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Candidate surname

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Pearson BTEC
Level 1/Level 2
Tech Award

Centre Number

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Learner Registration Number

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Tuesday 4 February 2020

Morning (Time: 1 hour 30 minutes)

Paper Reference **21217L**

Sport, Activity and Fitness

Component 2: The Principles of Training, Nutrition and Psychology for Sport and Activity

You must have:
Calculator

Total Marks

Instructions

- Use **black** ink or ball-point pen.
- **Fill in the boxes** at the top of this page with your name, centre number and learner registration number.
- Answer **all** questions.
- Answer the questions in the spaces provided
– *there may be more space than you need.*

Information

- The total mark for this paper is 70.
- The marks for **each** question are shown in brackets
– *use this as a guide as to how much time to spend on each question.*
- A calculator may be used.

Advice

- Read each question carefully before you start to answer it.
- Try to answer every question.
- Check your answers if you have time at the end.

Turn over ►

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Answer all questions. Write your answers in the space provided.

- 1 Abigail is a female athlete. She has taken part in the Sargent jump test. Her result was **36 cm**.

Table 1 shows the normative test data for the Sargent jump test for males and females.

	Category				
Gender	Excellent	Good	Average	Below average	Poor
Male	>70 cm	56 – 70 cm	41 – 55 cm	31 – 40 cm	<30 cm
Female	>60 cm	46 – 60 cm	31 – 45 cm	21 – 30 cm	<20 cm

Table 1

- (a) Identify, using **Table 1**, the category that Abigail is in for the Sargent jump test. (1)

- (b) State the component of fitness tested by the Sargent jump test. (1)

(Total for Question 1 = 2 marks)

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2 Harry wants to take part in a 10 km run.

His fitness test results show that his aerobic endurance is below average.

Harry needs to complete a training programme to improve his aerobic endurance.

Complete **Table 2** by:

- (a) Naming **two** methods of training to improve aerobic endurance. (2)
- (b) Describing how to do each of the methods of training chosen. (2)

(a) Method of training	(b) Description of method of training

Table 2

Harry talks to a fitness instructor. Harry tells the instructor:

'I really want to try the 10 km run, but I know I won't be able to finish it.'

- (c) Explain why this statement shows that Harry lacks self-confidence. (1)

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The fitness instructor decides to use **extrinsic** motivation to increase Harry's self-confidence.

(d) Explain why extrinsic motivation will lead to an increase in Harry's self-confidence. (2)

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Two benefits of improved self-confidence are a **positive attitude** and **improved effort**.

(e) Give **one** reason why **each** of these benefits will have a positive effect on Harry's training. (2)

Positive attitude

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Improved effort

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(Total for Question 2 = 9 marks)

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3 Mikey is 20 years old. He is completing his first session with a personal trainer at a gym.

Mikey has a **maximum heart rate** of **200** beats per minute (bpm).

To work at the right intensity during the warm up, his heart rate should be at **50%** of his maximum heart rate.

(a) Calculate Mikey's required heart rate for the **warm up**.

(2)

Calculation

Answer bpm

(b) State **two** ways of measuring Mikey's heart rate during the warm up.

(2)

1

2

Mikey is not usually a nervous person, but he feels anxious about embarrassing himself during his first gym session.

(c) Name the type of anxiety Mikey is experiencing.

(1)

Anxiety can produce cognitive and somatic effects.

(d) State **two somatic** effects of anxiety that Mikey may experience at the gym.

(2)

1

2



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The personal trainer decides to use a fitness induction to the gym as a method of controlling Mikey's anxiety.

(e) Explain why a fitness induction to the gym will help to control Mikey's anxiety.

(2)

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(f) State **one other** method that Mikey could use to control his anxiety.

(1)

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(Total for Question 3 = 10 marks)

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4 Lewis has been training to improve his speed.

His coach has used the **FITT principles** to change Lewis's training plan so that progressive overload is occurring.

Figure 1 shows Lewis's old training plan and new training plan.

Old training plan		New training plan	
Method of training	Sprint training	Method of training	Sprint training
Training days	Tuesday and Thursday	Training days	Sunday, Tuesday and Thursday
Session length	15 minutes	Session length	15 minutes
Session content	10 x 40 m sprints with 1 minute of rest between each sprint	Session content	10 x 40 m sprints with 1 minute of rest between each sprint

Figure 1

The FITT principles are frequency, intensity, time and type.

(a) Describe, using **Figure 1**, how the coach has used **one** of these FITT principles to change the training plan.

(2)

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(b) State **two** changes the coach could make to the **session content** section in **Figure 1** to make sure progressive overload occurs.

(2)

1

2



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The coach could vary the programme by changing sprint training to a different **method of training** to improve speed.

(c) (i) Name **two other** methods of training to improve speed.

(2)

1

2

(ii) State **one** benefit to the performer of using a variety of different methods of training.

(1)

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Lewis's coach includes a cool down in every training session.

(d) Explain why a cool down is important at the end of a speed training session.

(2)

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(Total for Question 4 = 9 marks)

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5 Casey is training for a long-distance cycle race. The race will take six hours to complete. In the weeks before the race, Casey's coach advises her to increase her intake of vitamin C.

(a) Name **two** foods that will be a good source of vitamin C.

(2)

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(b) Explain why the main function of vitamin C will help Casey to complete her training successfully.

(3)

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Casey increases her fibre intake during the day before the race.

(c) Name **one** food that will be a good source of fibre.

(1)

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(d) (i) Give **two** reasons why Casey might eat more fibre the day **before** the race.

(2)

1

2

(ii) Explain why **one** of these reasons will help Casey to complete the race more efficiently.

(1)

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(Total for Question 5 = 9 marks)



Maddie is a football player. She has to make sure she consumes enough calories every day to be able to perform well in her matches.

6 (a) State what calories in food are a measurement of. (1)

(b) State the recommended daily allowance of calories for a woman. (1)

..... Kcal

Maddie uses legal supplements to improve her performance.

At half time in a match she drinks a glucose-based isotonic drink.

(c) Explain **one** advantage of drinking a glucose-based isotonic drink. (2)

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Maddie also takes vitamin D supplements in order to improve bone health.

(d) Explain why improved bone health will benefit Maddie during a football match. (2)

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(Total for Question 6 = 6 marks)

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(Source: © FCG/Shutterstock)

Figure 2

Ali is a marathon runner. His training programme requires him to complete a number of long-distance runs every week.

To improve his performance, Ali needs to consider the **amount** of each **macronutrient** that he consumes and the **timing** of his intake.

- 7** Analyse how Ali's intake of **macronutrients** can be used to improve his performance during his marathon training programme.

(9)

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8 Ashani is a high jumper. She is completing a training programme with the aim of improving her high jump technique.

Ashani will need motivation to complete this training programme.

(a) Give a definition of motivation.

(1)

Motivation can come from the use of rewards.

The rewards in **Table 3** can be classified as either an **intrinsic** type of motivation or an **extrinsic** type of motivation.

(b) Complete **Table 3** by:

Identifying whether these rewards are intrinsic or extrinsic.

(4)

Reward	Type of motivation (intrinsic or extrinsic)
Praise from a coach	
Enjoyment	
Winning a medal	
A sense of achievement	

Table 3

(c) Explain why having fun in training sessions will help Ashani to improve her high jump.

(2)

(Total for Question 8 = 7 marks)





(Source: © Sergey Granev/Shutterstock)

Figure 3

James is a rugby player. His coach has suggested he should develop his **strength** and **muscular endurance** to improve his rugby performance.

- 9 Analyse the **different methods of training** for strength and muscular endurance that James could use to improve his rugby performance.

(9)

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(Total for Question 9 = 9 marks)

TOTAL FOR PAPER = 70 MARKS



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