Exercise Physiology Investigation - Fitness Profiling and assessment

**Question 1**

a) Using the space below draw and label a graph that indicates the interrelationship of the three energy systems. (5 marks)

1 mark each correctly labelled system, 1 mark each correctly labelled axis

b) Explain the contributions of the three energy systems during a game of Touch Football.

(6 marks)

* 1 mark correctly identifying time of use for ATP PC.
* 1 mark for further description/example

Can include sprint to the line to score, dive to touch, making a touch (shoot up) – any activity on field that is a very short, high intensity duration 10-20 second maximum.

* 1 mark for correctly identifying time of use for lactic acid system.
* 1 mark for further description/example relevant to touch. Can include activity longer than 10 seconds – high but not maximal effort such as 3 play ruck to gain ground, 6 count defensive play and repositioning, whole field sprint or chase. Or any other relevant example
* 1 mark for correctly identifying time use of aerobic system.
* 1 mark for description/example. Can include touch game lasts for over half an hour, need to utilise the aerobic system to be able to last the full game, periods of lower intensity on the field when the ball is not in play by athlete, repositioning, slow jog to remain behind play etc.

**Question 2**

Select 2 tests relevant to Touch Football that can measure the capacities of the energy systems. You must select one for each pathway. (2 marks)

1 mark each correct/relevant test selected

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**Question 3**

1. Outline the purpose of a fitness profile. Using a partner form your class as a subject, select appropriate tests and conduct them during class time to develop a detailed fitness profile for them. (5 marks)

* 2 marks for identifying and providing purpose of a fitness profile with detail.
* 1 mark purpose of fitness profile – lacking some detail.
* 3 marks for a profile that is fully filled out with correct profiling
* 2 marks for majority of profile completed – some gaps
* 1 mark for partially completed profile, many gaps

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| Test and component of fitness | result | Poor | Fair | Average | Good | Excellent |
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1. Are there any components of fitness that require training for improvement? (2 marks)

1 mark each correct identification of areas that require improvement – max of 2 marks

**Question 4**

Using your partners profile as a guide, select two components of fitness that require improvement (or maintenance if no improvement needed). For these components select **two** *methods of training,* explain each and provide an example of how each can be incorporated into a training program for improvement or maintenance (4 marks)

1 mark for the identification of each area of improvement and selection of a relevant training method (max 2 marks)

1 mark for each example (max of 2) that is relevant to the method of training

For example – cardiorespiratory fitness needs improving, he can do this by adopting fartlek training method. This can be done by jogging continuously around the touch field when the coach blows the whistle sprint until the whistle blows again then return to jogging, repeat for 5 min

**Question 5**

1. Define the following principles of training (4 marks)

1 mark each correct definition

Specificity

Training specifically for the demands of the sport – this includes the neural pathways, energy systems and muscle groups used in that activity. Or similar

Intensity

How hard a person trains, usually calculated as a percentage of the heart rate maximum or similar

Duration

The length of time of a training session or activity or similar

Progressive Overload

The gradual increase of the loading on our bodies during training for long term adaptations and improvements in fitness. Or similar

1. Using your partner’s fitness profile select *two principles of training* and indicate how these may be used to either enhance or improve a training program. (4 marks)

1 mark how each principle of training can be applied to the training program (2 marks max)

1 mark for each relevant example of application (2 marks)

For example: specificity in touch football – you must train specifically for the sport and energy systems and neuromuscular systems. Activities should include passing on the run, the more these passes are practiced under game like pressure the more fluid athletes will become during games in the execution of passes. Suicide type running at high intensity to mimic the fast paced forward and back running of the game etc.

**\*Not yet assessed – long term care of injured athlete, could include a question like from previous EST. has rolled an ankle and torn ligaments, outline the goals of rehab to return to playing touch or similar**

**\* Planning Sheet \***

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| **Fitness test selected** | **Reason selected** | **Result** |
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**Areas needing improvement**

**Ways to improve**