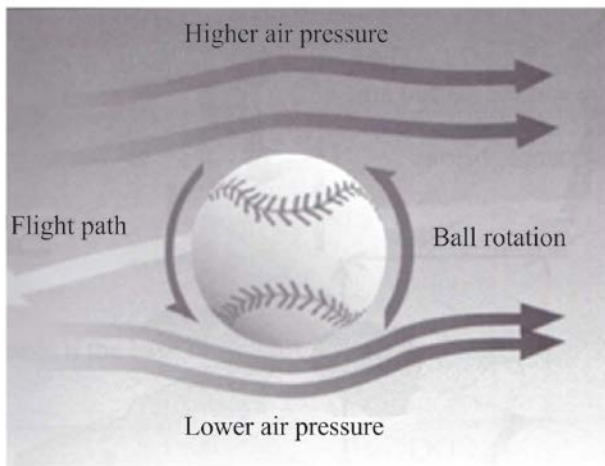
[18]

QUESTION 10

| Movement type | Movement | Main muscle | Joint type |
|--------------------------|-----------------------|-------------------|------------------------|
| Knee in diagrams A and B | Knee extension | Quadriceps | Modified hinge |
| Hip in diagrams A and B | Hip extension | Gluteals | Ball and socket |

[6]

QUESTION 11



[5]

QUESTION 12

12.1



(3)

12.2 Decrease the length of the oar.

(1)

12.3 The resistance arm is decreased, so it will be easier to apply force, so rowing will be easier for the rower.

(2)

12.4 12.4.1 Shorter levers = greater strength. Easier to lift the weight.

(2)

12.4.2 Longer levers = greater speed. More strength/force

(2)

12.5 12.5.1

| Rank | Surface |
|-----------------|---------|
| 1 st | Tar |
| 2 nd | Wood |
| 3 rd | Sand |

This is due to the hardness of the surface.

(3)

12.5.2 Tar

(1)

12.5.3 When impacting with a runner's foot, a surface would rebound according to the hardness and the surface's ability to absorb force.

(2)

12.5.4 Advantage – the harder the surface, the more effective it will be to rebound objects.

Disadvantages – even though it is easier to run on a hard surface, it is very hard on the joints as it doesn't cushion the impact. Sand is soft and harder to run on but because it absorbs the body's weight, it reduces the chances of injury.

(4)

[20]

Total: 150 marks