

**Paper Reference(s) 31493H**

**Pearson BTEC Level 3 Nationals Extended Diploma**

**Health and Social Care**

**Unit 3: Anatomy and Physiology for Health and  
Social Care**

**Wednesday 6 June 2018 – Morning**

**Time: 1 hour 30 minutes plus your additional time  
allowance**

**INSTRUCTIONS TO CANDIDATES**

**Write your centre number, learner registration  
number, surname, other names and your signature  
in the boxes below. Check that you have the correct  
question paper.**

<b>Centre No.</b>							
<b>Learner Registration No.</b>							
<b>Surname</b>							
<b>Other names</b>							
<b>Signature</b>							
<b>Paper Reference</b>	<b>3</b>	<b>1</b>	<b>4</b>	<b>9</b>	<b>3</b>	<b>H</b>	



- Use **BLACK** ink or ball-point pen.
- Answer **ALL** questions.
- Answer the questions in the spaces provided – there may be more space than you need.

## **MATERIALS REQUIRED FOR EXAMINATION**

**Calculator (optional)**

## **ITEMS INCLUDED WITH QUESTION PAPERS**

**Nil**

## **INFORMATION FOR CANDIDATES**

- The total mark for this paper is 90.
- The marks for **EACH** question are shown in brackets – use this as a guide as to how much time to spend on each question.
- You may use a calculator.

## **ADVICE TO CANDIDATES**

- 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)**

**Answer ALL questions. Write your answers in the spaces provided.**

**1 (a) (i) Define basal metabolic rate. (1 mark)**

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**(ii) State ONE function of adipose tissue.  
(1 mark)**

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**(Question continues on next page)**

- (b) (i) Outline TWO different ways the body uses negative feedback to regulate body temperature. (4 marks)**

**1** \_\_\_\_\_

\_\_\_\_\_

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**2** \_\_\_\_\_

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**(Question continues on next page)**

**(Turn over)**

**(ii) Describe how the failure of homeostatic mechanisms can lead to hypothermia. (4 marks)**

This image shows a blank sheet of white paper with horizontal ruling lines. The lines are evenly spaced and extend across the width of the page. There are no margins, text, or other markings on the paper.

**(TOTAL FOR QUESTION 1 = 10 MARKS)**

**(Questions continue on next page)**

**(Turn over)**

**2 (a) Explain how the nervous system controls involuntary activities in the body. (4 marks)**

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**(Question continues on next page)**

**(Turn over)**

**(b) (i) State TWO symptoms of Parkinson's disease.  
(2 marks)**

**1** \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**2** \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**(Question continues on next page)**

**(Turn over)**

**(ii) Explain how Parkinson's disease causes symptoms. (4 marks)**

This image shows a blank sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

**(TOTAL FOR QUESTION 2 = 10 MARKS)**

**(Questions continue on next page)**

**(Turn over)**



**3 (a) Describe meiosis. (4 marks)**

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**(Question continues on next page)**

**(Turn over)**

**(b) Compare foetal development in the first and third trimesters of pregnancy. (4 marks)**

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**(Question continues on next page)**

**(Turn over)**

**(c) Explain the role of the ovaries in controlling the menstrual cycle. (4 marks)**

This image shows a blank sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

**(Question continues on next page)**

**(Turn over)**

**(d) Explain the symptoms and consequences of endometriosis. (6 marks)**

[illegible]

**(Continue your answer on next page)**

**(Turn over)**

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**(TOTAL FOR QUESTION 3 = 18 MARKS)**

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**(Questions continue on next page)**

- 4 (a) One function of the pituitary gland is to control growth.

Outline **ONE OTHER** function of the pituitary gland.  
(2 marks)

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(Question continues on next page)

**(b) (i) Describe the ‘flight or fight’ response. (4 marks)**

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**(Question continues on next page)**

**(Turn over)**

**(ii) Explain the effects of hypothyroidism. (6 marks)**

[illegible]



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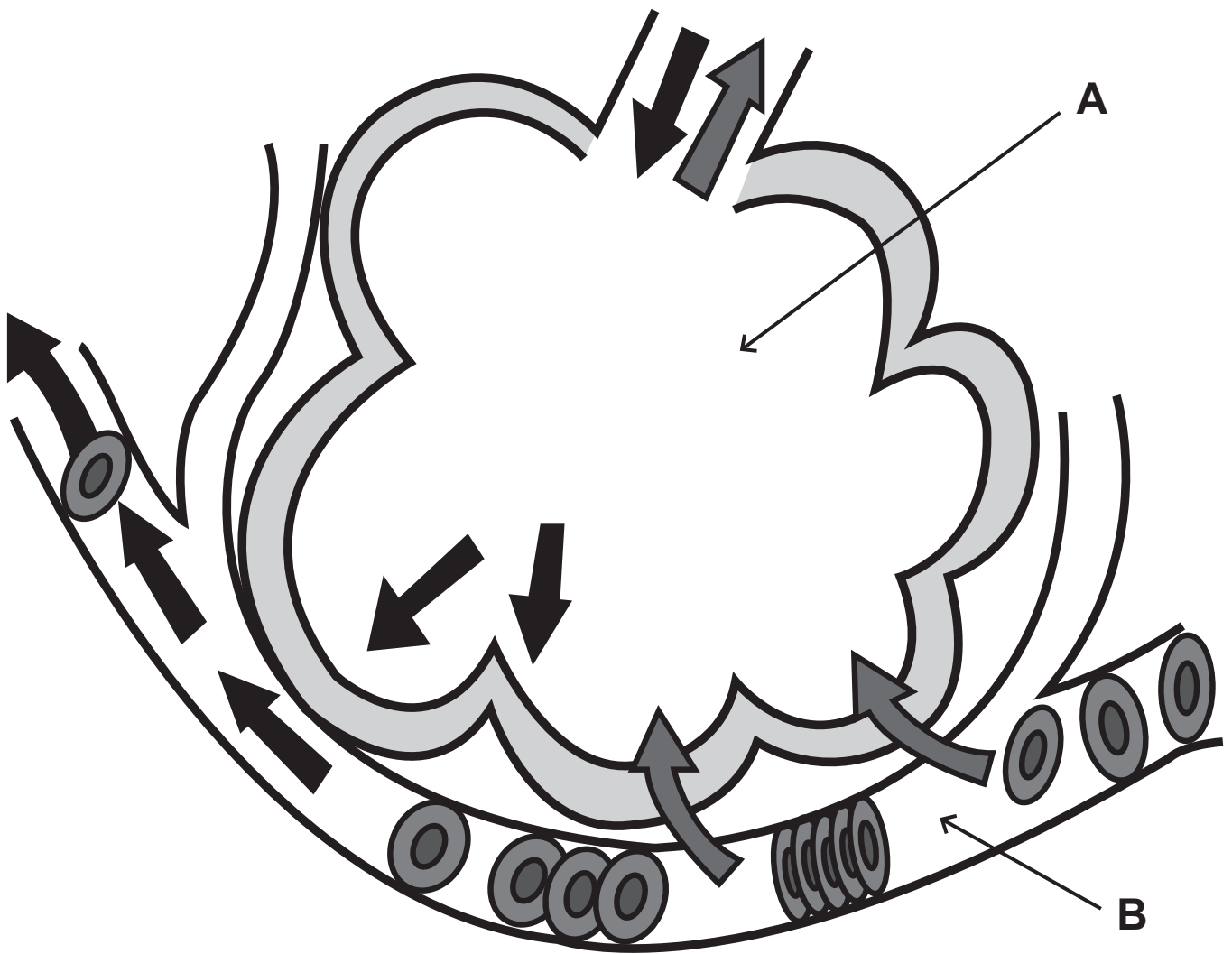
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**(TOTAL FOR QUESTION 4 = 12 MARKS)**

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**(Questions continue on next page)**

The diagram shows gas exchange in the lungs.



(Question continues on next page)

(Turn over)

- 5 (a) (i) Outline the role of structures A and B in the diagram. (4 marks)

A \_\_\_\_\_

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\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

B \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

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(Question continues on next page)

(Turn over)

- (ii) Describe ONE way the lungs are adapted for effective gas exchange. (2 marks)

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(Question continues on next page)

**(b) Explain TWO symptoms of chronic obstructive pulmonary disease. (4 marks)**

1 \_\_\_\_\_

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2 \_\_\_\_\_

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**(Question continues on next page)**

**(Turn over)**

**(c) Discuss how the cardiovascular system enables effective oxygenation of the tissues. (8 marks)**

[illegible]

**(Continue your answer on next page)**

**(Turn over)**

**(Turn over)**

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**(Question continues on next page)**



**(d) Compare aerobic and anaerobic respiration. (4 marks)**

[illegible]

**(TOTAL FOR QUESTION 5 = 22 MARKS)**

**(Questions continue on next page)**

**(Turn over)**

## **Chronic Obstructive Pulmonary Disease (COPD) and Asthma in England**

**Chronic Obstructive Pulmonary Disease (COPD) is the fifth biggest killer disease in the UK, killing approximately 25,000 people a year in England. Premature mortality from COPD in England was almost twice as high as the European (EU-15) average in 2008 and premature mortality for asthma was over 1·5 times higher.**

**Although deaths from asthma have remained at between 1000 and 1200 deaths a year since 2000, it is estimated that 90% of deaths are associated with preventable factors. Almost 40% of these deaths are in the under 75 age group. Asthma is also responsible for large numbers of hospital admissions, the majority of which are emergency admissions.**

- 6 (a) (i) Compare the mortality statistics for COPD and asthma in the article above. (2 marks)**

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**(Continue your answer on next page)**

**(Turn over)**

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**(Question continues on next page)**

**(ii) Explain the differences in incidences of COPD and asthma. (4 marks)**

[illegible]

**(Question continues on next page)**

**(Turn over)**

- (b) When researching respiratory diseases, researchers use statistics to identify areas of interest.**

**Explain how statistics can be used for this. (4 marks)**

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**(Question continues on next page)**

**(Turn over)**

- (c) Cystic fibrosis is an inherited disorder that affects the lungs and other parts of the body. The parents of a person with cystic fibrosis may not have cystic fibrosis themselves.**

**Explain why, including a genetic diagram in your answer. (8 marks)**

[illegible]

**(Continue your answer on next page)**

**(Turn over)**



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**(TOTAL FOR QUESTION 6 = 18 MARKS)**

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**TOTAL FOR PAPER = 90 MARKS  
END**