##### AEPES

##### End of Year Examination, 2021

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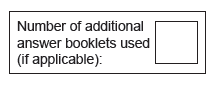
##### Question/Answer Booklet

**Students, please place your name in this box**

**Time allowed for this paper**

Reading time before commencing work: Ten minutes

Working time for paper: Two and a half hours

 **Materials required/recommended for this paper**

***To be provided by the supervisor***

This Question/Answer Booklet

Multiple-Choice Answer Sheet

Extended answer booklet (lined paper)

***To be provided by the candidate***

Standard items: pens (blue.black preferred), pencils (including coloured), sharpener, correction fluid/tape, eraser, ruler, highlighters

Special items: non-programmable calculators approved for use in the WACE examinations

**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.

### **Structure of this paper**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Section | Number of questions available | No. of questions to be attempted | Suggested working time (minutes) | Marks available |
| Section One:  Multiple-Choice | 20 | 20 | 20 | 20 |
| Section Two:  Short Answer | 7 | 7 | 70 | 51 |
| Section Three:  Extended Answer | 3 | 3 | 60 | 45 |
|  |  |  | Total | 116 |

**Instructions to candidates**

1. The rules for the conduct of this examination have been outlined. Sitting this examination implies that you agree to abide by these rules.
2. Section One: Answer **all** questions by circling your answer on

the question sheet. Use a blue or black pen or a B or 2B pencil.

3. Section Two: Answer **all** questions.

Answers are to be written in this Question/Answer booklet using blue or black pen or a B or 2B pencil.

4. Section Three: Answer **all** of the four questions available.

Answers to each question need to be written on the lined paper booklet provided with the question number clearly marked.

Use a new page for each question.

**SECTION ONE: MULTIPLE CHOICE** **(20 marks)**

Record an answer for questions 1 – 20 by marking your choice on the separate Multiple-Choice Answer Sheet using a blue or black pen or a B or 2B pencil. Each question is worth one mark.

If you make an error, follow the instructions given to you on the Multiple-Choice Answer Sheet.

Suggested working time for this section is 20 minutes.

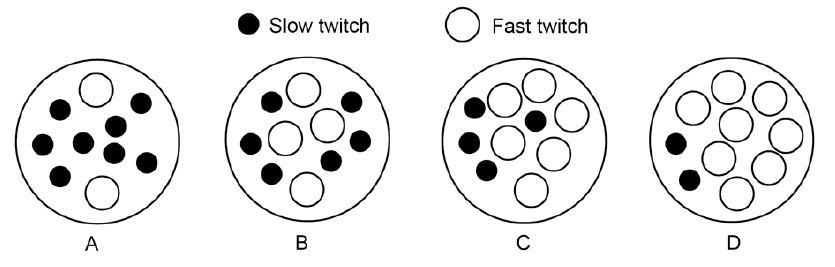
1. The Inferior Vena Cava carries:

1. Oxygenated blood from the body to the heart
2. Deoxygenated blood from the body to the heart
3. Oxygenated blood from the heart to the body
4. Deoxygenated blood from the heart to the body

2. Cardiac Output is a product of:

1. Blood Pressure x Heart Rate (beats per minute)
2. Blood Pressure x Stroke Volume
3. Stroke Volume x Heart Rate (beats per minute)
4. Diastole x Systole

3. Which if the following muscle samples would **most beneficial** an elite sprinter?



1. A
2. B
3. C
4. D

4. The energy used by muscles to contract and produce movement comes from a chemical compound called:

1. Adenosine Triphosphate (ATP)
2. Creatine Phosphate (CP)
3. Adenosine Diphosphate (ADP)
4. Lactic Acid

5. The energy used by a runner to complete a 400m sprint is primarily provided by the:

1. Aerobic System
2. Lactic Acid System
3. Muscles stores of ATP
4. ATP-CP System

6. Which of the following muscles produces extension at the elbow?

1. Deltoids
2. Biceps
3. Quadriceps Group
4. Triceps

7. In completing their event a 5000m runner obtains energy for their muscles:

1. From their aerobic energy system
2. From their anaerobic energy systems
3. From an even contribution by the aerobic and anaerobic pathways
4. Primarily from their aerobic energy system with some contribution from their anaerobic energy systems

8. In the sport of rugby, the ball carrier has to react to the defence quickly, often changing his initial running direction. This is a characteristic of which component of fitness?

1. Muscular strength
2. Agility
3. Muscular power
4. Flexibility

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9. The primary food fuel for energy production during high intensity physical activity is

1. PC
2. Protein
3. Fats
4. Carbohydrates

10. ‘You get what you train for’ is a phrase that could be expressed more correctly by the term:

1. Overload
2. Specificity
3. Intensity
4. Training effect

11. For an athlete to increase muscular strength, he/she should:

1. Use heavy weights with many repetitions
2. Use light weights with many repetitions
3. Use heavy weights with few repetitions
4. Use lights weights with few repetitions

12. Which of the following statements about the mechanics of breathing is correct?

1. Inhalation is caused by the stimulation of alveoli muscle, resulting in a vacuum in the lungs for an air inflow
2. Inhalation is caused by the contraction of the diaphragm muscle, which increases the chest volume and in turn creates a negative pressure for air inflow
3. Inhalation is a passive process involving the stimulation of the alveoli and the

relaxation and flattening of the diaphragm muscle

1. Inhalation is a passive process involving the relaxation of the lung and alveoli tissues to open the airways for air inflow

13. Which of the following are both an immediate response and a long-term adaptation to

exercise?

1. Increased stroke volume
2. Increased blood flow to the muscles
3. Increased arterial *–* venous *O2* difference
4. All of the above

14. An athlete is said to be in oxygen deficit when their oxygen uptake is:

1. less than the oxygen required to produce sufficient energy aerobically
2. greater than the oxygen required to produce sufficient energy aerobically
3. equal to oxygen required to produce sufficient energy aerobically
4. below resting oxygen levels to produce energy aerobically

15. Which of the following is **not an immediate response** to exercise?

1. Increased respiratory rate
2. Increased blood pressure
3. Decreased resting heart rate
4. Decreased creatine phosphate stores

16. Blood flow changes are an immediate response to exercise. Which of the following parts of the body would you expect to have decreased blood flow in response to running?

1. Skeletal muscles
2. Heart
3. Skin
4. Abdominal organs

17. Which of the following **does not** occur during recovery from exercise?

1. Removal of lactic acid
2. Replenish ADP stores
3. Supply oxygen to the heart and respiratory muscles
4. Supply oxygen to the body tissues

18. Which muscle group is primarily responsible for flexion, internal rotation and adduction of the arm?

1. Pectoral muscle
2. Deltoid muscle
3. Trapezius
4. Latissimus Dorsi

19. The tibialis anterior muscle contracts to cause which of the following movements of the ankle joint?

1. Pronation
2. Dorsi flexion
3. Plantar flexion
4. Rotation

20. The amount of air inhaled or exhaled with one breath is referred to as:

1. Respiratory rate
2. Stroke volume
3. Gaseous exchange
4. Tidal volume

**END OF SECTION ONE**

**SECTION TWO: SHORT ANSWER (55 MARKS)**

There are eight questions in this section. **Attempt all questions**.

Write your answer in the space provided. If room is insufficient, complete the question on the pages provided at the back of this booklet. Ensure that you clearly identify each answer.

Suggested working time for this section is 70 minutes.

**Question 1 (12 marks)**

The human body uses 3 Energy Systems to provide the energy needed to re-form ATP. Complete the following table to show the duration, fuel used and by-products of each system plus an example of an athletic event that primarily uses each system.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Energy System | Duration @ max | Fuel Used | By-products | Sporting Example |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

**Question 2 (6 marks)**

Using the quadriceps and hamstrings muscles as examples, explain how muscles work in pairs to produce coordinated movement.

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**Question 3 (9 Marks)**

In the space provide draw and label a human heart from the posterior view.

**Question 4 (4 marks)**

Identify and briefly explain the different factors that make gas exchange in the lungs possible.

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**Question 5**



Diagram 1 Diagram 2

The diagrams below indicate the mechanics of breathing.

(a) Match each of the following labels to the correct diagram number. **(5 marks)**

|  |  |
| --- | --- |
|  | **Diagram Number** |
| **(i) Exhalation phase** |  |
| **(ii) Diaphragm contracting** |  |
| **(iii) Rib cage expanding** |  |
| **(iv) High pressure lungs – lower pressure outside body** |  |
| **(v) Lower pressure lungs- higher pressure outside body** |  |
|  |  |

**Question 6 (5 marks)**

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(a) Insert labels for the **three** structures indicated in the above diagram. (3 marks)

(b) Describe how gas exchange occurs at the alveoli. (2 marks)

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**Question 7 (4 Marks)**

List the 4 primary components of blood.

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**Question 8 (6 Marks)**

After a period of eight weeks of regular, programmed training an athlete’s body will develop long term adaptations. For the circulatory system identify **three** of these adaptations and describe how an athlete’s body will have adapted over the duration of the training program?

|  |  |
| --- | --- |
| Adaptation | Description |
|  |  |
|  |  |
|  |  |

**END OF SECTION TWO**

**SECTION THREE: EXTENDED ANSWER (45 MARKS)**

There are three questions in this section. **Attempt all questions**.

Write your answers on the lined pages provided. Ensure that you clearly identify each answer.

Suggested working time for this section is 60 minutes.

**Question 1 (15 marks)**

The fitness required to be an elite endurance athlete such as a marathon runner is developed over many years of training.



1. Identify and describe 5 important long term adaptations to training for marathon runners and explain how these adaptations will enhance performance.

(7 marks)

1. Describe the methods of training that would be used and the principles of training that would be applied in a training program for a marathon runner. Provide a reason for each of your answers.

(8 marks)

**Question 2 (15 marks)**

The energy system and components of fitness requirements within a particular sport can alter depending on the different demands of different playing positions.

Select a sport that you are familiar with and, using examples, discuss how and why the energy system and components of fitness requirements are different for two different playing positions within that sport. Include in your answer a description of the two different playing positions.

**Question 3 (15 marks)**

The pre-season training program outlined below has been designed to prepare a team sport (e.g. soccer, netball, football) player for the start of a new season. No other training sessions have been prescribed for the player in addition to those outlined in the program below. Use the data in the training program below to answer the questions that follow.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Sun** | **Mon** | **Tues** | **Wed** | **Thur** | **Fri** | **Sat** |
| **Week 1** |  | 10 min jog |  | 10 min cycle |  | 10 min swim | 10 min jog |
| **Week 2** |  | 11 min jog |  | 11 min cycle |  | 11 min swim | 11 min jog |
| **Week 3** |  | 20 min jog |  | 20 min cycle |  | 20 min swim | 20 min jog |
| **Week 4** |  | 22 min jog |  | 22 min cycle |  | 22 min swim | 22 min jog |

1. Explain why the pre-season training program is inadequate in terms of the principles of training that have not been correctly applied in the program. (6 marks)
2. Identify 3 training methods that have not been used in the program that a pre-season team sport program should include. Explain why these training types should be incorporated into the program. (9 marks)

|  |  |
| --- | --- |
|  |  |

**End of Questions**