VCE Physical Education Practice Exam (Sample)

Study Guide

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Questions

1. How is speed defined in physics?

A. Acceleration over time.

B. Change in position over distance.

C. Rate of motion (distance/time).

D. Force exerted over distance.

2. What is a key difference between fine and gross motor skills?

A. Fine motor skills use large muscle groups

B. Gross motor skills involve small muscle coordination

C. Fine motor skills require precision and control

D. Gross motor skills are performed only indoors

3. Which action can decrease stability?

A. Lowering the Center of Gravity

B. Increasing the mass of the object

C. Narrowing the Base of Support

D. Extending the Base of Support

4. What is the recommended daily fat intake percentage for a balanced diet?

A. 10-15%

B. 20-25%

C. 30-35%

D. 40-45%

5. What is the rate of ATP production for the ATP-CP energy system?

A. 3.6 mol/min

B. 1.6 mol/min

C. 2 mol/min

D. 1 mol/min

6. Which term reflects the change in position of a body in relation to time?

A. Acceleration

B. Motion

C. Velocity

D. Path

7. What characterizes angular motion?

A. Change of position in a straight line

B. Movement along a circular path

C. Movement that is both linear and curved

D. Stationary position of an object

8. When should feedback frequency be highest during training?

A. In the late stages of skill acquisition

B. When learning advanced skills

C. In the early stages of skill acquisition

D. During mental preparation phases

9. What is the glycaemic index (GI) used to measure?

A. Fat content in food

B. Protein quality

C. Carbohydrate impact on blood-glucose levels

D. Caloric density of foods

10. What is a characteristic of unsaturated fats?

A. They increase cholesterol levels

B. They are typically found in liquid form at room temperature

C. They provide more calories than carbohydrates

D. They are only found in animal products

Answers

1. C
2. C
3. C
4. B
5. A
6. B
7. B
8. C
9. C
10. B

Explanations

1. How is speed defined in physics?

A. Acceleration over time.

B. Change in position over distance.

C. Rate of motion (distance/time).

D. Force exerted over distance.

Speed is defined as the rate at which an object covers distance over time. This concept captures how fast something is moving, specifically quantifying this movement in terms of how much distance is traveled in a particular time frame. The formula for speed is commonly expressed as distance divided by time, indicating that if you know the distance an object travels and the time it takes, you can calculate its speed. This fundamental principle is essential in both physics and everyday situations where understanding movement is crucial, such as in sports, transportation, and various types of physical activities. In understanding why the other choices do not define speed: acceleration refers to the change in velocity over time, which is a separate concept from simple speed; change in position over distance is somewhat misleading as it does not accurately convey how speed is calculated or represented; and force exerted over distance relates more to work and energy rather than speed. Thus, the correct option clearly captures the essence of speed in a meaningful and accurate way.

2. What is a key difference between fine and gross motor skills?

A. Fine motor skills use large muscle groups

B. Gross motor skills involve small muscle coordination

C. Fine motor skills require precision and control

D. Gross motor skills are performed only indoors

Fine motor skills are characterized by their reliance on precise and intricate movements that involve smaller muscle groups, primarily in the hands and fingers. These skills typically require a higher degree of control and coordination to perform activities like writing, buttoning a shirt, or playing a musical instrument. The emphasis on precision is what distinctly categorizes fine motor skills from gross motor skills. In contrast, gross motor skills involve larger muscle groups and encompass broader movements such as running, jumping, or throwing, which do not necessitate the same level of detailed control. The other options misrepresent the nature of motor skills. For instance, the notion that fine motor skills use large muscle groups is incorrect, as they specifically utilize small muscles for delicate tasks. Likewise, suggesting that gross motor skills involve small muscle coordination mischaracterizes them, as they are focused on larger muscle groups for more substantial movements. Lastly, the concept that gross motor skills are only performed indoors is not accurate; these skills can be executed in various environments, both indoors and outdoors.

3. Which action can decrease stability?

A. Lowering the Center of Gravity

B. Increasing the mass of the object

C. Narrowing the Base of Support

D. Extending the Base of Support

Narrowing the base of support is an effective way to decrease stability. Stability in any physical activity or movement is often influenced by how broad the base of support is beneath the center of mass. When the base of support is narrower, the ability to maintain balance is compromised. This is because a narrower base provides less area for the weight to distribute evenly, making it easier for the object, person, or athlete to tip over or lose balance if a force acts upon them, such as movement or external pressure. In contrast, lowering the center of gravity, increasing the mass, and extending the base of support all contribute to increasing stability. A lower center of gravity brings the center of mass closer to the ground, enhancing balance. Increasing mass contributes to greater inertia, requiring more force to disturb the stable state. Extending the base of support allows for greater distribution of weight, further promoting stability as the lines of action from the center of gravity remain well within the base, making it harder to topple.

4. What is the recommended daily fat intake percentage for a balanced diet?

A. 10-15%

B. 20-25%

C. 30-35%

D. 40-45%

The recommended daily fat intake percentage for a balanced diet is typically 20-35% of total daily calories. This range allows for adequate consumption of essential fatty acids and helps support overall health, including hormone production and absorption of fat-soluble vitamins. Choosing a percentage within this range ensures that individuals receive sufficient energy while also promoting heart health and maintaining a healthy weight. A lower percentage, such as in the 10-15% range, may not provide enough essential fats that are necessary for various bodily functions. On the higher end, approaching 30-35% could lead to excessive calorie intake from fats, potentially increasing the risk of obesity and related health conditions if not balanced with other macronutrients. Thus, aiming for 20-25% is a practical and well-supported guideline for fat intake in a balanced diet.

5. What is the rate of ATP production for the ATP-CP energy system?

A. 3.6 mol/min

B. 1.6 mol/min

C. 2 mol/min

D. 1 mol/min

The ATP-CP energy system, also known as the phosphagen system, is the body's immediate energy source, primarily used during short, high-intensity activities, such as sprinting or heavy lifting. This system provides a very rapid production of ATP, which is crucial for maintaining performance during explosive bursts of effort. The rate of ATP production in this energy system is approximately 3.6 mol/min. This high rate is achieved due to the availability of phosphocreatine (PCr) stored in the muscles, which quickly donates a phosphate group to adenosine diphosphate (ADP) to regenerate ATP. The ATP-CP energy system operates anaerobically, meaning it does not require oxygen, allowing for this swift energy release during the initial moments of intense activity. In contrast, lower rates of ATP production from the other choices would not suffice for the immediate, high-energy demands required in explosive activities, making them less relevant in the context of peak performance in short-duration efforts. Understanding this system and its rapid ATP production capacity is crucial for athletes engaging in sports requiring quick, powerful movements.

6. Which term reflects the change in position of a body in relation to time?

A. Acceleration

B. Motion

C. Velocity

D. Path

The term that reflects the change in position of a body in relation to time is motion. Motion describes the change in an object's position over time and is fundamental to understanding physical dynamics. When an object moves from one place to another, its location changes, which can be quantified by observing the time it takes to cover the distance between the starting point and the endpoint. Acceleration refers to the rate of change of velocity and is related to how quickly an object changes its speed or direction during its motion. Velocity, on the other hand, specifically describes the speed of an object in a given direction, which is a component of motion but does not encompass the entire concept. Path refers to the route an object takes during its motion, but it does not directly reflect the overall relationship between position and time. Therefore, motion is the most accurate term that encompasses the change in position of a body with respect to time.

7. What characterizes angular motion?

A. Change of position in a straight line

B. Movement along a circular path

C. Movement that is both linear and curved

D. Stationary position of an object

Angular motion is defined by the movement of an object around a fixed point or axis. This type of motion typically occurs when an object travels along a circular path, such as a wheel turning or a gymnast performing a rotation on a bar. Unlike linear motion, which involves movement from one position to another in a straight line, angular motion involves a change in orientation and can be described in terms of angles, which are measured in degrees or radians. In the context of the other options, change of position in a straight line refers specifically to linear motion, which is distinct from angular motion. Movement that is both linear and curved might involve elements of both types of motion but does not exclusively define angular motion, which is specifically about rotation. A stationary position of an object does not involve any movement at all, and thus does not apply when discussing characteristics of motion in general, including angular motion.

8. When should feedback frequency be highest during training?

A. In the late stages of skill acquisition

B. When learning advanced skills

C. In the early stages of skill acquisition

D. During mental preparation phases

High feedback frequency is most beneficial during the early stages of skill acquisition. At this stage, learners are just beginning to understand the basic movements and concepts associated with a new skill. Providing frequent feedback helps them make sense of their performance, correct errors, and build confidence. It allows them to develop a clear understanding of what they are doing right and where they need to improve. In contrast, as learners progress to later stages of skill acquisition, they may benefit from less frequent feedback to encourage independence and self-assessment. Advanced skills often involve more complex movements that require mastery and autonomy, making excessive feedback potentially overwhelming. Similarly, during mental preparation phases, the focus is more on visualization and mental strategies rather than immediate correction of fundamental skills. Therefore, feedback frequency is most crucial during the early stages to establish a solid foundation for the skill being learned.

9. What is the glycaemic index (GI) used to measure?

A. Fat content in food

B. Protein quality

C. Carbohydrate impact on blood-glucose levels

D. Caloric density of foods

The glycaemic index (GI) is specifically designed to measure the impact of carbohydrates in food on blood-glucose levels. Foods with a high GI are rapidly digested and absorbed, leading to a swift increase in blood glucose levels, whereas those with a low GI result in a slower, more gradual rise in blood glucose. This is important for managing energy levels, weight control, and for individuals with diabetes who need to regulate their blood sugar levels. In contrast, the other options address different aspects of nutritional content that are not related to the glycaemic index. For example, fat content pertains to the amount of fat in food, protein quality refers to the amino acid profile and digestibility of protein sources, and caloric density measures the number of calories in a given weight of food. None of these metrics evaluate how carbohydrates affect blood-glucose levels, distinguishing the GI as a unique and essential measurement for understanding the body's response to carbohydrate intake.

10. What is a characteristic of unsaturated fats?

A. They increase cholesterol levels

B. They are typically found in liquid form at room temperature

C. They provide more calories than carbohydrates

D. They are only found in animal products

Unsaturated fats are characterized by their chemical structure, which contains one or more double bonds in their fatty acid chains. This structure prevents the molecules from packing closely together, resulting in a liquid form at room temperature. This is why unsaturated fats are typically found in oils extracted from plants, such as olive oil and canola oil, as well as in fatty fish. When considering other characteristics of fats, it is known that unsaturated fats, unlike saturated fats, do not raise cholesterol levels in the same harmful manner, making this distinction significant for heart health. Additionally, unsaturated fats do not provide more calories than carbohydrates, as all fats generally provide more calories per gram compared to carbohydrates, but it's the type of fat that impacts health more than just calorie content. Lastly, unsaturated fats can be found in both plant and animal sources, with several types of animal products also containing unsaturated fats, disproving the notion that they are exclusive to animal products.