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**PHYSICAL EDUCATION STUDIES**

**YEAR 12 GENERAL**

**Exercise Physiology Test**

**2019**

**Question/Answer Booklet**

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

***Time allowed for this paper***

Reading/planning time before commencing work: Five minutes

Working time for paper: Fifty minutes

|  |  |
| --- | --- |
| ***Material required/recommended for this paper***  **To be provided by the supervisor**  This Question/Answer booklet  Sections One and Two: Write your answers in this Question/Answer booklet.  Spare lined paper  **To be provided by the candidate**  Standard items:Pens, pencil, eraser, correction fluid, highlighter, ruler, |  |

***Important note to candidates***

No other items may be taken into the examination room. It is **your** responsibility to ensure that you do not have any unauthorised notes or other items of a non-personal nature in the examination room. If you have any unauthorised material with you, hand it to the supervisor **before** reading any further.

**Question 1 (14 marks)**

**(a)** Complete the table below in relation to the energy systems and their variables

**(8 marks)**

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Energy System** | | |
| **Variables** | **Anaerobic alactacid (ATP-CP)** | **Lactic Acid** | **Aerobic** |
| **Intensity in effort** | Very High intensity (95%-100% of max effort) | High intensity  (75-95% of max effort) | Low intensity  (up to 75%) |
| **Duration** | Up to 10 seconds | Up to 2-3 minutes | Greater than 3 minutes |
| **Fuel** | Creatine Phosphate | Carbohydrate (muscle glycogen and blood glucose) | Carbs, Fats and a small percentage of protein |
| **Waste Products** | None | Lactic Acid | Water and CO2 |

**1 mark each correct answer**

**(b)** The three energy systems often combine to supply our muscles with the energy (ATP) they use during exercise. Each energy system is stimulated by the changes in the intensity and duration of a particular exercise/activity. Select a sport as your example and explain how the aerobic and anaerobic energy systems are used during the game to supply the player’s body with energy. **(6 marks)**

**Sport:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Aerobic Pathway:**

|  |  |
| --- | --- |
| Description | Marks |
| States Aerobic System | 1 mark |
| Accurate description of how the aerobic system supplies energy for the chosen sport | 1 mark |

**Anaerobic Pathway:**

|  |  |
| --- | --- |
| Description | Marks |
| States ATP-CP System | 1 mark |
| States Lactic Acid System | 1 mark |
| Accurate description of how the ATP-CP system supplies energy for the chosen sport | 1 mark |
| Accurate description of how the lactic acid system supplies energy for the chosen sport | 1 mark |

**Question 2 (23 marks)**

After years of being the dominant force in women’s world hockey, the Hockeyroos have dropped to a world ranking of forth. The current coaching staff are planning a whole new program to take them back to the top of the world rankings.

**(a)** The coaching staff first want to improve their selection process so they have the fittest players possible. Identify one test the coaching staff could use to measure each of the following energy systems. **(2 marks)**

|  |  |
| --- | --- |
| Description | Marks |
| Correctly Identifies a test of Aerobic fitness | 1 |
| Correctly Identifies a test of Anaerobic fitness | 1 |
| Answers could include:   * Aerobic: Coopers Test, Beep Test, Harvard Step Test, VO2 Max Test * Anaerobic: Vertical Jump, Standing long jump, 30 metre Sprint, Illinois agility test.   Accept other relevant recognised tests of fitness. Test must match correct energy system. | |

**(b)** Prevention of injury in the lead-up to major tournaments is crucial. Explain two strategies the coaching staff could utilise to protect and ensure the players don’t get injured in the lead-up to the 2018 Hocket World Cup. **(6 marks)**

|  |  |
| --- | --- |
| Description | Mark |
| Identify injury prevention strategy | **1** |
| Accurate description of injury prevention strategy | **1** |
| Example relating to Hockey context | **1** |

**(c)** Young Hockeyroos player Georgia Wilson is an up-and-coming star. She had an injury setback recently in which she tore her hamstring in the lead-up to the Junior Hockey World Cup. Identify and explain the five main goals for rehabilitation that Georgia should be able to demonstrate before she can return to sport. **(10 marks)**

|  |  |
| --- | --- |
| Description | Marks |
| Correctly Identifies goal of rehabilitation | **1** |
| Accurately explains goal of rehabilitation | **1** |
| Restore range of motion:  She should be able to move through the full range of motion she could before the injury  Regain muscular strength:  She should be able to withstand load bearing on her muscles equal to or greater than her ability before the injury  Regain endurance and power:  She should be able to withstand her previous amount of resistance prior to the injury  Regain postural stability and balance:  She should be able to use her musculoskeletal system to demonstrate stability and balance at levels she was capable of before the injury, e.g. Ability to weight bear through injured area without losing balance  Maintain cardiorespiratory fitness:  Demonstration of cardiorespiratory fitness can include the ability to reach the same measured level of fitness that she could before the injury, e.g. Beep test score, ability to run out a whole game. | |

**Question 3 (18 marks)**

You are the first aid officer on duty at the local interschool football carnival. One of the players has a bad fall. Upon your approach to the injured athlete, you observe them clutching their shoulder. Describe how you would assess the extent of the injury. Describe what treatment you would immediately administer to the athlete. Identify the things that the injured athlete would need to avoid in the next 72 hours.

**Assessment:**

|  |  |
| --- | --- |
| Description | Marks |
| Correct naming of ALL of the TOTAPS acronym | 4 |
| Correct naming of 5 parts of the TOTAPS acronym | 3 |
| Correct naming of 3-4 parts of the TOTAPS acronym | 2 |
| Correct naming of 2 parts of the TOTAPS acronym | 1 |

|  |  |
| --- | --- |
| Description | Marks |
| Correct description of ALL of the TOTAPS acronym | 4 |
| Correct description of 5 parts of the TOTAPS acronym | 3 |
| Correct description of 3-4 parts of the TOTAPS acronym | 2 |
| Correct description of 2 parts of the TOTAPS acronym | 1 |
| Talk  Ask the player what happened. Where does it hurt? What kind of pain?  Observe  Look at the affected area for redness of swelling. Is the injured side different from the other side?  Touch  Touch will indicate warm of inflammation – also assess pain  Active Movement  Ask the injured player to move the injured part without any help  Passive Movement  If the player can move the injured part, carefully try to move it yourself through it’s full RoM.  Skills Test  Did the active and passive movement produce pain? If no, can the player stand and demonstrate some of the skills from the game carefully? If an injury is identified, remove the player from the activity immediately. | |

**Treatment:**

|  |  |
| --- | --- |
| Description | Marks |
| Correct naming of ALL of the RICER acronym | 4 |
| Correct naming of 4 parts of the RICER acronym | 3 |
| Correct naming of 3 parts of the RICER acronym | 2 |
| Correct naming of 2 parts of the RICER acronym | 1 |

|  |  |
| --- | --- |
| Description | Marks |
| Correct description of ALL of the RICER acronym | 4 |
| Correct description of 4 parts of the RICER acronym | 3 |
| Correct description of 3 parts of the RICER acronym | 2 |
| Correct description of 2 parts of the RICER acronym | 1 |
| Rest  Have the athlete not participate in activity to avoid further injuring the athlete  Ice  Have the athlete apply ice to the injured area to reduce pain and swelling for duration of 20 minutes on and 2 hours off.  Compression  Apply firm pressure around the injured area to minimise swelling.  Elevation  Have the athlete elevate the injury above the heart to reduce swelling/inflammation  Referral/Rehab  Refer the athlete to the appropriate medical professional(s) | |

**What to avoid:**

|  |  |
| --- | --- |
| Description | Marks |
| Correct naming of ALL of the HARM acronym | 2 |
| Correct naming of 2-3 parts of the HARM acronym | 1 |
| Heat  Alcohol  Running  Massage | |