

SECTION ONE

Answer ALL questions.

For each question, choose an answer A, B, C or D and put a cross in the box. Mark only one answer for each question. If you change your mind about an answer, put a line through the box and then mark your new answer with a cross.

eg: Mark the box like this:

<input type="checkbox"/>	A
<input type="checkbox"/>	B
<input checked="" type="checkbox"/>	C <i>This shows your answer</i>
<input type="checkbox"/>	D

If you change your mind, mark the boxes like this:

<input checked="" type="checkbox"/>	A <i>This shows your final answer</i>
<input type="checkbox"/>	B
<input checked="" type="checkbox"/>	C <i>First answer</i>
<input type="checkbox"/>	D

1. (a) Which of the following training methods is **most** likely to result in improved cardiovascular fitness for a long distance runner?

- A Continuous
- B Weight
- C Interval
- D Circuit

(1)

(b) Which of the following activities would be **most** suitable to include in a training programme designed to improve **strength** for a shot putter?

- A Throwing a tennis ball to correct technique.
- B Weight training, using heavy weights, with few repetitions.
- C Swimming training.
- D Weight training, using light weights, with many repetitions.

(1)

(c) Health is:

- A A capability of the heart, blood vessels, lungs and muscles to function at optimal efficiency.
- B The ability to meet the demands of the environment.
- C A state of complete mental, physical and social well-being, and not merely the absence of disease and infirmity.
- D Training regularly.

(1)

(d) Obese is:

- A Having an excess of muscle which restricts mobility.
- B The percentage of body weight which is fat, muscle and bone.
- C Muscles in a state of slight tension.
- D Being very overfat.

(1)

(e) Athlete's foot is caused by:

- A An increase in foot size due to training.
- B A virus.
- C A fungus.
- D An injury associated with 100 m runners.

(1)

(f) Which of the following activities would present an unsupervised beginner with the **greatest** risk?

- A Skiing
- B Table Tennis
- C Badminton
- D Aerobics

(1)

(g) Which of the following is a **TRUE** statement about tennis or golfer's elbow?

- A You can only get tennis or golfer's elbow if you play tennis or golf.
- B Tennis and golfer's elbow is a joint injury.
- C Tennis and golfer's elbow is a soft tissue injury.
- D Tennis or golfer's elbow can be caused by under-use of the muscles in the lower arm.

(1)

(h) Which of the following statements describes the double pump action of the heart?

- A The amount of blood pumped from the heart per minute.
- B Blood is pumped out of the atria to the ventricles and then from the ventricles to the lungs and to the body.
- C Blood is pumped from the ventricles to the lungs and to the body.
- D The pumping of the right and left ventricles.

(1)

(i) Ossification is:

- A The formation of bone from cartilage.
- B The area of growth within a bone.
- C The formation of cartilage from bone.
- D The outer skin surrounding the bone.

(1)

(j) What type of joint is formed by the **atlas and axis** at the neck?

- A Hinge
- B Ball and socket
- C Ball
- D Pivot

(1)

Q1

(Total 10 marks)

TOTAL FOR SECTION ONE: 10 MARKS

SECTION TWO

Answer all questions

2. Hugh is 16 years old. Although he has always enjoyed PE, he is very shy and overweight.

Complete the table below stating **THREE** possible benefits of Hugh joining a sports club. Explain how joining a club may achieve these benefits.

Benefit		How Achieved
1		
2		
3		

(Total 6 marks)

Q2

3. **Figure 1** shows a badminton player about to play a shot.

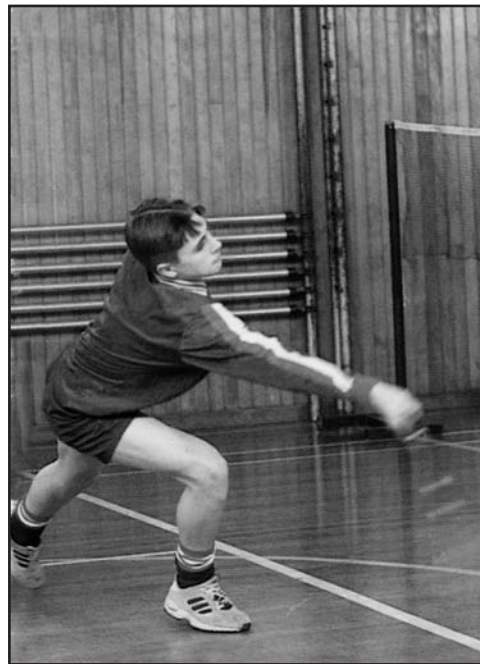


Figure 1

(a) The flexibility of the player helps him to reach the shuttlecock. Define the term ‘flexibility’.

.....

(1)

(b) Complete the table below by naming **TWO** other components of Health Related Exercise that will be important to the badminton player’s success. Explain how these components will help him improve his performance.

Component of health related exercise		How component helps performance
1		
2		

(4)

(Total 5 marks)

Q3

4. Figure 2 shows performers participating in physical activity.

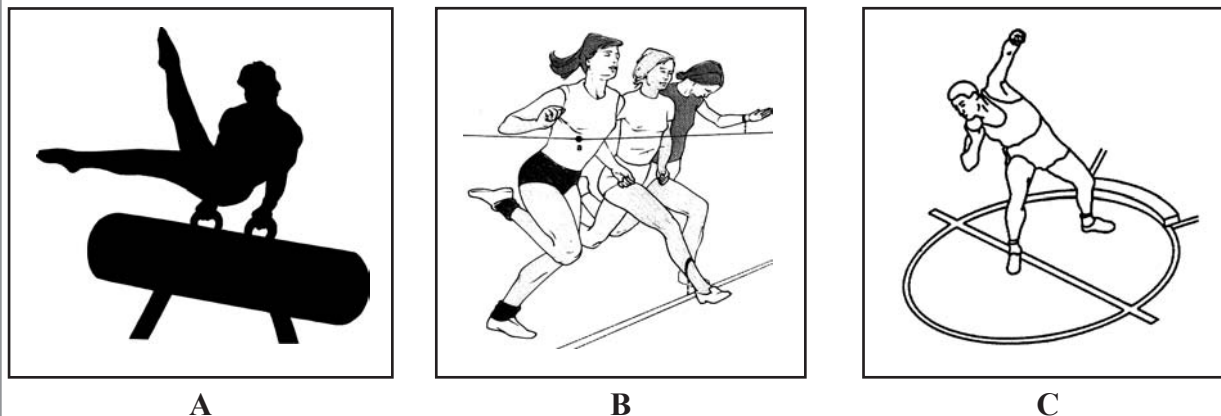


Figure 2

Complete the table below naming **ONE** component of Skill Related Fitness that will be important to each performer. Explain how these components will help each performer in his/her activity. You **must** choose a different component for each performer.

Performer	Component of skill related fitness	How component of skill related fitness helps performance
A: GYMNAST		
B: SPRINTER		
C: SHOT PUTTER		

(Total 6 marks)

Q4

5. The **F.I.T.T.** principle is an important principle of training. Susanne is a hockey player and she has been applying the F.I.T.T. principle to her Personal Exercise Programme.

(a) Complete the following statements about the F.I.T.T. principle by filling in the missing words.

(i) 'F' stands for and means how often you train. (1)

(ii) **Intensity** refers to how you work when training. (1)

(iii) 'T' refers to and means how long each training session lasts. (1)

(iv) **Type** means that you should make sure that your training programme the activity you are training for. (1)

(b) The following statements explain how Susanne has applied the F.I.T.T. principle to her training. Complete each statement.

(i) Instead of training once a week, she now trains times per week. (1)

(ii) Instead of working at 50% of her maximum she now works at (1)

(iii) Instead of working for 30 minutes per session, she now works for minutes. (1)

(Total 7 marks)

Q5

6. (a) Complete the table below by ticking the training methods that you think would be **most** likely to increase the aerobic and anaerobic fitness of an athlete. You **may** tick more than one training method for each aspect of fitness.

	Interval	Circuit	Weight
Example: Strength			✓
Aerobic fitness			
Anaerobic fitness			

(4)

(b) What **extreme body type** (somatotype) is associated with elite athletes who carry out a lot of

(i) strength training (1)

(ii) continuous training (1)

(Total 6 marks)

Q6

7. Referees and umpires help prevent injury to players by enforcing the rules of an activity.

(a) The chances of becoming injured are also reduced by **balancing competition**. Explain the term 'balancing competition'.

..... (1)

(b) State **FOUR** ways that competition in activities could be balanced.

1. (1)

2. (1)

3. (1)

4. (1)

(c) Name an activity of your choice, giving specific examples of **TWO** ways in which competition within that activity is balanced.

ACTIVITY

1. (1)

2. (1)

(d) State **THREE** other ways (apart from obeying the rules and balancing competition), that performers can reduce the risk of injury.

1. (1)

2. (1)

3. (1)

(Total 10 marks)

Q7

--	--

8. (a) **Figure 3** shows a swimmer placed in the recovery position at the side of a swimming pool.



Figure 3

- (i) When would someone be placed in the recovery position?

..... (1)

- (ii) What might have happened to the swimmer to require her to be placed in the recovery position?

..... (1)

- (iii) Why would the swimmer be placed in the recovery position rather than laid on her back or front on the poolside?

..... (1)

- (iv) Once the swimmer has been placed in the recovery position, what should the First Aider do whilst waiting for expert help to arrive?

..... (1)

(b) **Figure 4** shows the position of the head of a casualty during mouth-to-mouth ventilation.



Figure 4

(i) Why is it important that the head is tilted back in this way?

..... (1)

(ii) What should the First Aider do to the casualty's nose as he breathes into the casualty's mouth?

..... (1)

(iii) Why should the First Aider do this to the casualty's nose?

..... (1)

(iv) How long should the First Aider continue to perform mouth-to-mouth ventilation?

..... (1)

(v) What should the First Aider do if the casualty begins to breathe?

..... (1)

(c) During resuscitation the First Aider may be required to carry out cardiac massage. What is the purpose of **cardiac massage**?

..... (1)

(Total 10 marks)

Q8

9. Figure 5 is a diagram of the human heart.

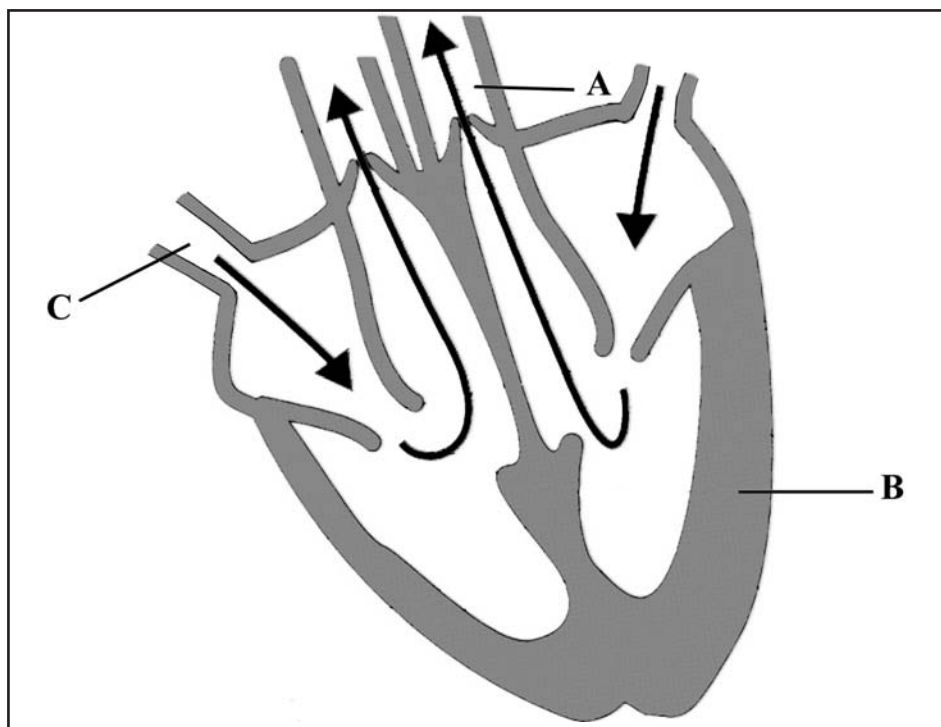


Figure 5

(a) Name the parts labelled A, B and C.

(i) A (1)

(ii) B (1)

(iii) C (1)

(b) What effect would **long-term training** have on the part of the heart labelled B?

..... (1)

(c) Why do the walls of the vessel labelled A need to be thicker than those labelled C?

..... (1)

(Total 5 marks)

Q9

10. During breathing, gases are inhaled and exhaled.

- (a) Complete the table below to show the percentage of each gas in inhaled and exhaled air.
Use some of the percentages shown in the box.

79%	21%	3%
17%	0.03%	9%

Gas	Inspiration (%)	Expiration (%)
Oxygen		
Carbon Dioxide		

(4)

- (b) Explain why the percentage of oxygen varies from inspiration to expiration.

.....
(1)

- (c) Explain why the percentage of carbon dioxide varies from inspiration to expiration.

.....
(1)

(Total 6 marks)

Q10

11. Figure 6 shows a high jumper clearing the bar.

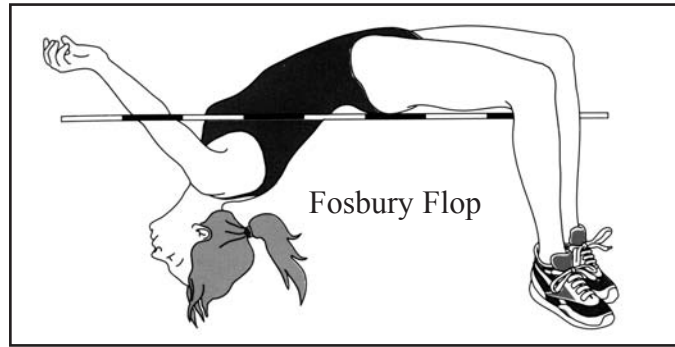


Figure 6

(a) State **TWO** regions of the vertebral column and explain how the **function** of these regions helps the high jumper clear the bar. You **must** use a different function for each of the regions of the vertebral column.

	Region of vertebral column	Function	How this helps high jumpers
1			
2			

(6)

(b) The bones of the vertebral column are separated by discs.

(i) What are these discs made of?

..... (1)

(ii) What is their function?

..... (1)

(c) Bones in other areas of the skeleton meet to form important joints, for example, the knee.

(i) What type of synovial joint is the knee?

..... (1)

(ii) There can be very slight rotation or sideways movement at the knee joint. What **stabilises** the knee joint to prevent unwanted movement?

..... (1)

(iii) As well as slight rotation, what are the **TWO** types of movement possible at the knee?

1.

2. (2)

(Total 12 marks)

Q11

12. Figure 7 shows the legs of a runner.

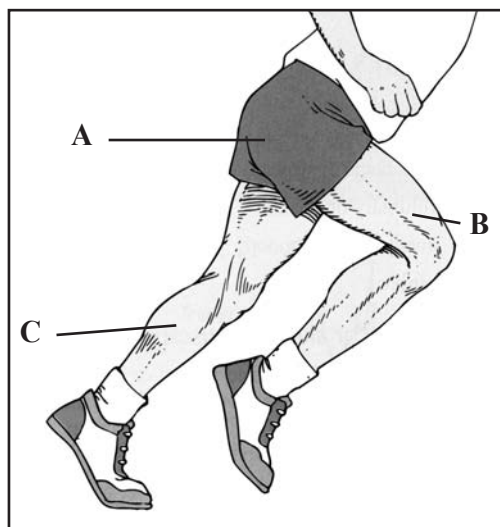


Figure 7

(a) Label the muscles A, B and C.

(i) A

(ii) B

(iii) C

(3)

(b) Which muscle, **A**, **B** or **C**, allows the runner to drive forwards off the toes during his running action?

..... (1)

(c) Which muscle, **A**, **B** or **C**, allows the runner to extend the leg at the hip?

..... (1)

(d) Two of the muscles named in the box below work as an **antagonistic pair**. Name the two muscles.

Bicep	Hamstrings	Deltoid	Quadriceps	Gluteals
-------	------------	---------	------------	----------

..... and (1)

(e) Explain the term 'antagonistic pair'.

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

(Total 7 marks)

Q12

TOTAL FOR SECTION TWO: 80 MARKS

SECTION THREE

Answer all questions

13. Ashan is 16 years old. He is studying GCSE PE and has decided to measure his heart rate during training to help him monitor his fitness. **Figure 8** shows a record of Ashan's heart rate before, during and after a training session.

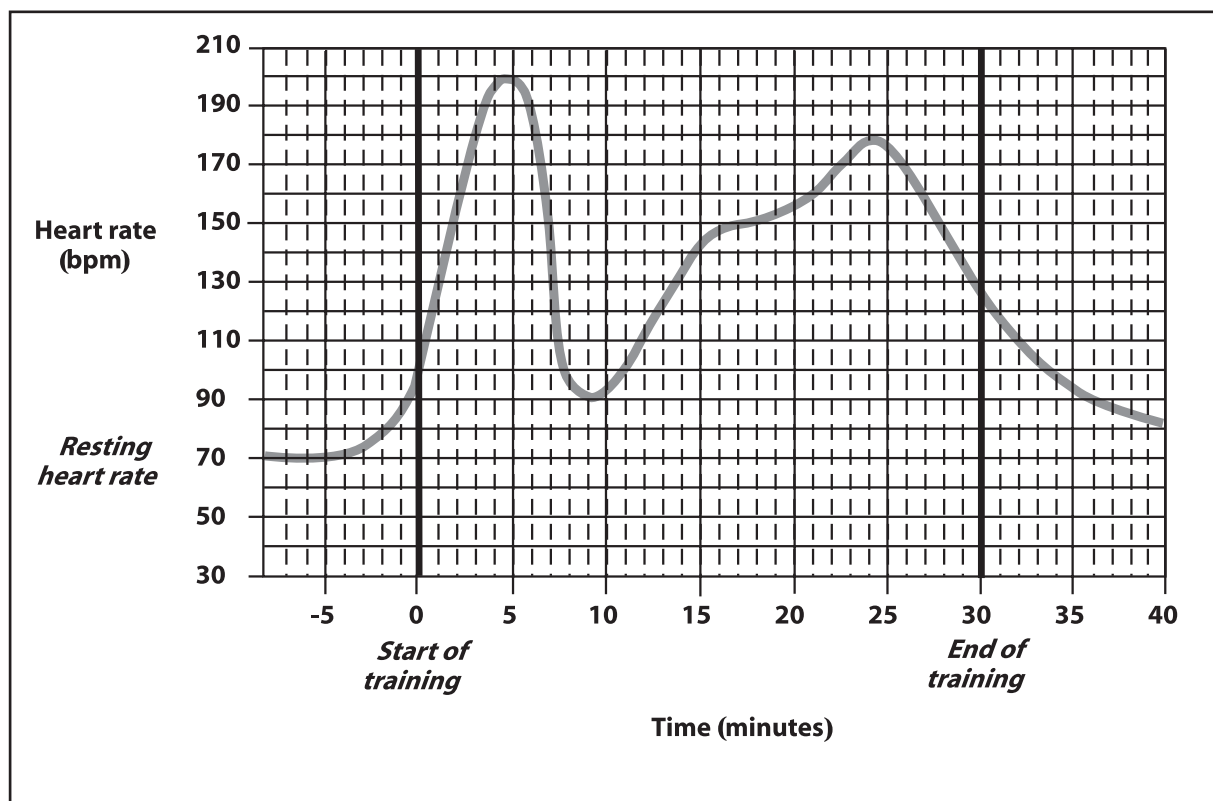


Figure 8

- (a) Define the term 'heart rate'.

..... (1)

- (b) (i) What happens to Ashan's heart rate **at the start** of the training session?

..... (1)

- (ii) What effect will this have on his cardiac output?

..... (1)

- (c) Explain why it is important to Ashan that his heart rate alters in this way.

.....
 (1)

(d) The graph shows that Ashan’s heart rate varies during the training session. Give a possible reason for this variation.

.....

 (1)

(e) Name a type of **training method** that would cause this variation in heart rate.

.....
 (1)

(f) What happens to Ashan’s heart rate during the 10 minute period after training has finished?

.....
 (1)

(g) Give **TWO** reasons why the heart needs to continue to work harder than normal, even after the training session has finished.

1.
 (1)

2.
 (1)

(h) At times Ashan is working well within his **target heart rate training zone**. What does this mean?

.....

 (1)

(i) Ashan is 16. Use this information to show how he would calculate his training zone by completing the following statements.

(i) Maximum heart rate is minus his age.

(ii) Therefore Ashan’s maximum heart rate will be(bpm).

(iii) The upper limit of his target heart rate training zone should be..... % of his maximum heart rate.

(iv) The lower limit of his target heart rate training zone should be..... % of his maximum heart rate.

(4)

(j) (i) Complete the statement below about the **type** of muscle found in the heart.

The heart wall is muscle. (1)

(ii) How does this type of muscle differ from voluntary muscle?
..... (1)

(k) In addition to keeping fit, Ashan also knows that it is important to consider what and how much he eats.

Why would Ashan include the following in his diet?

(i) Carbohydrates (1)

(ii) Water (1)

(l) Why is it important that Ashan does not **under eat**?
..... (1)

(m) It is important that Ashan does not over eat. Explain the term **over eat**.
.....
..... (1)

(Total 20 marks)

Q13

--	--

14. Fara is a 100m hurdler. She trains regularly and thinks carefully about her Personal Exercise Programme (PEP) as she has seen many of her team mates injured through over training. To help her understand the requirements of her sport, she analyses her performance regularly. Fara's coach told her that her training was proving effective as her performance was improving.

(a) Define the term 'performance'.

..... (1)

(b) The following are statements taken from Fara's PEP.

- A I need to make sure my training matches the requirement of my sport, therefore I shall be using interval training.
- B I found the workload far too easy last week so I shall be training harder this week.
- C I think it is important to gradually increase the amount of work that I do.
- D I need to structure my PEP to my needs, no one else's.
- E Unfortunately I had to have a minor operation on my knee. I was unable to train for 6 weeks, which means that I have already started to lose my fitness.

(i) Complete the table below by naming **THREE** principles of training (other than the F.I.T.T principle) that Fara has referred to in the statements from her PEP. Explain the meaning of each of the principles.

	Principle of training	Explanation
1		
2		
3		

(6)

(ii) Complete the table below to match each of the statements from Fara's PEP to the correct principle of training.

Statement from PEP	Principle of Training
A	
C	
E	

(3)

(c) During a recent competition one of the hurdlers fell and sprained her ankle.

(i) State **ONE visible** symptom of a sprained ankle.

..... (1)

(ii) What type of injury is a sprained ankle?

..... (1)

(iii) What treatment should she be given for this type of injury?

..... (1)

(d) **Figure 9** shows a diagram of the skeleton of the lower leg and foot.

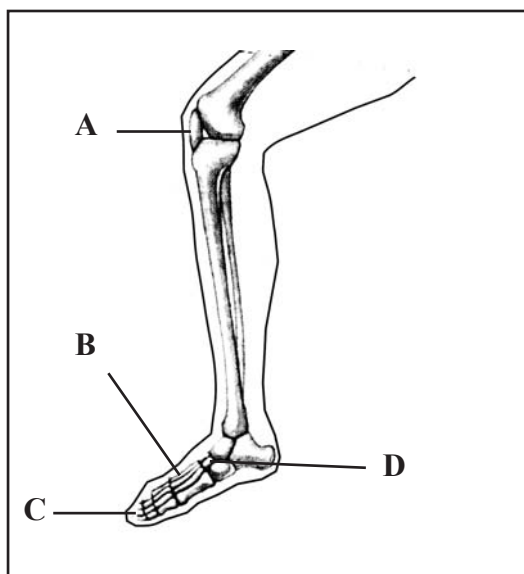


Figure 9

(i) Name the bones labelled **A**, **B**, **C** and **D**.

A (1)

B (1)

C (1)

D (1)

(ii) The bones labelled **D** are short bones. How does the function of a short bone help the hurdler?

..... (1)

(e) The 100m hurdles is a sprint event.

(i) What type of muscle fibres would be most useful to a 100m hurdler?

Fibre Type (1)

(ii) Why would this type of muscle fibre be useful to a 100m hurdler?

..... (1)

Q14

(Total 20 marks)

15. As part of their GCSE PE programme John, Tony and Ben each devised a Personal Exercise Programme (PEP).

(a) What is the purpose of **exercise**?

..... (1)

(b) **Figure 10** shows the activities that the boys completed as part of their training.

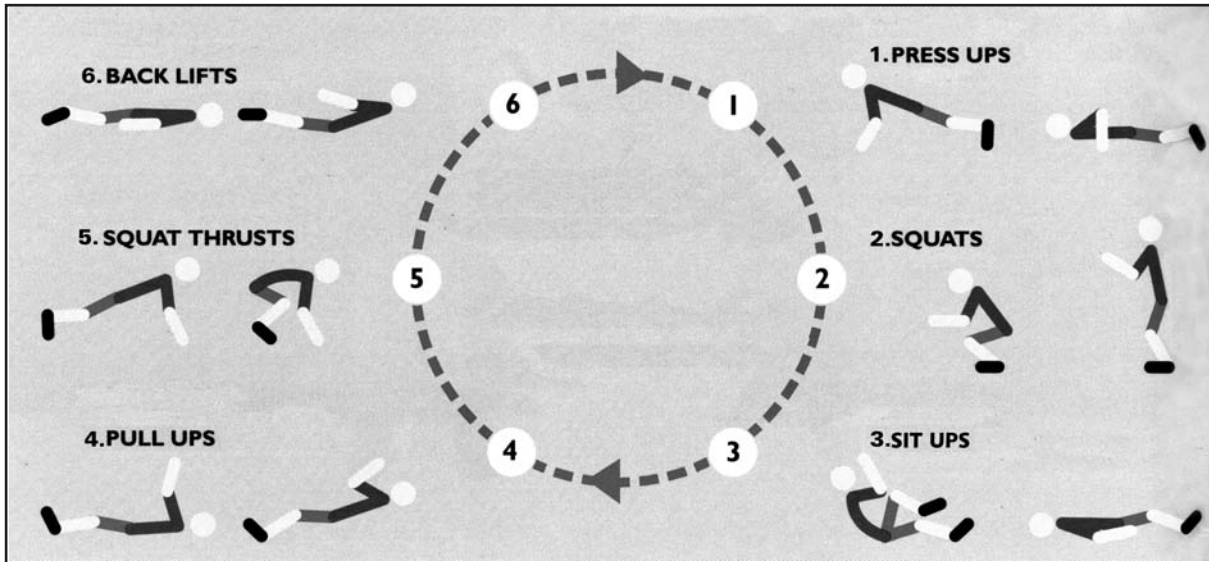


Figure 10

(i) What type of **training method** is represented in **Figure 10**?

..... (1)

(ii) Complete the table below by filling in the gaps to give

- the names of the exercises
- the main muscles being worked in each of the exercises
- the action being produced.

Exercise	Main Muscle	Action
	Triceps	
Pull ups		Flexion of arm at the elbow
Sit ups		Flexion of trunk
Squat thrusts	Hamstring	

(5)

(c) Exercises can be **isotonic** or **isometric**.

Explain these terms.

(i) **Isotonic**
.....
(1)

(ii) **Isometric**
.....
(1)

(d) Which type of exercise (isotonic or isometric) is being carried out in the training session shown in **Figure 10**?

.....
(1)

(e) Before undertaking any physical activity the boys make sure they warm up. State, **in order**, the three phases of a warm up?

1.
(1)

2.
(1)

3.
(1)

(f) The boys are hoping to improve the efficiency of their cardiovascular and respiratory systems through their training.

(i) State **ONE** way in which the cardiovascular system could improve as a result of training.
.....
(1)

(ii) State **ONE** way in which the respiratory system could improve as a result of training.
.....
(1)

(g) John, Tony and Ben rely on hard work to improve their fitness but some athletes resort to taking drugs to improve their performance. Complete the following statements about performance enhancing drugs.

(i) Diuretics aid water loss from the body. This drug could be taken by athletes who need to lose weight quickly to allow them to meet weight requirements of their activity, for example, (1)

(ii) A possible side-effect of taking a diuretic is (1)

(iii) Anabolic agents, such as steroids, are taken to allow athletes to train (1)

(iv) Narcotic analgesics are used to (1)

(v) If narcotic analgesics are used and the athlete continues to train this is dangerous because they (1)

Q15

(Total 20 marks)

TOTAL FOR SECTION THREE: 60 MARKS

TOTAL FOR PAPER: 150 MARKS

END

Edexcel gratefully acknowledges the following sources used in the preparation of this paper:

- *PE Essentials* by Doug Neate, Feltham Press 1996.
- *PE Essentials Teaching Support Pack* by Doug Neate, Feltham Press 1998.
- *PE for you* by Honeybourne, Hill & Wyse, Stanley Thornes Publishers 1998.

BLANK PAGE

BLANK PAGE