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Surname					Other names				
Centre Number					Learner Registration Number				
Pearson BTEC Level 3 Nationals Extended Diploma									

# Health and Social Care

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

Tuesday 16 January 2018 – Morning <b>Time: 1 hour 30 minutes</b>	Paper Reference <b>31493H</b>
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Calculator (optional).	Total Marks
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### 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 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

- 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.

1 (a) (i) Outline the role of homeostasis in the body.

(3)

(ii) State the gland that controls osmoregulation.

(1)

(b) Explain the role of the kidney in osmoregulation.

(4)

(c) State the role of the ureter.

(1)

(Total for Question 1 = 9 marks)

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2 (a) Enzymes are proteins that catalyse reactions in the body.

Describe the roles of amylases and proteases in digestion.

(4)

Amylases

Proteases

(b) Describe the cause and effects of coeliac disease.

(6)

(Total for Question 2 = 10 marks)



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3 (a) Explain the role of the spleen in the immune response.

(3)

(b) T cells and B cells are both white blood cells.

Compare the roles of T cells and B cells in the immune response.

(4)

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(c) Explain **two** symptoms of leukaemia.

(4)

1

2

**(Total for Question 3 = 11 marks)**



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4 (a) (i) Outline the function of ribosomes.

(2)

(ii) Identify the type of tissue where ciliated cells are found.

(1)

(b) (i) Explain how neurons are adapted to pass impulses effectively.

(6)

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(ii) Explain how the endocrine system transmits messages.

(4)

(c) Explain **one** symptom of multiple sclerosis.

(4)

**(Total for Question 4 = 17 marks)**



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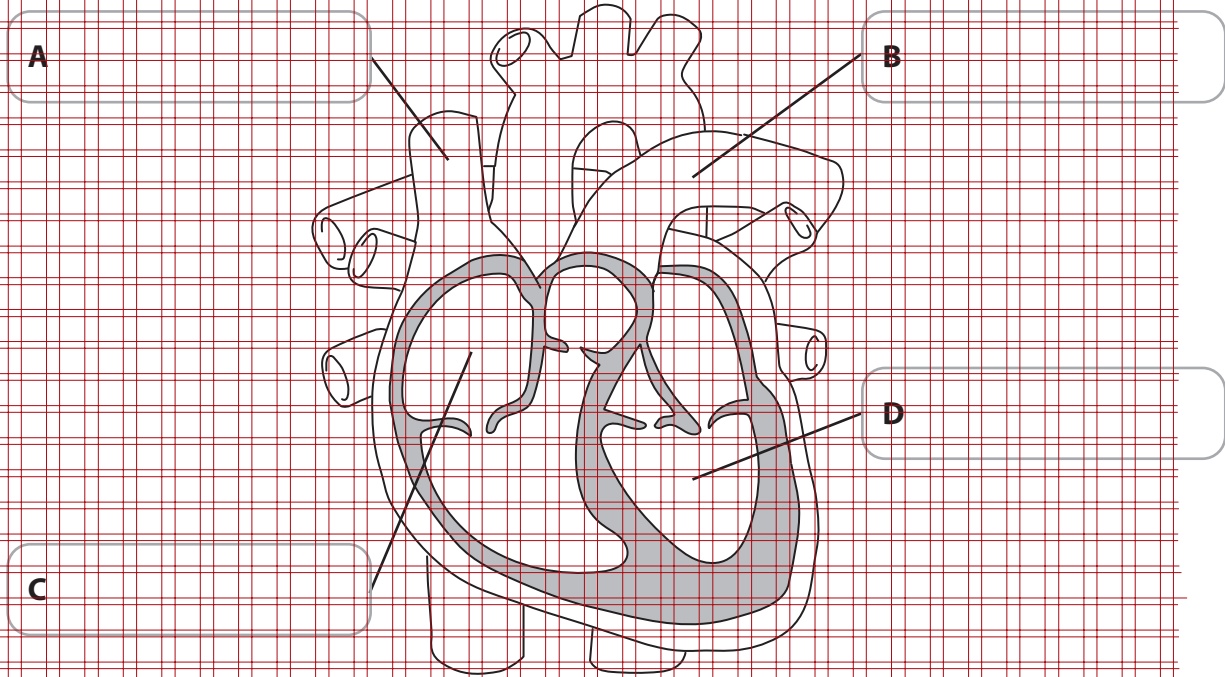
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5 (a) (i) Identify the **two** chambers and the **two** blood vessels on the diagram of the heart below.

(4)



(ii) State **two** features specific to arteries.

(2)

1

2

(b) Explain **two** long-term effects of hypertension.

(4)

1

2





(c) Describe how the cardiac cycle is controlled.

(8)

(Total for Question 5 = 18 marks)



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6 (a) (i) Define diagnostic testing.

(1)

(ii) Explain amniocentesis.

(4)

(iii) Explain **two** examples of congenital disorders.

(6)

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2

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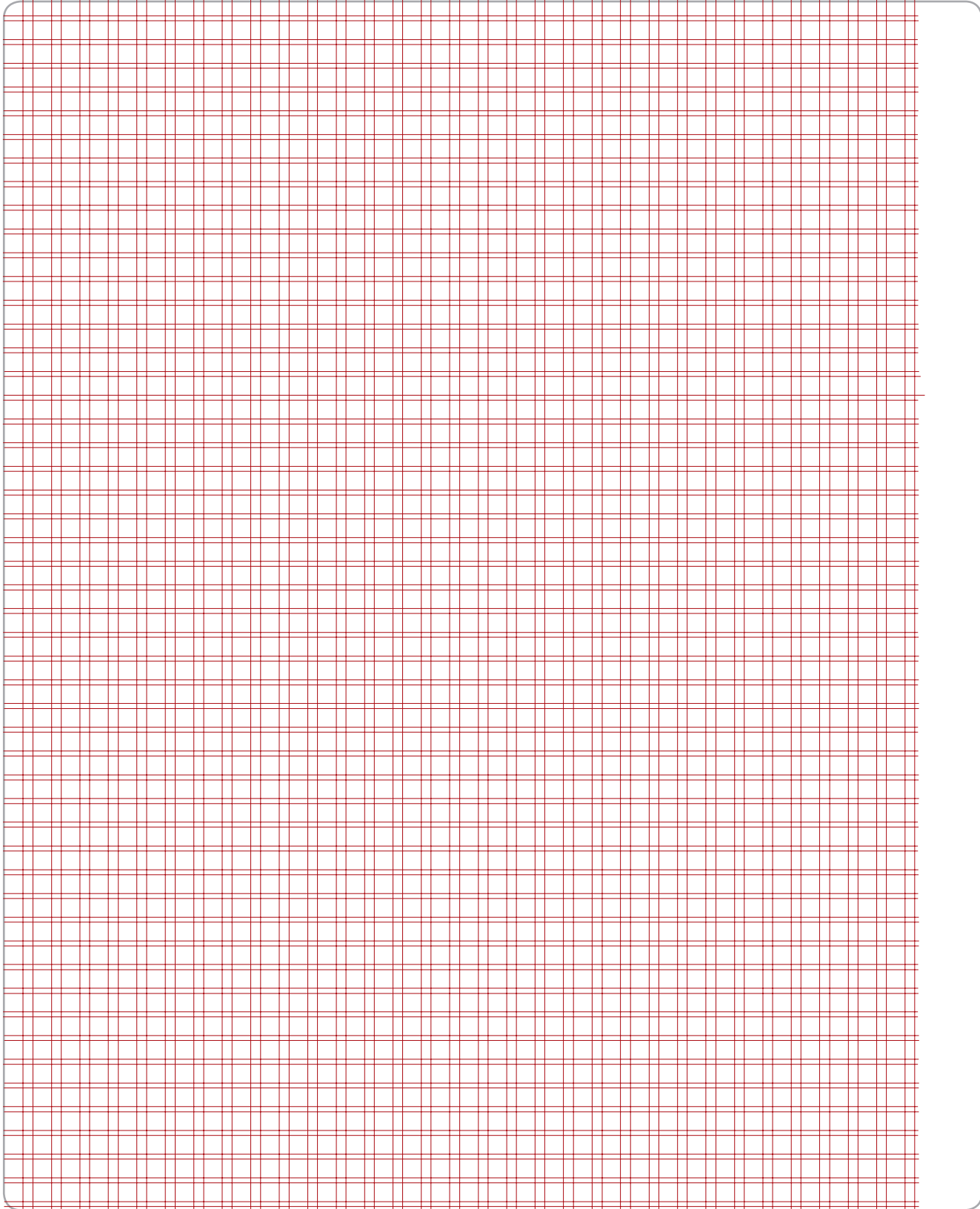
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(b) Two parents are carriers for the gene for PKU.

What is the probability of them having a child who suffers from PKU?  
Show your working.

(6)



(Total for Question 6 = 17 marks)



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Read the following article and use it to answer Question 7.

**How safe is chorionic villus sampling for early prenatal diagnosis of chromosome disorders?**

Chorionic villus sampling is used to diagnosis chromosome disorders in early pregnancy. Tissue is taken from the developing placenta by means of a catheter inserted through the cervix, and this is guided by using ultrasound.

In this study, we compared the safety of using chorionic villus sampling in 2278 women to amniocentesis in 671 women. This was carried out at 16 weeks' gestation. Both groups were made up primarily of well-educated private patients; they were recruited in the first trimester of pregnancy and had healthy pregnancies that were confirmed by ultrasound examination.

The rate of combined losses due to abortions, terminations, stillbirths, and neonatal deaths was 7.2% in the group that underwent chorionic villus sampling and 5.7% in the group that had amniocentesis. After adjusting the figures to account for slight differences in the length of pregnancy and the age of the mothers, the total loss rate for the women in the chorionic villus sampling group exceeded that for the amniocentesis group by 0.8%.

The rate of loss of chromosomally normal foetuses after chorionic villus sampling was 10.8% among women in whom three or four attempts were made to take a sample, as compared with 2.9% in those in whom only one attempt was necessary.

There were no serious maternal infections among the women in this study or among an additional 1990 women who underwent chorionic villus sampling.

(Source: Rhoads GG, et al. *The Safety and Efficacy of Chorionic Villus Sampling for Early Prenatal Diagnosis of Cytogenetic Abnormalities*. The New England Journal of Medicine (1989)).

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7 To what extent do you think that chorionic villus sampling is a safe procedure?

Refer to the article in your answer.

Grid area for writing the answer to Question 7.

**(Total for Question 7 = 8 marks)**

**TOTAL FOR PAPER = 90 MARKS**



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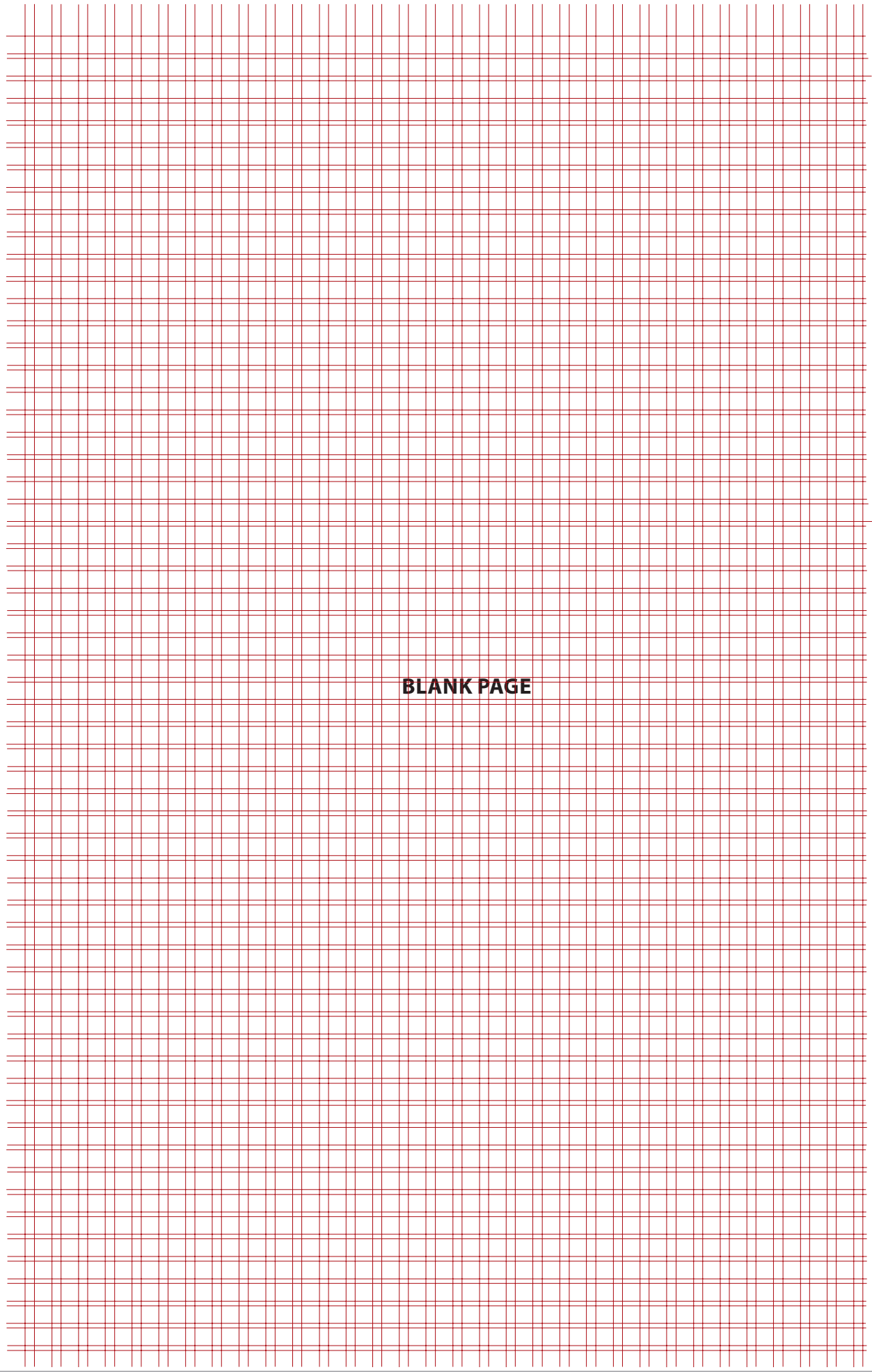
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