





# G.C.S.E PHYSICAL EDUCATION HOMEWORK

TOPIC: 1.2.4

## A HEALTHY, ACTIVE LIFESTYLE AND YOUR MUSCULAR SYSTEM

SCORE			
GRADE		TARGET	
DIVISION			
PRAISE  			
ACTION REQUIRED  			
STUDENT FEEDBACK			

A*	A	B	C	D	E	F	G	U
90%	80%	70%	60%	50%	40%	30%	20%	10%

NAME: \_\_\_\_\_

GCSE PE TEACHER: \_\_\_\_\_

1)

Which of the following statements describes an isotonic muscle contraction?

- A Muscle contraction with no physical movement
- B A constant state of tension in the muscle even when 'at rest'
- C Muscle contraction resulting in movement
- D When a muscle relaxes to allow another muscle to contract

(1)

2)

(i) Which one of the following muscles is contracting to allow the cyclist in **Figure 1** to flex his leg at the knee?

(1)



**Figure 1**

- A Trapezius
- B Hamstrings
- C Gastrocnemius
- D Quadriceps

3)

Which **one** of the following statements correctly explains the term isometric?

(1)

- A An isometric muscle contraction does not result in movement
- B A gymnast running across the floor towards the vault is using isometric muscle contractions
- C A swimmer using her leg muscles to 'explode' from the blocks when the whistle blows uses isometric contractions
- D An isometric muscle contraction is less strenuous than an isotonic contraction. This means the muscle can continue to work for longer.

4)

Which **one** of the following is the correct statement about muscle action and antagonistic muscle pairs?

(1)

- A** When a muscle contracts it pushes a bone, for example, the biceps and triceps
- B** Movement is brought about through antagonistic pairs, for example, the pectorals and abdominals
- C** Muscles are arranged in pairs, for example, the hamstrings and quadriceps
- D** When one muscle contracts the other relaxes to bring about movement, for example, the trapezius and latissimus dorsi

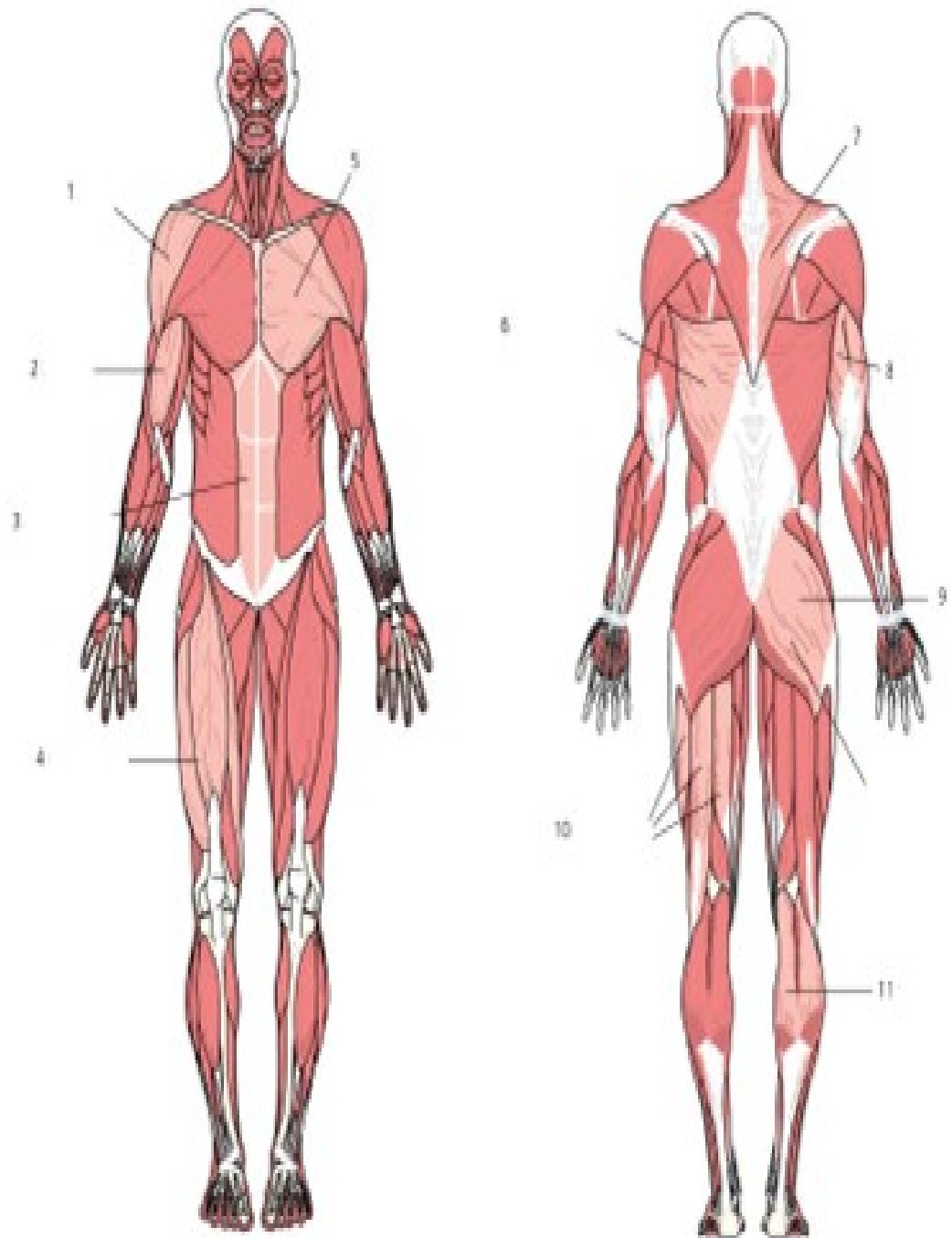
5)

Which of the following muscles adduct the upper arm at the shoulder as a swimmer moves his arms in preparation for a dive from the starting blocks?

- A** deltoids
- B** trapezius
- C** pectorals
- D** biceps.

(1)

6)



Label the diagram (11)

7)

. Taking part in exercise will affect the body systems. Complete the table below by identifying for each of the body systems:

(a) an immediate effect of exercise

(3)

(b) the effect of regular training and exercise.

(4)

Body system	(a) Immediate effect of exercise	(b) Effect of regular training and exercise
Respiratory		
Circulatory		
Skeletal		
Muscular		

8)

Complete the statements below by identifying which muscles are contracting to allow the squash player in **Figure 3** to achieve the described actions.



**Figure 3**

- (a) The racket arm is bent at the elbow due to the contraction of the ..... (1)
- (b) The leading leg is straight at the knee due to the contraction of the ..... (1)
- (c) The player pushes off the toes of the trailing leg due to the contraction of the ..... (1)
- (d) The non racket arm has been taken away from the body at the shoulder by the contraction of the ..... to help the player maintain balance. (1)
- (e) The player rotates at the trunk as she strikes the ball and follows through due to the contraction of the ..... (1)

9)

- (a) Figure 4 shows a high board diver in flight.  
Complete the following statements about the diver.



Figure 4

- (i) The high diver has ..... his legs at the knee and folded his body by ..... at the ..... joint to allow him to bend forward. (3)
- (ii) The diver's arms are ..... at the elbow. The muscle that contracts to bring about this movement is the ..... (2)
- (b) Movement occurs at the joints. The hip and shoulder provide the greatest range of movement in the body. What type of synovial joint are the hip and shoulder? ..... (1)

10)

- (vi) Give two effects of this type of regular training on the leg muscles of the athlete.

Effect 1 .....

.....

Effect 2 .....

.....

(2)

11)

(b) Where are the hamstrings found in the body?

..... (1)

(c) (i) Name the muscle that works antagonistically with the hamstrings.

..... (1)

(ii) Explain the term **antagonistic** in relation to muscle action.

.....  
.....  
..... (1)

12)

(e) Squash involves a lot of quick, sudden, explosive movements.

(i) Name the muscle fibre type most suited to these types of movements.

..... (1)

(ii) Explain a disadvantage of this muscle fibre type.

..... (1)

(iii) Name a training method that would be suitable to improve the efficiency of these muscle fibre types.

..... (1)



13)

**12** Figure 7 shows two basketball players. One player has flexed his arm at the elbow to control the ball. His opponent has moved his extended arm away from the mid-line of the body to try to intercept the next pass.



**Figure 7**

(a) Name the muscle that contracts in order to flex the arm at the elbow.

(1)

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(b) Name the joint action occurring at the shoulder as the arm moves away from the mid-line of the body.

(1)

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**(Total for Question 12 = 2 marks)**

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14)

12 Several muscles are listed in the table below.

Abdominals	Triceps	Gastrocnemius	Gluteals
Latissimus dorsi	Pectorals	Quadriceps	Trapezius

Using the muscles in the table, match the correct muscle to the stated action in each of the following statements.

(a) Moves the thigh backward at the hip (hip extension).

(1)

(b) Moves the upper arm back and inwards towards the body.

(1)

(c) Adducts the upper arm at the shoulder.

(1)

(Total for Question 12 = 3 marks)

13 The following are two training adaptations:

- muscular hypertrophy
- increased bone density

(a) Identify the method of training that is **most likely** to cause muscular hypertrophy.

(1)

(b) Identify an exercise activity that will result in an increase in bone density.

(1)

(Total for Question 13 = 2 marks)



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**(Total for Question 15 = 6 marks)**

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CIRCLE A FACE	WHY?
	I am confident with these parts of the topic.....
	I am unsure about these elements of the topic.....
	I am struggling with the following parts of this topic.....

