

Pearson BTEC Level 1/Level 2 Tech Award

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Centre Number	Learner Registration Number
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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.

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

1 Melinda has been working to improve her fitness by using a method of training called continuous training.

(a) State the component of fitness that continuous training improves.

(1)

(b) Name **one other** method of training that Melinda could use to improve this component of fitness.

(1)

(Total for Question 1 = 2 marks)

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PLEASE TURN OVER FOR QUESTION 2



- 2 Charlene is a female football player. She tested her strength using the hand grip dynamometer test. Her result was **38**.

Table 1 shows the normative test data for the hand grip dynamometer test for male and female participants.

	Category				
Gender	Excellent	Good	Average	Fair	Poor
Male	>56	51 – 56	45 – 50	39 – 44	<39
Female	>36	31 – 36	25 – 30	19 – 24	<19

Table 1

- (a) Identify, using **Table 1**, the category Charlene is in for the hand grip dynamometer test.

(1)

- (b) Give **one** example of when Charlene will need to use upper body **strength** during a football match.

(1)

One of Charlene's football matches ends in a draw, so the winning team will be decided by a penalty shootout.

Charlene is usually a confident player, but she tells her coach that she feels too nervous to take a penalty during a shootout situation.

- (c) Name the type of anxiety Charlene is experiencing.

(1)

- (d) Explain why a penalty shootout may cause Charlene to feel increased anxiety.

(2)

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The effects of anxiety can be either **cognitive** or **somatic**.

Complete **Table 2** by:

(e) identifying which of these effects are cognitive or somatic.

(4)

Effect of anxiety	Cognitive or somatic
Butterflies in the stomach	(i)
Poor concentration	(ii)
Lack of sleep due to overthinking	(iii)
Muscle tension	(iv)

Table 2

(Total for Question 2 = 9 marks)



3 Jahzara is a basketball player. She is training to improve her **power** using the methods of training shown in **Figure 1** and **Figure 2** below.

Complete **Table 3** by:

- (a) naming the **two** methods of training for **power** that Jahzara is using (2)
- (b) stating **one advantage** for Jahzara of using **each** of these methods of training. (2)



	(a) Name of method of training	(b) Advantage of method of training
 <p>Figure 1 Source: © takoburito/Shutterstock</p>		
 <p>Figure 2 Source: © Jacob Lund/Shutterstock</p>		

Table 3

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Jahzara needs to work at the correct intensity to be in the **anaerobic** training zone.

- (c) State the **percentage of maximum heart rate** that Jahzara needs to work at in order to be in the **anaerobic** training zone.

(1)

Jahzara does not believe she is a very good basketball player. Her coach has set her some realistic goals to improve her confidence.

- (d) Explain why setting goals that are **realistic** will help to improve self-confidence.

(2)

- (e) State **two** benefits to Jahzara of increasing her self-confidence.

(2)

1

2

(Total for Question 3 = 9 marks)



- 4 Kirsten is a shot putter. She has been training using free weights to improve her **strength**.

Kirsten recently changed her training plan.

Figure 3 shows Kirsten's old and new training plans for the chest press exercise.

Old training plan		New training plan	
Method of training – Free weights		Method of training – Free weights	
Exercise	Chest press	Exercise	Chest press
Weight lifted	60 kg	Weight lifted	65 kg
Number of sets	3	Number of sets	3
Number of repetitions	6	Number of repetitions	6

Figure 3

Specificity and progressive overload are two principles of training.

- (a) Describe, using an **example** from **Figure 3**, how the principle of **progressive overload** has been applied to Kirsten's training plan.

(2)

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- (b) Describe, using an **example** from **Figure 3**, how the principle of **specificity** has been applied to Kirsten's training plan.

(2)

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Time is one of the FITT principles.

- (c) Identify, using Figure 3, **two** changes that can be made to the training plan to increase the **time** Kirsten spends on the chest press exercise.

(2)

1

2

Kirsten has been completing **two** sessions of free weights per week. She wanted to increase the number of sessions per week to six, but she was told that this increase might not benefit her training because of the principle of **overtraining**.

- (d) Explain, using the principle of **overtraining**, why an increase to six sessions of free weights per week may **not** benefit Kirsten's training.

(2)

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(Total for Question 4 = 8 marks)

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5 Gerrard is a 1500m runner.

Gerrard's total daily intake is **2500** calories (kcal). The percentage provided by each macronutrient is shown in **Table 4**.

Macronutrients	% of daily intake
Carbohydrates	5%
Fat	30%
Protein	20%

Table 4

(a) Calculate, using **Table 4**, the number of calories that Gerrard has consumed as **protein**.

(2)

Calculation

Answer calories (kcal)

Gerrard's training programme includes four sessions per week, running a variety of different distances and speeds in each session.

(b) Explain why eating **protein** soon after training will help Gerrard to complete **all** the sessions in his programme.

(2)

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(c) Explain why the main function of **iron** will benefit Gerrard when completing his longer distance training runs.

(2)

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Eating the correct percentages of macronutrients is one **positive feature** of a healthy diet.

(d) State **two other** positive features of a healthy diet.

(2)

1

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(Total for Question 5 = 8 marks)

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6 Luke is an open water swimmer. He needs to eat large amounts of carbohydrate so that he can complete his long-distance swimming races.

There are different **types** of carbohydrate, such as **simple, complex and fibre**.

Complete **Table 5** by:

(a) identifying the **type** of carbohydrate that **each** of these foods is a main source of. (3)

Food	Type of carbohydrate
Potatoes	(i)
Chocolate	(ii)
Wholegrain bread	(iii)

Table 5

(b) Name the nutritional process Luke could use to increase his carbohydrate stores in the days before a long-distance swimming race. (1)

(c) Explain why the main function of **unsaturated** fats might benefit Luke's performance during a long-distance swimming race. (2)

(d) Name **two** foods that will be a good source of **unsaturated** fat. (2)

- 1
- 2

(Total for Question 6 = 8 marks)

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(Total for Question 7 = 9 marks)



8 Harry is a cricket player. A nutritionist has found out that low fluid intake is an area of concern for Harry.

(a) State the normal recommended daily intake (RDI) of fluids.

(1)

..... litres

(b) State **two** factors that can cause a need to **increase** this normal recommended daily intake.

(2)

1

2

Harry's low fluid intake results in a condition that leaves him with a harmful reduction of fluids in his body.

(c) Name the condition that Harry is experiencing.

(1)

One of the main effects of a harmful reduction of fluids in Harry's body is a reduction in blood plasma volume.

(d) Explain why a reduction in blood plasma volume will have a negative impact on Harry during a cricket match.

(2)

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The nutritionist suggests that Harry increases his intake of potassium.

(e) Name **one** food that will be a good source of potassium. (1)

(f) State the main function of potassium. (1)

(Total for Question 8 = 8 marks)

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Neha is a personal trainer.

Neha uses a **person-centred approach** to help her plan a training programme for a client and requires three key pieces of **personal information**:

- client aims
- client activity likes and dislikes
- client health screening questionnaire results.

9 Evaluate the **importance of each** of these **three** pieces of personal information in helping Neha to plan a training programme for a client.

(9)

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(Total for Question 9 = 9 marks)

TOTAL FOR PAPER = 70 MARKS



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