

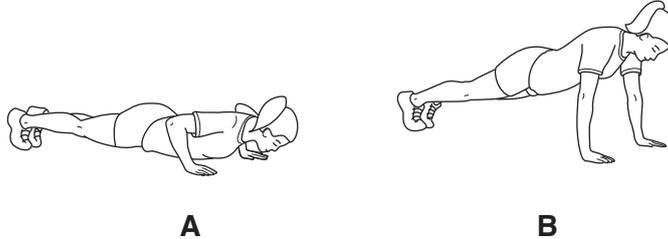


Answer **all** questions.

**Section A: Applied anatomy and physiology**

- 1 (a) Describe, using sporting examples, the role of the pronator teres muscle and the role of the supinator muscle. [4]

- (b) The diagrams show a performance of the upwards phase of a press-up (or push-up).



- (i) Identify the items 1–4 in the table to describe a movement analysis of the shoulder and elbow joints from position **A** to position **B**. Your analysis should include the type of movement occurring and the main agonist.

	type of movement occurring	main agonist
shoulder joint	1	2
elbow joint	3	4

[4]

- (ii) Explain how the main agonist at the elbow performs **three** different types of muscle contraction during a press-up. [3]

- (c) (i) Define the following terms and state appropriate units for each.

- stroke volume
- cardiac output
- heart rate

[3]

- (ii) State a formula to calculate maximum heart rate. [1]

- (d) Describe the route of blood from the right ventricle to the left ventricle. [4]

- (e) The respiratory system plays an important role in gaseous exchange.

- (i) Describe how neural and chemical factors control ventilation during exercise. [4]

- (ii) Explain the process of gaseous exchange between the capillaries and muscles. [3]

- (iii) Explain how the structure of the lungs assists the process of gaseous exchange. [4]

[Total: 30]

**Section B: Acquiring, developing and performing movement skills**

- 2 (a) Skilful performances are learned, aesthetically pleasing and follow a technical model.  
Identify **three** other characteristics of skilful performance. [3]
- (b) Explain the term *gross motor ability* and the term *psychomotor ability*. [2]
- (c) Skilled movements are controlled by motor programmes.
- (i) Explain, using a practical example, the term *executive motor programme*. [4]
- (ii) Describe closed-loop control of motor programmes. [3]
- (d) (i) State the main functions of feedback when learning a skill. [3]
- (ii) Explain why feedback should differ between the associative and autonomous phases of learning. [4]
- (e) (i) State the relationship between movement time, response time and reaction time. [1]
- (ii) Suggest strategies that a performer could use to reduce their response time. [4]
- (f) A performer's level of arousal often influences their performance of movement skills.  
Explain, using the inverted-U theory, how the level of arousal can affect the performance of a movement skill. [6]

[Total: 30]

**Section C: Contemporary studies in physical education and sport**

- 3 (a) Physical performance falls into the activity categories of play, physical recreation, sport and physical education.
- (i) Describe, using a named physical activity, **four** similarities between play and physical recreation. [4]
  - (ii) State **four** differences between play and sport. [4]
- (b) (i) Describe what is meant by the term *elite performer*. [2]
- (ii) Suggest physical and psychological qualities that are required by a performer to achieve excellence. [4]
- (c) Explain why many governments try to increase participation in physical activities. [4]
- (d) Countries have different approaches to the development of elite sport.  
Suggest the benefits to a country of investing heavily in developing elite sport. [4]
- (e) Describe the potential negative effects on a performer's ethics of trying to achieve excellence in sport. [3]
- (f) Outline the disadvantages to sport of increased control by the media. [5]

[Total: 30]

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