

Pearson BTEC Level 3 Nationals

Write your name here

Surname

Forename

Learner Registration Number

Centre Number

Level

 3

Animal Management and Animal Management with Science

Unit 2: Animal Biology

Certificate/Extended Certificate/Foundation Diploma/Diploma/Extended Diploma

Sample assessment material for first teaching September 2016

Time: 1 hour 30 minutes

Total

marks

You must have:

A calculator

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 80.
- The marks for **each** question are shown in grey boxes
– *use this as a guide as to how much time to spend on each question.*

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.

Paper reference
31645H
S51875A

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Turn over ►

PEARSON

Section A

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

1 Scientific taxonomies are used to classify animals to species level.

(a) The table below shows an incomplete taxonomic hierarchy. Complete the **two** missing grouping levels.

Kingdom
Class
Order
Genus
Species

2 marks

(b) State why this is not the correct format of the scientific name *Elephas Maximus*.

1 mark

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(c) Give **two** distinguishing features of each of the following classes.

(i) Mammalia

2 marks

1

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2

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(ii) Aves

2 marks

1

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2

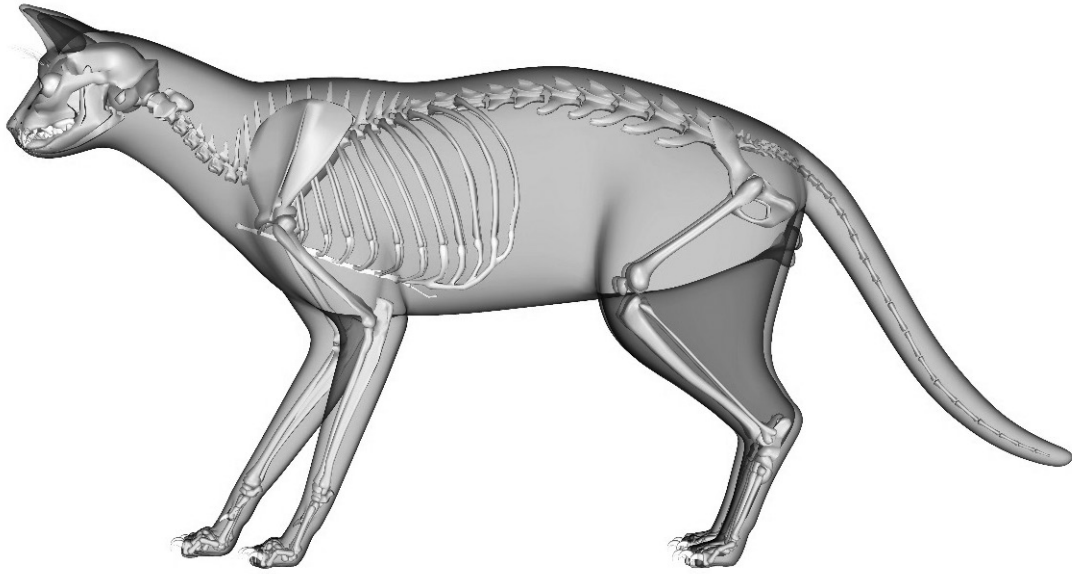
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Total for Question 1 = 7 marks



2 Below is a diagram of a cat skeleton.



(Source: © Friedrich Saurer/Science Photo Library)

(a) State **two** functions of the skeleton.

2 marks

1

2



(b) Explain **one** way the cat has adapted to successfully hunt prey.

2 marks

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(c) Cats can suffer from arthritis.

Give **one** cause and **one** symptom of arthritis.

(i) Cause

1 mark

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(ii) Symptom

1 mark

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(d) Explain **one** way the cat's sight enables it to hunt so well.

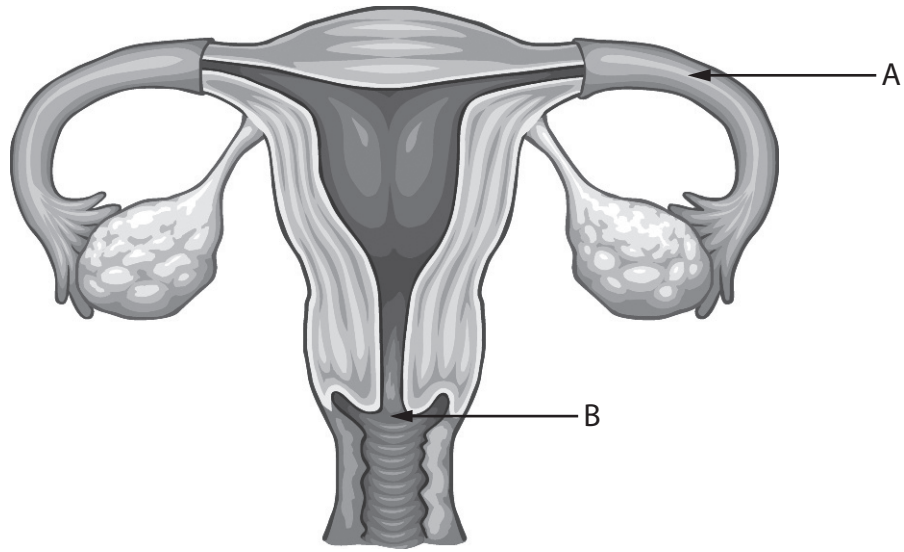
3 marks

Handwriting practice area with seven horizontal dotted lines for writing an answer.

Total for Question 2 = 9 marks



3 Below is a diagram of the reproductive system of a sow.



(a) Label structures A and B.

2 marks

A

B

(b) Give the gestation period in the sow.

1 mark

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(c) State the name of the tissue that lines the reproductive tract.

1 mark

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(d) Describe the changing levels of FSH and LH in the oestrus cycle.

(i) FSH

2 marks

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(ii) LH

2 marks

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(e) Give **two** hormones that are released by the ovaries.

2 marks

1

2

Total for Question 3 = 10 marks



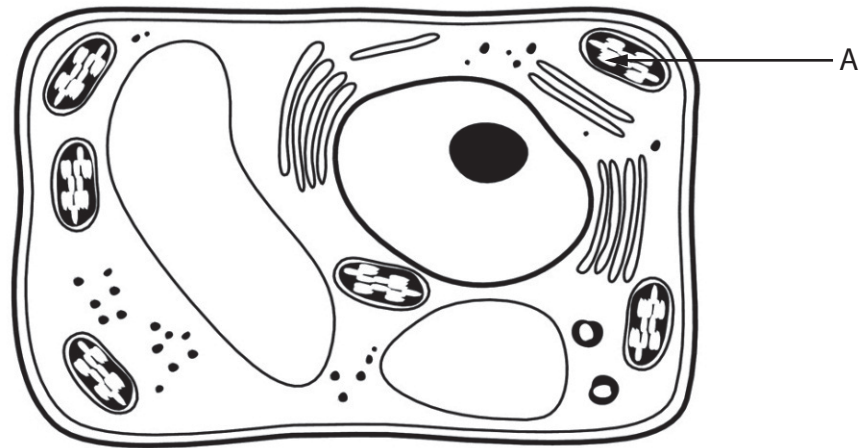
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State the name of organelle A.

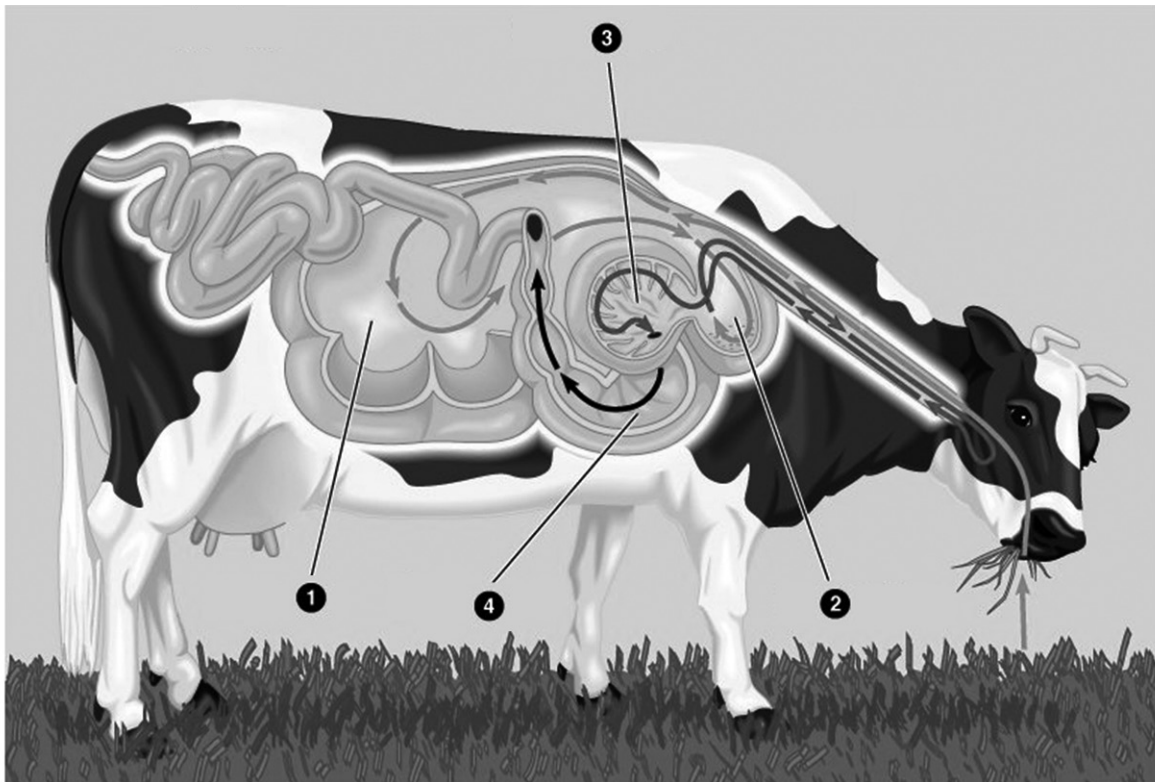


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Total for Question 4 = 1 mark



5 This is a diagram of a bovine digestive system.



(a) Explain the function of structures 1 and 3.

4 marks

Structure 1

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Structure 3

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(b) Give the name of the involuntary constriction and relaxation of smooth muscle that creates a wave-like movement throughout the digestive tract.

1 mark

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(c) The intestines contain many micro villi. Explain **one** way these structures aid digestion.

2 marks

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(d) Cows are ruminants like goats and sheep. Their digestive systems vary greatly from monogastric animals, such as dogs and poultry.

State **two** differences between ruminant and monogastric digestive systems.

2 marks

1

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2

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(e) State **one** cause and **two** consequences of the ingestion of foreign bodies in ruminants.

(i) Cause

1 mark

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(ii) Consequences

2 marks

1

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2

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Total for Question 5 = 12 marks



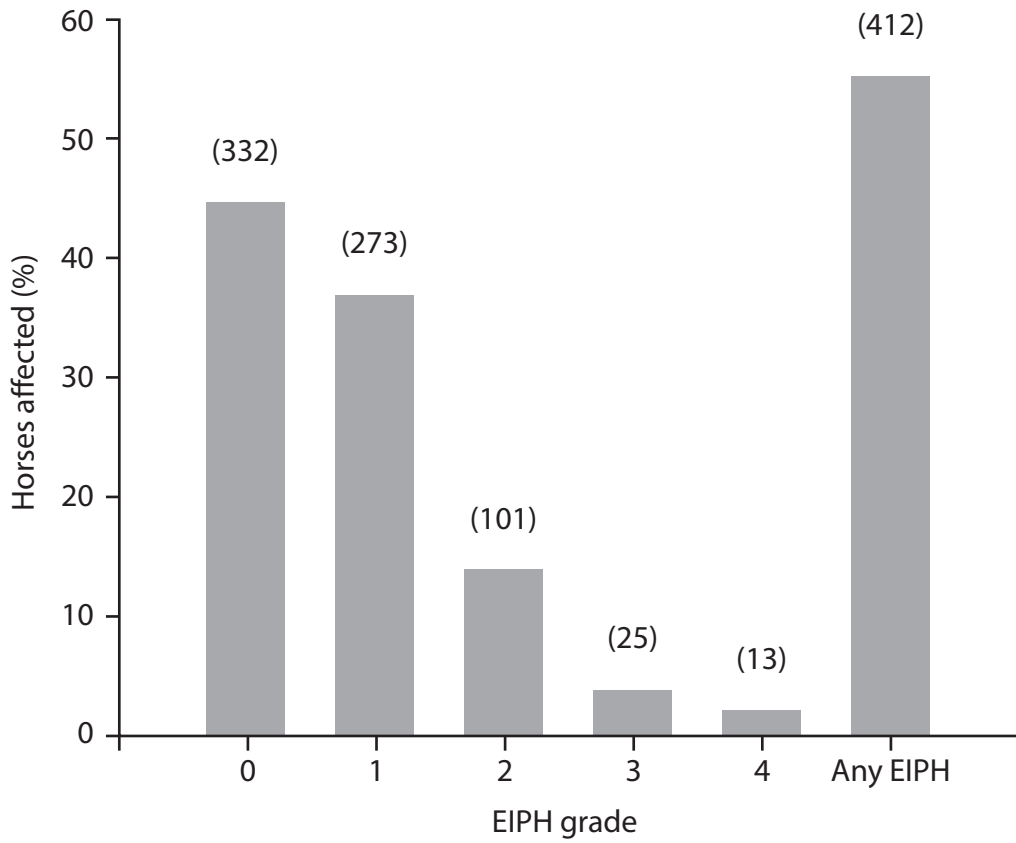
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6 EIPH (bleeding into a horse's lung following exercise) is associated with fast bouts of exercise and is seen in higher intensity equine sports, including three day eventing, polo and showjumping.

This graph shows the incidence and severity (graded 0-4) of EIPH in 744 Australian racehorses.



(a) Calculate the **mean** number of horses with EIPH graded 1 and 2.

2 marks

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(b) Give **two** functions of the circulatory system.

2 marks

1

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2

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(c) (i) State what causes a horse's heart rate to increase when it is racing.

1 mark

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(ii) Discuss how the intercostal muscles cause inspiration.

4 marks

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(d) When a horse is racing it is using more energy.

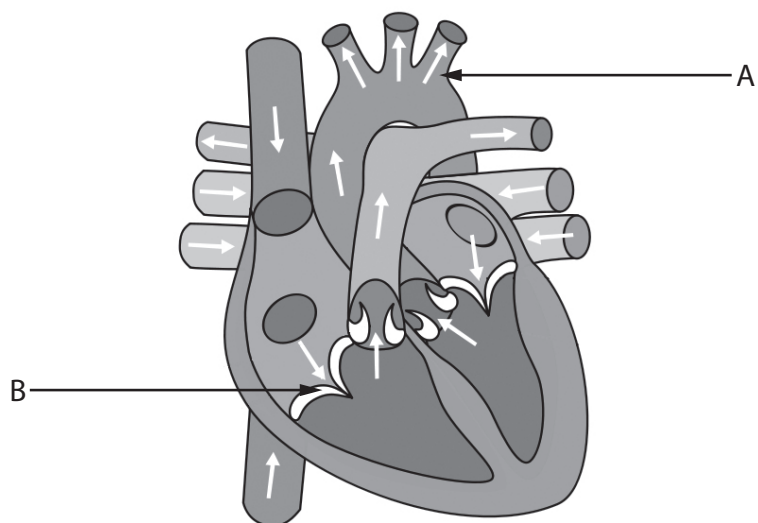
Discuss the exchange of oxygen and carbon dioxide at a cellular level in the lungs during inhalation and exhalation.

8 marks

Area for writing the answer, consisting of a large rectangular box with horizontal dotted lines.



(e) Below is a diagram of the heart.



(i) Label structures A and B.

2 marks

Structure A

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Structure B

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(ii) Discuss how the structure of the left ventricle links to its function.

3 marks

Handwriting practice area with seven horizontal dotted lines for writing.

Total for Question 6 = 22 marks

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7 Actin and myosin filaments slide in and out between each other to form muscle contractions.

A nervous impulse arrives at the neuromuscular junction (where nerve meets muscle) and causes acetylcholine to be released.

(a) (i) Explain how the release of acetylcholine results in muscle contractions.

4 marks

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(ii) Explain how calcium and troponin work together in muscle contraction.

2 marks

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(iii) Explain the breakdown of ATP in muscle contraction.

2 marks

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(b) Explain the transmission of a nerve impulse along a myelinated sheath.

3 marks

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Total for Question 7 = 11 marks

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8 The Arctic wolf is a mammal that has a counter-current blood flow.
Discuss how a counter-current blood flow functions.

Area for writing the answer to Question 8, featuring horizontal dotted lines.

Total for Question 8 = 8 marks

END OF EXAM

TOTAL FOR PAPER = 80 MARKS

