

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.**

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



- 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)**

**(Turn over)**

**(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)**

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**(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** \_\_\_\_\_

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

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**(Question continues on next page)**

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

**(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)**

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**(Question continues on next page)**

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

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**(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)**

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

**(Turn over)**



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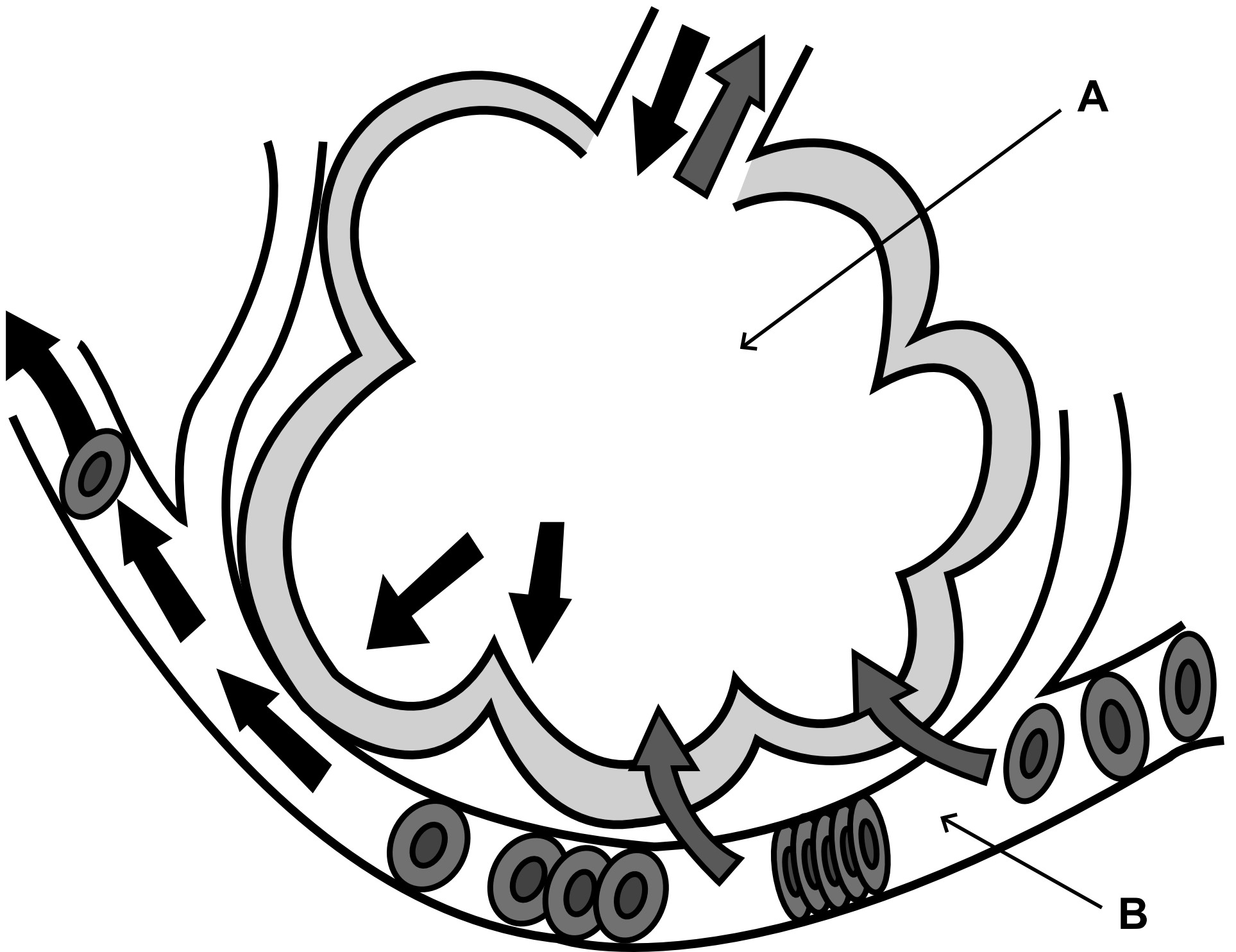
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**(TOTAL FOR QUESTION 4 = 12 MARKS)**

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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)**

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**(Question continues on next page)**

[illegible][illegible][illegible][illegible]

[illegible][illegible]

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**(Question continues on next page)**



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

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**(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)**

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**(Question continues on next page)**

**(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)**

[illegible][illegible]

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(TOTAL FOR QUESTION 6 = 18 MARKS)

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TOTAL FOR PAPER = 90 MARKS  
END