

Please check the examination details below before entering your candidate information

Candidate surname

Other names

Centre Number

Learner Registration Number

Pearson BTEC
Level 3 Nationals
Extended Diploma

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Monday 13 January 2020

Morning (Time: 3 hours)

Paper Reference **31824H**

Sport and Exercise Science

Unit 13: Nutrition for Sport and Exercise Performance

Part S

You must have:

A calculator

Nutritional principles information booklet

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** activities.
- Answer the activities in the spaces provided – *there may be more space than you need.*
- This booklet contains material for the completion of the set task under supervised conditions.
- This booklet is specific to each series and this material must only be issued to learners who have been entered to undertake the task in the relevant series.
- This booklet must be kept securely until the start of the 3-hour supervised assessment session.

Information

- The total mark for this paper is 50.
- A nutritional principles information booklet is supplied.
- The marks for **each** activity are shown in brackets – *use this as a guide as to how much time to spend on each activity.*

Advice

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

Turn over ►

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Instructions to Teachers/Tutors

The set task should be completed during the three-hour session as timetabled by Pearson.

The set task must be carried out under supervised conditions.

Learners must complete this set task in the task and answer booklet.

Teachers/tutors should note that they are responsible for maintaining security and for reporting issues to Pearson. In particular:

- only permitted materials for the set task can be brought into the supervised environment
- during any permitted break and at the end of the session, materials must be kept securely and no items removed from the supervised environment.

Maintaining security

- During supervised assessment sessions, the assessment areas must only be accessible to the individual learners and to named members of staff.
- Learners can only access their work under supervision.
- Any work learners produce under supervision must be kept securely.
- Learners are not permitted to have access to the internet or other resources during the supervised assessment period.

After the session, the teacher/tutor will confirm that all learner work was completed independently as part of the authentication sheet submitted to Pearson.

This paper must be read in conjunction with the unit information in the specification and the BTEC Nationals Instructions for Conducting External Assessments (ICEA) document.

See the Pearson website for details.

Outcomes for submission

Each learner must submit:

- a completed task and answer booklet.

Learners must complete a declaration that the work they submit is their own.

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Guidance for Learners

Read the set task information carefully.

In this booklet you will be asked to carry out specific activities using the information given.

The supervised assessment task must be taken in a single session of three hours. You may be provided with a supervised break during the assessment in addition to the specified hours.

You must plan your time and work independently throughout the three-hour supervised assessment period.

You will complete the activities within the set task under supervision and your work will be kept securely during any breaks taken.

You must work independently and must not share your work with other learners.

Your teacher/tutor may clarify the wording that appears in this task but cannot provide any guidance on completion of the task.

Outcomes for submission

You must submit:

- a completed task and answer booklet.

You must complete a declaration that the work you submit is your own.



Set Task Information

You should read the case study carefully looking at the client's personal information, their current typical nutritional programme and how these relate to each other.

You will need to spend at least **30 minutes** on this before you start the activities in the Set Task.

The nutritional principles information booklet provides extra information on nutritional values that will help you with Activities 1 and 2. You should study this information carefully.

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Client Information

Personal details

Nikki takes part in triathlon races. She usually takes at least two hours to complete a race.

Her current nutritional programme shows what she usually eats and drinks during a seven-day period.

| | |
|------------------------|--------------|
| Age | 25 years old |
| Gender | Female |
| Height | 1 m 62 cm |
| Weight | 47 kg |
| BIA result | 16% |
| Activity levels | Very active |

Performance details

Sports event

Nikki is taking part in an Olympic distance triathlon race that includes:
1.5 km swim
40 km bike ride
10 km run.
This event usually takes at least two hours to complete.

Phase of training

Nikki is in the 'during event' phase. This phase is in the time frame from the start of the race to the end of the race.



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| Current typical nutrition programme | | | | | | | | |
|-------------------------------------|---|--|---|--|--|------------|--|--------------------------------------|
| Day | Breakfast 7.00 am | Lunch 1.30 pm | Dinner 6.30 pm | Fluids throughout the day | Snacks throughout the day | Calories | Macronutrients | Activity levels and timings |
| Monday | 2 boiled eggs | Tuna salad with lettuce, tomatoes, cucumber | Chicken stir fry with red peppers, onion, cabbage Small portion of noodles | 3 litres of water 1 small bottle of diet cola 3 cups of black coffee | 1 rice cake 1 avocado | 1500 kcals | Carbohydrates 140 g Fat 60 g Protein 100 g | 5.30 am 10 km run |
| Tuesday | 2 slices of fried bacon 2 scrambled eggs | No lunch | Sticky spare ribs Prawn crackers Small portion of fried rice | 3 litres of water 1 small bottle of diet cola 4 cups of black coffee | Small portion of almonds | 1420 kcals | Carbohydrates 140 g Fat 60 g Protein 80 g | 4 pm 30 km bike ride |
| Wednesday | 2 fried eggs 1 slice of fried bread | Smoked mackerel salad with lettuce, tomatoes and cucumber | Fish cake Fried asparagus and broccoli | 3 litres of water 1 small bottle of diet cola 4 cups of black coffee | 1 full fat yogurt 1 rice cake | 1530 kcals | Carbohydrates 170 g Fat 50 g Protein 100 g | 9 pm 2 km swim |
| Thursday | 2 slices of fried bacon 2 fried eggs | No lunch | Pork chop Carrots Peas | 3 litres of water 1 small bottle of diet cola 4 cups of black coffee | Small portion of almonds Small packet of crisps | 1450 kcals | Carbohydrates 150 g Fat 50 g Protein 100 g | 5.30 am 10 km run |



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| Day | Breakfast 7.00 am | Lunch 1.30 pm | Dinner 6.30 pm | Fluids throughout the day | Snacks throughout the day | Calories | Macronutrients | Activity levels and timings |
|----------|--|---|---|---|--|------------|---|--|
| Friday | 2 boiled eggs | No lunch | Tandoori chicken Small portion of boiled rice | 3 litres of water 1 small bottle of diet cola 4 cups of coffee | Rice cake Small portion of almonds | 1040 kcals | Carbohydrates 120 g Fat 40 g Protein 50 g | 4 pm 30 km bike ride |
| Saturday | 2 slices of fried bacon 2 fried eggs | Lettuce, tomatoes, avocado and cucumber salad | Fish stew 1 boiled potato | 3 litres of water 1 small bottle of diet cola 4 cups of coffee | Small portion of almonds | 1290 kcals | Carbohydrates 150 g Fat 50 g Protein 60 g | 3 pm 2 km swim 20 km bike ride |
| Sunday | Toasted bagel with smoked salmon and cream cheese | 2 egg omelette with mushrooms, ham and cheese | Fried chicken Chips | 3 litres of water 1 small bottle of diet cola 3 cups of coffee | None | 1630 kcals | Carbohydrates 160 g Fat 70 g Protein 90 g | Rest day |



P 6 3 4 8 4 A 0 7 2 0

Set Task

You must read the information carefully.

Complete all your work in the task and answer booklet in the space provided.

Activity 1

Interpret Nikki's current nutritional programme in relation to nutritional intake for health and wellbeing.

Use the nutritional principles information booklet to support your answer.

(Total for Activity 1 = 20 marks)

Activity 2

Modify the nutritional programme, based on nutritional strategies, in relation to Nikki's sports event.

Use the nutritional principles information booklet to support your answer.

(Total for Activity 2 = 20 marks)

Activity 3

Recommend nutritional guidance for Nikki based on her phase of training.

The phase of training is 'during event'.

(Total for Activity 3 = 10 marks)

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Task and answer booklet

Please do not write answers outside the spaces provided.

You must complete ALL activities in this task and answer booklet.

- 1** Interpret Nikki's current nutritional programme in relation to nutritional intake for health and wellbeing.

Use the nutritional principles information booklet to support your answer.

Your answer will focus on the following points:

- food intake
- fluid intake
- factors affecting digestion and absorption of nutrients and fluids.

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(Total for Activity 1 = 20 marks)



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- 2** Modify the nutritional programme, based on nutritional strategies, in relation to Nikki's sports event.

Use the nutritional principles information booklet to support your answer.

Your answer will focus on the following points:

- (a) modifications that are relevant to the sporting event
- (b) justifying the modifications
- (c) the impact of factors affecting digestion and absorption of nutrients and fluids.

(20)



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(Total for Activity 2 = 20 marks)



3 Recommend nutritional guidance for Nikki based on her phase of training.

The phase of training is 'during the event'.

Your answer will focus on the following points:

- (a) links to the phase of training
- (b) impact of factors affecting digestion and absorption of nutrients and fluids.

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(Total for Activity 3 = 10 marks)

(TOTAL FOR TASK = 50 MARKS)



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Pearson BTEC Level 3 Nationals Extended Diploma

Monday 13 January 2020

Paper Reference **31824H**

Sport and Exercise Science

**Unit 13: Nutrition for Sport and Exercise Performance
Nutritional Principles Information Booklet**

Insert

You do not need any other materials.

Instructions

- You will need the information in this booklet to answer Activities 1 and 2.
- Read the information carefully.
- You must **not** write your answers in this booklet.
- Only your answers given in the task and answer booklet will be marked.

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Nutritional principles information sheet

Nutritional programme

The table below places some of the foods from the nutritional programme into specific food groups.

| Food | Food group |
|------------------|--|
| Almonds | Protein – a type of nut |
| Asparagus | Fruit and vegetables – a type of vegetable |
| Avocado | Fruit and vegetables – a type of fruit |
| Bacon | Protein – smoked meat |
| Bagel | Grains – a type of bread |
| Broccoli | Fruit and vegetables – a type of vegetable |
| Cabbage | Fruit and vegetables – a type of vegetable |
| Cream cheese | Dairy – a type of cheese |
| Crisps | Fats and sweets – fried thinly sliced potato |
| Curry | Fruit and vegetables – a spicy sauce with vegetables |
| Fish cake | Protein – fish added to potato |
| Fish stew | Protein – fish in a sauce |
| Mushroom | Fruit and vegetables – a type of vegetable |
| Noodles | Grains – a type of pasta |
| Omelette | Protein – made with eggs |
| Pork chop | Protein – a type of meat |
| Prawn crackers | Fats and sweets – deep fried crisps |
| Rice cake | Grains – made from dried rice |
| Salad | Fruit and vegetables – types of vegetable |
| Smoked mackerel | Protein – fish that has been smoked |
| Smoked salmon | Protein – fish that has been smoked |
| Spare ribs | Protein – a type of meat |
| Stir fry | Fruit and vegetables – fried vegetables |
| Tandoori chicken | Protein – a type of meat |
| Tuna | Protein – a type of fish |
| Yogurt | Dairy – a product made with milk |

Energy content of macronutrients

1 g protein provides 4 kcal
1 g carbohydrate provides 4 kcal
1 g of fat provides 9 kcal

Harris Benedict equation to calculate basal metabolic rate (BMR)

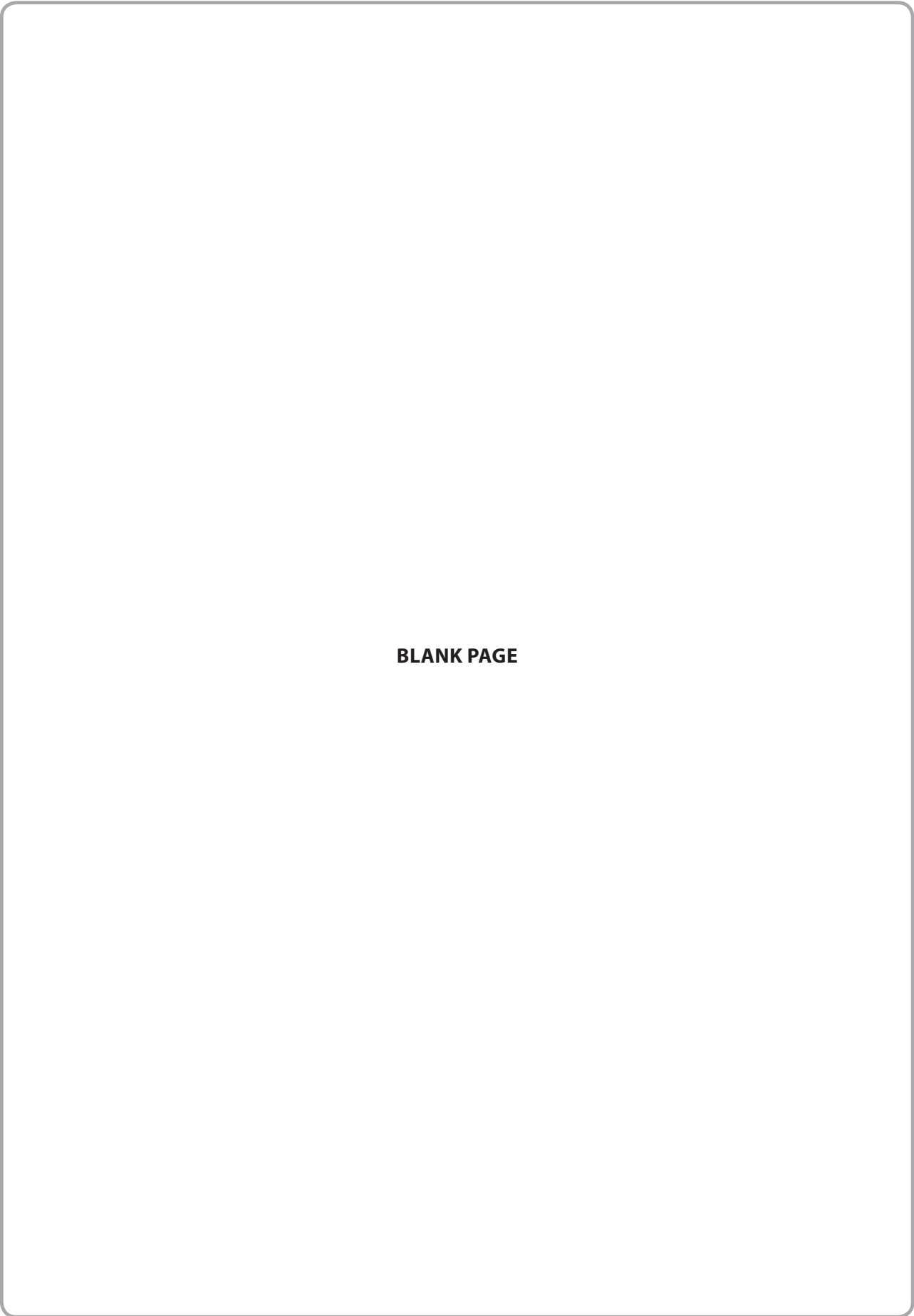
Males = $66.5 + (13.75 \times \text{weight in kg}) + (5.003 \times \text{height in cm}) - (6.755 \times \text{age in years})$
Females = $655.1 + (9.563 \times \text{weight in kg}) + (1.85 \times \text{height in cm}) - (4.676 \times \text{age in years})$

Activity levels

Sedentary: BMR x 1.2
Lightly active: BMR x 1.375
Moderately active: BMR x 1.55
Very active: BMR x 1.725
Extra active: BMR x 1.9

Body mass index equation

Body mass index (BMI) = $\frac{\text{Weight in kg}}{\text{Height in m} \times \text{Height in m}}$



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