

Please check the examination details below before entering your candidate information

Candidate surname

Other names

Centre Number

Learner Registration Number

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Pearson BTEC Level 1/Level 2 Tech Award

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 spaces provided.

Rex is a 52-year-old man. He has taken part in a fitness test for **muscular endurance**.

1 (a) Name **one** fitness test for muscular endurance.

(1)

Table 1 shows the normative test data for a fitness test for muscular endurance.

Age	Excellent	Above average	Average	Below average	Poor
20–29	>54 rpm	45 – 54 rpm	35 – 44 rpm	20 – 34 rpm	<20 rpm
30–39	>44 rpm	35 – 44 rpm	25 – 34 rpm	15 – 24 rpm	<15 rpm
40–49	>39 rpm	30 – 39 rpm	20 – 29 rpm	12 – 19 rpm	<12 rpm
50–59	>34 rpm	25 – 34 rpm	15 – 24 rpm	8 – 14 rpm	<8 rpm

Table 1

Rex's result for this fitness test was **32 rpm**.

(b) Identify, using **Table 1**, the category that Rex is in for this fitness test.

(1)

(Total for Question 1 = 2 marks)

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Seamus has joined a new rugby team.

Before the team's first game, many of the players begin to feel a level of **anxiety** and are unsure if they want to play in the match.

2 (a) Give the meaning of the term **anxiety**.

(1)

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Seamus has an increased heart rate before the game.

(b) State **two other** effects of **somatic** anxiety that Seamus may have.

(2)

1

2

The team coach gives the players a pre-match team talk.

(c) Explain why a pre-match team talk can help the players to control their anxiety before they play in the match.

(2)

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(Total for Question 2 = 5 marks)

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Holly is a football goalkeeper.

She has decided to improve her **flexibility**.

Complete **Table 2** by:

- 3 (a) naming **two** methods of training to improve flexibility (2)
- (b) describing **each** of the methods of training you have named. (2)

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

Table 2

Holly is **motivated** to develop her flexibility so that she improves her performance and masters the skill of being a goalkeeper.

- (c) Explain the **type** of motivation that Holly is using. (2)

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- (d) State **two benefits** of increased levels of motivation for Holly's training. (2)

1

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(Total for Question 3 = 8 marks)

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Jordan is 20 years old. She has hired a trainer to help her improve her fitness.

The trainer uses Jordan's personal information to aid the design of a training programme.

- 4 (a) Give **one** reason why the trainer will ask Jordan to complete a health screening questionnaire.

(1)

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The trainer also asks about Jordan's activity likes and dislikes.

- (b) Explain why understanding Jordan's activity likes and dislikes will help to make the training plan successful.

(2)

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The trainer needs to make sure that Jordan is exercising at an appropriate **intensity** to achieve her aim.

- (c) Give the meaning of the term intensity, when related to exercise.

(1)

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Intensity can be measured using Percentage of Maximum Heart Rate.

- (d) State how Maximum Heart Rate (MHR) is calculated.

(1)

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Table 3 shows different measures of **intensity** when Jordan is working in three **training zones**.

Rate of perceived exertion (RPE) is multiplied by 10 in order to estimate the heart rate that the participant will be working at. ($RPE \times 10 = \text{heart rate}$)

Complete **Table 3** by:

- (e) calculating Jordan's estimated heart rate for **training zones B and C** from her RPE.

(2)

Training zones	Percentage of maximum heart rate	Rate of perceived exertion (RPE)	Estimated heart rate (bpm)
A	40 %	8	80
B	65 %	13	(i)
C	90 %	18	(ii)

Table 3

- (f) Identify, using **Table 3**, the training zone that shows Jordan working in the fat burning zone.

(1)

(Total for Question 4 = 8 marks)

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Chloe is training to swim the English Channel.

The swim is a distance of 21 miles. Chloe will take approximately 14 hours to complete it.

5 (a) State the **two main** components of fitness her training will need to develop. (2)

1

2

Chloe's training sessions are long and often follow the same routine.

(b) Explain why using a **variety** of methods of training may benefit Chloe during her training programme. (2)

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Chloe has decided to increase her intake of oily fish.

(c) Name **two micronutrients** that oily fish provide a good source of. (2)

1

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Oily fish is also a good source of **unsaturated** fats.

(d) Name **one other** food that is a good source of unsaturated fats. (1)

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(e) Explain why the function of **unsaturated** fats will benefit Chloe during her 21-mile swim.

(3)

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(Total for Question 5 = 10 marks)

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Marcelle works hard to maintain a fit and healthy lifestyle.

He completes a number of different training sessions each week and controls his diet carefully to support these activities.

- 6 (a) Name the **macronutrient** that will provide Marcelle's main source of energy for his training sessions.

(1)

Marcelle has decided to increase his intake of **potassium**.

- (b) Name **one** food that is a good source of potassium.

(1)

- (c) Explain why the main **function** of potassium will help Marcelle to complete hard training sessions.

(2)

Marcelle uses **protein shakes** as a legal supplement to support his training.

- (d) Explain why the **timing** of protein intake will help Marcelle to complete all his training sessions each week.

(2)

- (e) State **one disadvantage** of using **legal** supplements.

(1)



Proteins are made up of amino acids.

Amino acids are classified into two types, essential amino acids and non-essential amino acids.

(f) Describe the difference between **essential amino acids** and **non-essential amino acids**.

(2)

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(Total for Question 6 = 9 marks)

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Keeley is a hockey player competing in a tournament.

Table 4 shows Keeley's **activity levels and fluid intake** during each day of the tournament. It also shows the **weather conditions**.

	Weather	Activity	Amount of fluids consumed
Day 1	Cloudy and cool	Arrival and rest day 0 games played	2 litres
Day 2	Hot and sunny	3 × 60-minute games	3 litres
Day 3	Hot and sunny	2 × 60-minute games	4 litres

Table 4

7 Analyse, using **Table 4**, Keeley's fluid intake during **each day** of the tournament and the **impact** this intake may have on her body **and** her performance.

(9)

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Anthony is a long jump performer.



Source: © Will Russell / Stringer / Getty Images

Figure 1

He has taken part in two fitness tests. Anthony's results for two fitness tests are shown in **Table 5**.

Test name	Result/Rating
30-metre sprint test	Poor
Cooper 12-minute run test	Very poor

Table 5

Due to his result in the 30-metre sprint test, Anthony has decided to design a training plan to improve his speed.

- 8 (a) Explain why Anthony's result in the 30-metre sprint test will have a negative impact on his long jump performance.

(2)

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Speed, agility, quickness (SAQ) training is one method of training for speed.

(b) State **two advantages** of using SAQ as a method of training.

(2)

1

2

SAQ training includes some work on improving **agility**.

(c) Explain **one disadvantage** of using SAQ training **for a long jump performer**.

(2)

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(d) Name **one other** method of training for speed.

(1)

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(e) Explain, using the principle of **participant differences and needs**, why Anthony may choose **not** to use his Cooper 12-minute run **test result** when designing his training plan.

(3)

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(Total for Question 8 = 10 marks)

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Rishi has recently joined a baseball team.

He has good ability but low levels of **self-confidence**.

Rishi wants to be a regular first team player but tells his coach, 'I am not as good as the other players on the team and I'm not sure I ever will be.'

9 Analyse the different **methods** that the coach can use to increase Rishi's self-confidence and the **benefits** for Rishi of making these changes.

(9)

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(Total for Question 9 = 9 marks)

TOTAL FOR PAPER = 70 MARKS

