

“REACH YOUR PEAK” 2021

PEAK PHYS ED PRACTICE EXAMINATION

for VCE Unit 3 PHYSICAL EDUCATION

*This Practice Exam is NOT an official VCAA paper for the Physical Education written examination.
It may take slightly longer than 90 minutes to complete.*



Reading Time: 10 minutes

Writing Time: 90 minutes

Question and Answer Book- Structure of Book

<i>Number of questions</i>	<i>Number of questions to be answered</i>	<i>Number of Marks</i>
Multiple Choice - 10	10	10
Short Answer - 10	10	100
Totals	20	110 Marks

- Students are permitted to bring into the examination room: pens, pencils, highlighters, erasers, sharpeners and rulers
- Students are not permitted to bring into the examination room: blank sheets of paper and/or white out liquid/tape
- No calculator is allowed in this examination
- **STUDENTS ARE NOT PERMITTED TO BRING MOBILE PHONES AND/OR ANY OTHER ELECTRONIC COMMUNICATION DEVICES INTO THE EXAMINATION ROOM**

Materials Supplied

- Question and answer book

Instructions

- Answer all parts of all questions
- Tick the correct/most accurate multiple-choice responses in this book
- Questions should be answered in the spaces provided in this book
- All written responses must be in English

YOU SHOULD ATTEMPT THE QUESTIONS IN ORDER OF EASE – NOT NUMERICAL ORDER (MAKE SURE YOU READ ALL OF THE QUESTIONS BEFORE STARTING YOUR RESPONSES). USE A BLUE/BLACK PEN TO RECORD YOUR RESPONSES – AFTER YOU HAVE COMPLETED THE EXAM IN 90 MINS, GO BACK AND WITH A DIFFERENT COLORED PEN, COMPLETE ANY UNANSWERED QUESTIONS WITH THE AID OF YOUR NOTES/TEXT.

ANSWERS WILL BE DISCUSSED DURING THE CROSS-MARKING WEBINAR ON WED 14 JULY. IF YOU HAVE NOT REGISTERED ON TRYBOOKING THE RECORDING WILL BE SHARED ON INSTAGRAM AFTER THIS DATE.

SECTION A - Multiple-choice questions

Instructions

- Answer **all** questions on this exam paper or on the answer sheet provided (end of year exam).
- Tick the correct multiple-choice response; in exam ~ place answer sheet inside front cover of this book.
- One mark will be awarded for a correct response & no marks deducted for an incorrect response.
- No marks awarded if more than one response is completed for any question.

Question 1

During a 100m sprint, which of the following **is not** an acute cardiovascular response?

- A. Increased heart rate
- B. Increased blood pressure
- C. Increased maximum heart rate
- D. Increased cardiac output

Question 2

Random practice has slower rates of improvement during the training period, than at the cognitive and associative stages, yet is preferred by elite performers because it contributes to:

- A. Greater problem-solving ability specific to game situations
- B. Increased concentration
- C. More opportunities to receive augmented feedback
- D. Attention shifting from narrow internal to broad external

Question 3

A 20km race walker trains by walking at a pace that is just below his LIP. This means that:

- A. Any lactic acid that is produced will be oxidised before it gets a chance to accumulate
- B. He is likely to be able to walk at this pace for longer periods of time the more he trains
- C. He will develop increased lactate tolerance the longer he trains for
- D. His anaerobic glycolysis system will not be activated until later on in the training session/competition.

Question 4

Athletes are increasingly consuming carbohydrates and proteins within 30-45mins of finishing a competition or training in order to:

- A. Restore glycogen and muscle tissue to pre-exercise levels as quickly as possible
- B. Resynthesize ATP as quickly as possible
- C. Repair muscle tissue and rebuild enzymes
- D. Refuel whilst the circulatory system is still active and capable of higher absorption rates

Question 5

Two students stand at the free-throw line on a basketball court – a Year 3 student and a Year 12 student. They both attempt to score by shooting the ball through the basket. The Year 3 student will need a:

- A. Greater amount of impulse than the Y12 student to succeed
- B. Greater angle of release than the Y12 student to succeed
- C. Lower height of release than the Y12 student to succeed
- D. Greater speed of release than the Y12 student to succeed

Question 6

During the final 200m sprint at the end of the Tour de France last stage, the energy systems supplying most of the ATP fuelling muscles would be the:

- A. PC system
- B. ATP system
- C. Anaerobic glycolysis system
- D. Aerobic energy system

Question 7

For a primary student in Grade 3, a teacher might consider making a skill such as a basketball dribble move to being more “open” on the closed ➔ open skill continuum by:

- A. Moving from the gym to dribbling outdoors in the quadrangle
- B. Providing the student with a size 5 basketball instead of a size 4 basketball
- C. Asking the student to dribble around a classmate who is trying to ‘get the ball’
- D. Asking the student to dribble with their non-preferred hand

Question 8

A discus thrower using the rotational/spin technique is able to throw the discus further than athletes not using this technique due to producing greater:

- A. Torque
- B. Impulse
- C. Acceleration
- D. Summation of force

Question 9

When providing augmented feedback to elite baseball players, the following would bring about the largest improvements in performance:

- A. Knowledge of results
- B. Knowledge of performance
- C. Knowledge of concentration
- D. Knowledge of arousal levels

Question 10

To improve LIP a soccer midfielder would:

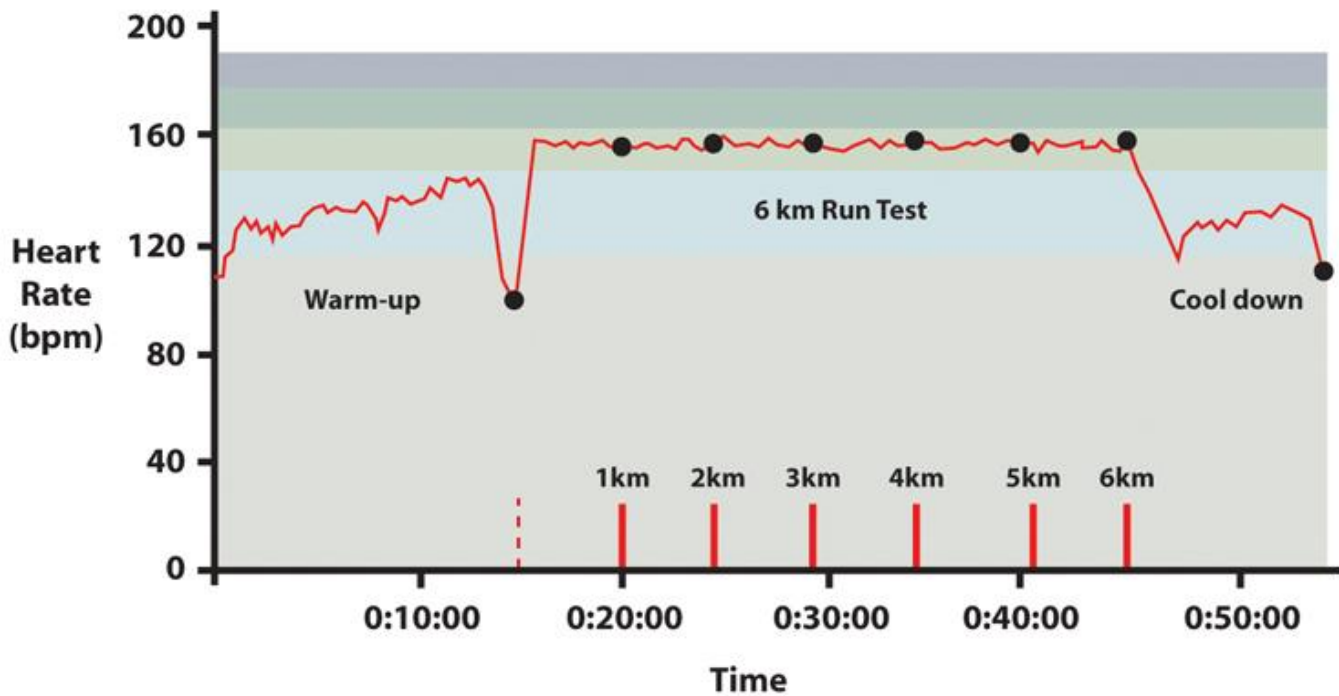
- A. Train above LIP in an effort to adapt to increased workloads
- B. Swim continuously for 30 minutes every day in addition to team training
- C. Run at 75% maxHR for 30 minutes on at least 3 days/week
- D. Train at or slightly below LIP for the majority of each session

END OF SECTION A – Multiple choice questions

SECTION B - Short answer questions

Question 1 (4 marks)

The following graph shows the heart rate during both the warm-up and cool down as well as during the 6km run test for an untrained, but active 25 year old.



a. On the above graph, clearly indicate **two** instances where oxygen deficit occurs.

2 marks

b. By referring to the above graph, discuss the type of recovery completed at the end of the warm-up as well as the end of the 6 km run.

2 marks

Question 2 (10 marks)

The world record for the 4 x 200m relay was set on 24th May 2014 by Jamaica in a time of 1:18.63. The world record for the 800m was set on 9th August 2012 by David Rudisha of Kenya at the London Olympics in a time of 1:40.91 (22 seconds slower than the relay time)

- a. Discuss the most likely reason for the differences in running times for the 800m events, by referring to the contribution from the energy systems in each situation. 4 marks

- b. Apart from increased muscle temperature, list **two** acute muscular responses the runners would experience whilst performing their events. 2 marks

- c. **(i)** The Kenyan runner, David Rudisha, spends a lot of his training involved in intermediate interval training trying to improve his anaerobic capacity.

Briefly discuss how improvements in this area would contribute to improved 800m times.

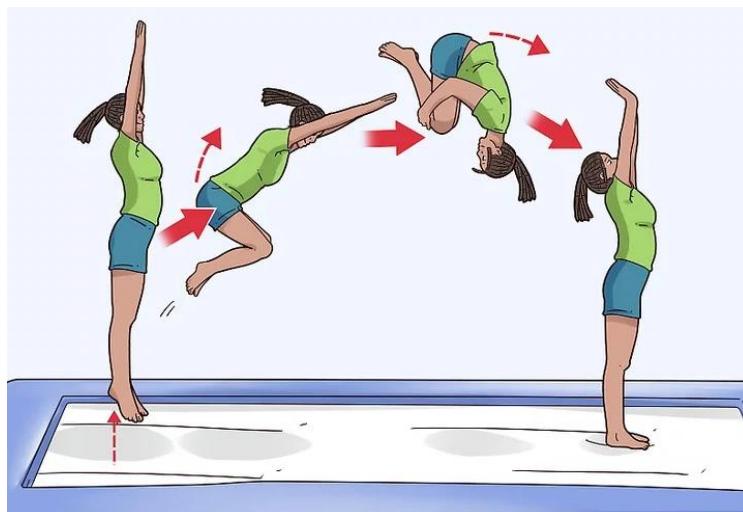
2 marks

(ii) Discuss why Rudisha would use a combination of active and passive recovery strategies during his training

2 marks

Question 3 (10 marks)

The following diagram shows a person performing a front flip on a trampoline:



a. The person on the trampoline weighs 60kg and she bounces off the trampoline at 6 m/s. Calculate her momentum upon bouncing off the trampoline.

1 mark

b. Clearly state how Newton's third law of motion applies to this trampolining example.

2 marks

c. What happens to angular momentum once the person leaves the trampoline mat?

1 mark

d. What can the person on the trampoline do as she makes contact with the trampoline matting to assist her in performing the forward somersault/flip? Briefly discuss the biomechanical principle associated with your suggestion that allows her to flip with greater ease. 1 + 2 = 3 marks

e. The person on the trampoline wanted to rebound higher in an effort to perform a double somersault/flip. What biomechanical principle would they be using if she rebounds to greater heights than she has in the image and then performs her somersault/flip. Discuss how this contributes to greater height after taking off. 1 + 2 = 3marks

Question 4 (11 marks)

The following data shows the 50m split times for two freestyle swimmers (Sun Yang and James Guy) at the 2015 World Championships.

Sun Yang: Men's 400m FC World Championships 2015			
Distance	Time	50m split	Difference
50m	00:26.06	26.06	
100m	00:54.15	28.09	2.03
150m	01:22.06	27.91	-0.18
200m	01:50.68	28.62	0.71
250m	02:18.81	28.13	-0.49
300m	02:47.19	28.38	0.25
350m	03:15.07	27.88	-0.50
400m	03:42.58	27.51	-0.37

James Guy: Men's 200m FC World Championships 2015			
Distance	Time	50m split	Difference
50m	00:24.53	24.53	
100m	00:50.99	26.46	1.93
150m	01:18.33	27.34	0.88
200m	01:45.14	26.81	-0.53

- a. At what stage of the race is Sun Yang (400m) accelerating the most?
Provide evidence from the above data to support your answer.

3 marks

- b.** Briefly discuss a biomechanical reason why the first 50m for both swimmers is considerably faster than any other 50m split during the race. 2 marks

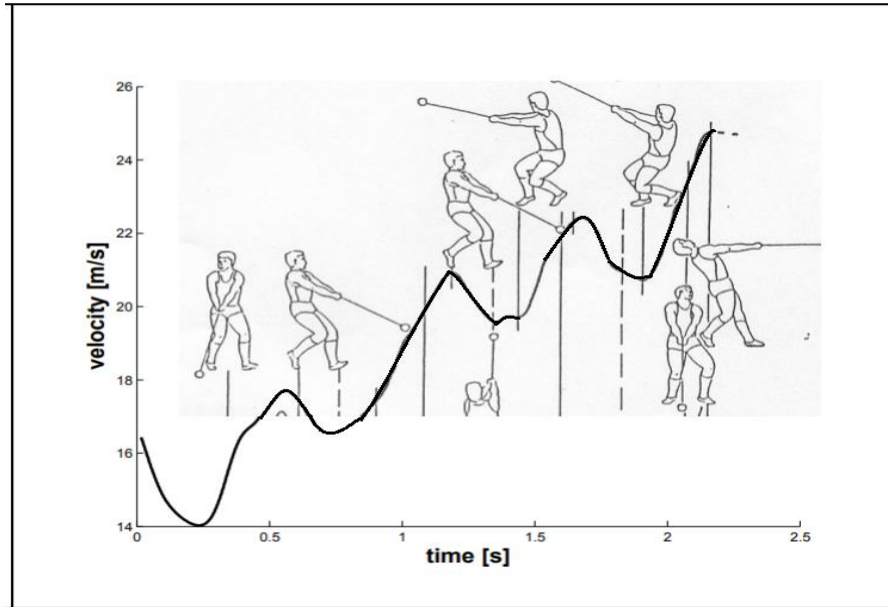
- c.** It is likely that James Guy produces larger amounts of lactate / H⁺ in the first 50m than whilst standing on the blocks waiting for the race to commence. Discuss a reason why this does not cause him to fatigue after the first 50m of the race. 2 marks

- d.** How would having a highly developed anaerobic capacity be of benefit to both swimmers? 2 marks

- e.** Which of the two swimmers will have the highest oxygen deficit – make sure you refer to the data to support your answer. 2 marks

Question 5 (7 marks)

The following image and graph reveals the velocity of the hammer (sporting implement) during the preparation and release phase of the hammer throw:



a. Does this performance require more/greater muscular strength or muscular power? Briefly justify your answer.

2 marks

b. How would impulse be calculated for this performance?

2 marks

c. During the 'spin' phase of the hammer throw, the performer tries to keep his feet at least shoulder width apart. Discuss what would happen if this gap was lessened and his feet actually came together during the 'spin' phase.

2 marks

d. Tick the correct response. During the spin phase, the hammer acceleration:

1 mark

Increases

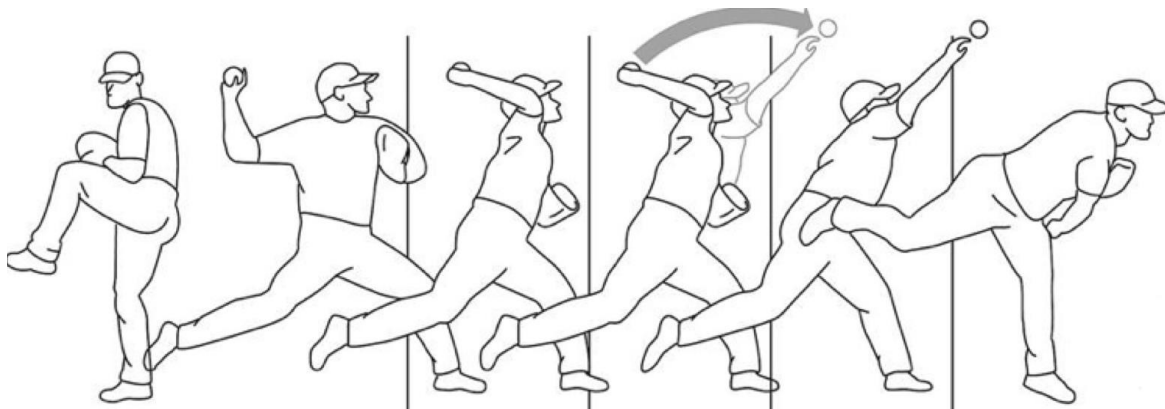
decreases

remains unchanged

QUESTION 6 (14 marks)

Baseball is a very popular sport which is played in most countries. The next set of questions relate to that sport.

a. The following image shows a baseball pitcher moving through the different phases during a pitch.



(i) Discuss how the player uses the principle of summation of momentum to pitch the baseball as fast as he can? 2 marks

(ii) From a biomechanical perspective, why does the player bend his leg/flex his knee before he then steps forwards at the start of his pitch. 2 marks

(iii) When considering skill acquisition principles, discuss **two** reasons why someone learning how to pitch will not be able to pitch the ball with the same speed or accuracy as an elite performer.

4 marks

b. The following images show a batter performing a drive (LEFT) as well as a bunt (RIGHT).



(i) The baseball player moves his right hand up the bat, higher than the mid-way point, when he wants to perform a bunt. What effect does this have on the 'resistance arm' and the amount of force that can be applied to the ball at point of contact?

2 marks

- (ii) It is common for the batter to swing and make contact with the ball resulting in an eccentric force. Describe the flight of a baseball that has had an eccentric force applied to it. 2marks

- (iii) After hitting the pitched ball, the player must sprint 27.5m to first base before the fielding team returns the ball to the first base person to get the runner out. List **two** acute respiratory responses that would occur in the runner. 2 marks

QUESTION 7 (14 marks)

A physical education teacher in a large school takes the Year 3 students for a 4-week Basketball unit (2 classes per week) in Term 1. Later that year (Term 3) he takes the Year 10 students for a Basketball unit consisting of 4 x 2 classes over the same time period.

- a. Complete the following table to highlight the differences between the Year 3 students and the Year 10 students. 8 marks

Skill Acquisition Consideration	Year 3 Students	Year 10 Students
Stage of Learning (most students likely to be experiencing)		
Stability of environment		
Most suitable practice type for skill development		
Most effective type of feedback		

- b. When working with the Year 10 students, the PE teacher introduces some task constraints in an effort to encourage them to develop new skills and strategies. Clearly describe **two** task constraints the teacher might use and discuss how these bring about increased skill development.

3 marks

Task constraint 1

How this improves skills

3 marks

Task constraint 2

How this improves skills

QUESTION 8 (12 marks)

The following photograph shows the time lapse movements performed by a female long jumper using the 'hang' technique.



a. By referring to the image above, clearly discuss how Newton's 3 Laws of Motion apply to the long jump.

6 marks

Newton's 1st Law

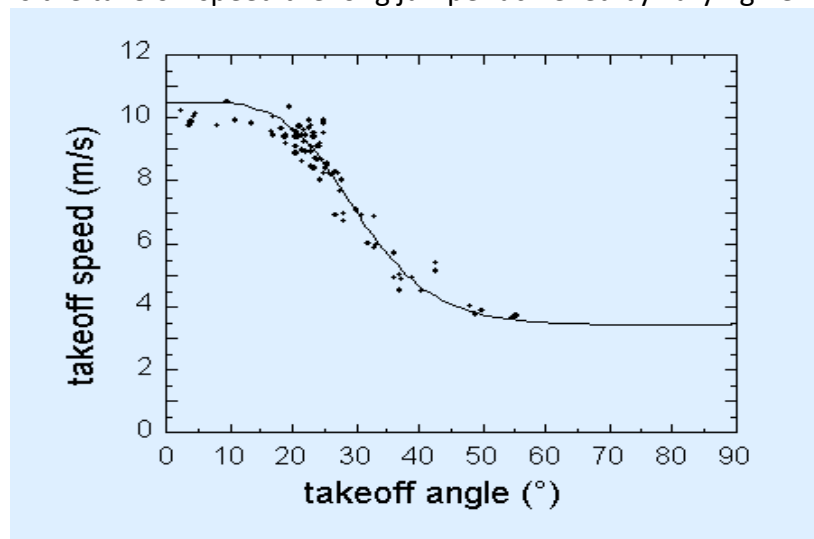
Newton's 2nd Law

Newton's 3rd Law

- b.** Discuss the reasons for any differences in the optimal take off angle that the long jumper would use contrasted to that used by a volleyball player jumping to perform a spike. Make sure you tick the optimal take-off angles for each performer in relation to 45 degrees (< 45 degrees; = 45 degrees or >45 degrees)
 2+2=4 marks

Volleyball Spike	< 45 degrees <input type="checkbox"/>	= 45 degrees <input type="checkbox"/>	>45 degrees <input type="checkbox"/>
Long Jump Hang Technique	< 45 degrees <input type="checkbox"/>	= 45 degrees <input type="checkbox"/>	>45 degrees <input type="checkbox"/>

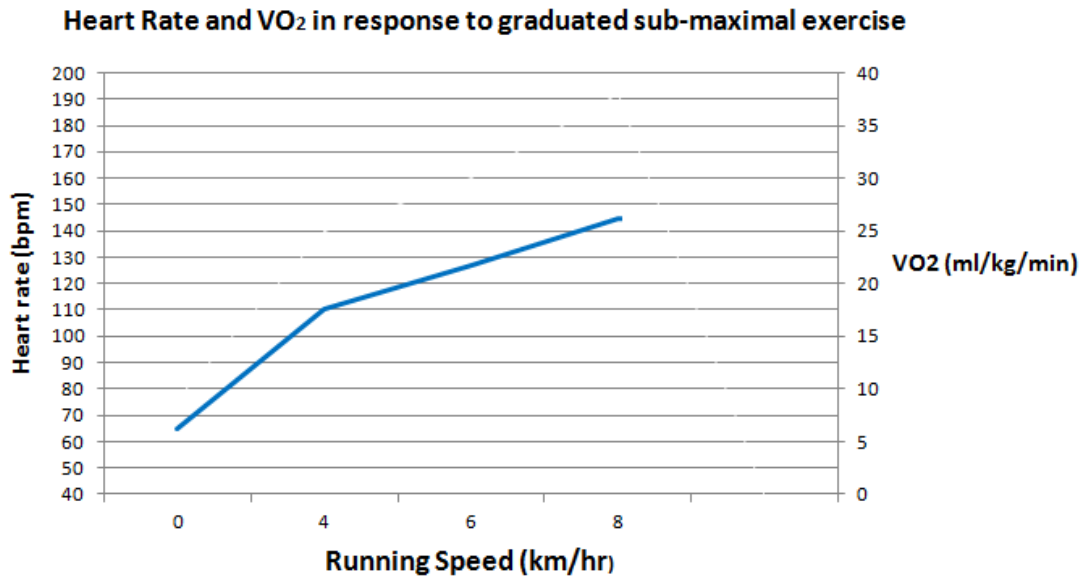
- c.** The distance obtained by the long jumper is a combination of horizontal and vertical components. The following image shows the take off speed the long jumper achieved by varying her take off angle.



By referring to the above graph and your knowledge of projectile motions, what take off angle do you believe will result in the longest distances jumped. What effect does this have on the long jump performance?
 2 marks

QUESTION 9 (8 marks)

The following graph reveals the heart rate and oxygen uptake for a 20 year old female running on a treadmill.



- a. In the table below some of the answers have already been completed, and you are required to complete the others. Each acute response to the treadmill test must be different.

4 marks

Body System	Acute Response 1	Acute Response 2	Acute Response 3
Cardiovascular	Increased heart rate		Increased systolic blood pressure
Respiratory		Increased oxygen uptake	
Muscular	Increased muscle temperature		Increased enzyme activity

- b. A closer look at the graph reveals that the female’s heart rate from the 4 minute stage of the test increases at a slower rate than for the first 4 minutes of the test. Discuss **two** reasons why this may be the case.

2 marks

Reason 1

Reason 2

2 marks

Question 10. (10 marks)

Badminton is a sport that can be played as singles or doubles and a match generally takes between 30 and 45 minutes. Players are involved in high-intensity, short-duration movements, such as serving, smashing, scampering forwards and backwards and rapid directional changes. The game is explosive in nature with rest periods between points.

- a. Using the information provided, and the graph below, describe the interplay of the three energy systems in badminton. Your response should also make reference to the rate and capacity of the energy systems at various stages of the badminton match. 6 marks

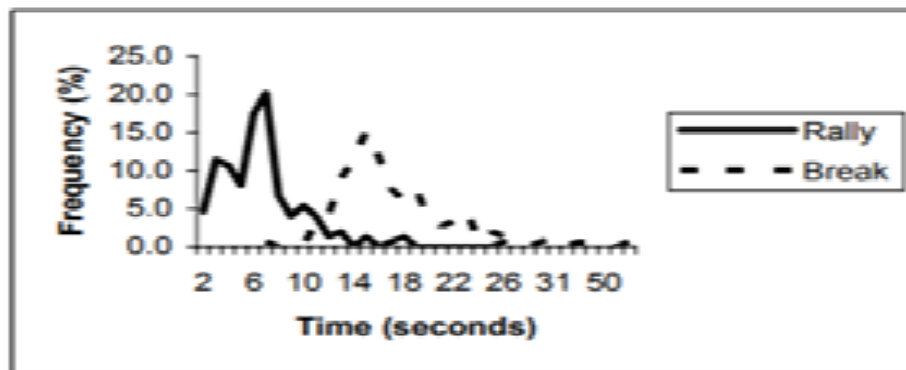


Figure 1 – Most frequent value of rally and break duration

- b.** Some badminton matches can go for over 60 minutes if games are close and consist of long rallies. Briefly discuss the food fuel usage (fats and carbohydrates) during a badminton match lasting 70 minutes. 2 marks

- c.** Following a match lasting 70 minutes, discuss why consuming carbohydrates and proteins would be better for the player's recovery than simply consuming carbohydrates. 2 marks

END OF EXAM