

Pearson BTEC Level 3 Nationals Extended Diploma

April 2022

Supervised hours: 3 hours

Paper Reference **31644H**

Animal Management

Unit 1: Animal Breeding and Genetics

Part A

You do not need any other materials.

Instructions

- **Part A** contains material for the completion of the preparatory work for the set task.
- **Part A** may be given to learners as soon as it is received so that learners can start the preparatory period in advance of the supervised assessment session.
- **Part A** 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.
- **Part B** materials for the set task will be issued prior to the start of the supervised assessment period according to the guidance in the specification.

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Instructions to Teachers/Tutors

Centres should refer to the *BTEC Nationals Instructions for Conducting External Assessments (ICEA)* document for full information on the correct conduct of monitored and formally supervised assessment. See Pearson website for details.

This set task has a preparatory period. **Part A** sets out how learners should prepare for the completion of the task under supervised conditions.

Part B contains unseen material and is issued to learners at the start of the formal supervised assessment session specified by Pearson.

For **Part A**, learners should be monitored over **three hours** provided by the centre to read **Part A**, carry out research and compile notes. During this time they may only have access to research materials including books, journals, the internet and notes from prior learning. Learners must work independently and must not be given guidance or feedback on the completion of the preparatory work. Learners must not prepare potential responses, and only notes produced in monitored sessions may be used during the formal assessment. Learners may produce up to **two sides** of A4 notes, which should be handwritten or typed in a 12pt font. Notes should be short, bullet-point style information, and cannot contain long narrative pieces of text.

Learner notes produced under monitored conditions must be checked by teachers/tutors to ensure that they comply with the limitations.

Learner notes should be retained by the centre between the monitored session and the formal supervised assessment.

Learner notes should be retained by the centre after the completion of the assessment and may be requested by Pearson.

Instructions for Learners

Read the set task information carefully.

Part A contains the information you need to prepare for the **Part B** set task.

You will be given **three hours** of monitored preparation. Your tutor will advise you of the scheduled session for this work.

During this session you will prepare summary notes to support you during the supervised assessment. Your notes should:

- be individually and independently prepared by you
- contain a maximum of two sides of A4, either handwritten or typed in a 12pt font
- use short, bullet-point style information, and cannot contain long narrative pieces of text.

Your notes will be checked by your centre and retained after the completion of the formal supervised assessment.

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

Your teacher/tutor cannot give you feedback during the preparation period.

Set Task Information

You are required to carry out research into the standards and practice of breeding:

- **turkeys.**

Please check the examination details below before entering your candidate information

Candidate surname

Other names

Centre Number

Learner Registration Number

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Pearson BTEC Level 3 Nationals, Extended Diploma

Supervised hours 2 hours

Paper
reference

31644H

Animal Management

UNIT 1: Animal Breeding and Genetics

Part B

You do not need any other materials.

Total Marks

Instructions

- **Part A** will need to have been used in preparation for completion of **Part B**.
- **Part B** contains material for the completion of the set task under supervised conditions.
- **Part B** should be undertaken in one session timetabled by Pearson.
- **Part B** is specific to each series and this material must only be issued to learners who have been entered to undertake the task in that series.
- **Part B** should be kept securely until the start of the supervised assessment period.
- 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.
- Complete **all** activities.
- Answer the activities 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** 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 and/or Invigilators

This set task is a formal external assessment and must be conducted with reference to the instructions in this task and answer booklet and the *BTEC Nationals Instructions for Conducting External Assessments (ICEA)* document, to ensure that the supervised period is conducted correctly and that learners have the opportunity to answer the questions independently.

Part B set task is undertaken under formal supervision in a single session of **two hours** timetabled by Pearson.

Part B materials must be issued to learners for the specified session. Work should be completed in this task and answer booklet.

Part B set task requires learners to apply understanding gained through familiarisation with the context. Learners should bring in notes as defined in **Part A**.

The teacher/tutor and/or invigilator needs to ensure that the notes comply with the requirements.

All learner work must be completed independently and authenticated by the teacher/tutor and/or invigilator before being submitted to Pearson.

Learners must not bring anything into the supervised environment or take anything out without teacher/tutor and/or invigilator approval.

Centres are responsible for putting in place appropriate checks to ensure that only permitted material is introduced into the supervised environment.

Maintaining security

- 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.
- Only permitted materials for the set task can be brought into the supervised assessment.
- During any permitted break and at the end of the session, materials must be kept securely and no items removed from the supervised assessment.
- Learners are not permitted to have access to the internet or other resources during the supervised assessment period.

Outcomes for submission

A completed task and answer booklet.

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Instructions for Learners

Read the set task information carefully.

This session is of **two hours**. Plan your time carefully.

You have prepared for the set task given in this **Part B** booklet. Use your notes prepared during **Part A** if relevant. Attempt all of **Part B**.

Your notes must be your own work and will be retained by your centre until results are issued.

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

You must work independently throughout the supervised assessment period and must not share your work with other learners.

Outcomes for submission

A completed task and answer booklet.



Set Task

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

The questions in this task and answer booklet relate to **turkeys**.

Part A Set Task Information

You are required to carry out research into the standards and practice of breeding:

- **turkeys.**

Part B Set Task Information

Bob manages a city farm; this includes a shop where meat produced on the farm is sold. To attract visitors to the farm, and increase the range of meats available in the shop, Bob is considering buying some turkeys.

Use your notes from any preparatory work completed in **Part A**.

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

1 (a) State **two** reasons, other than food production, why people breed 'rare breed' turkeys. (2)

1

2

(b) Explain **one** reason breeders saddle hen turkeys when they are being mated. (2)

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.....

(c) Describe **two** sexual characteristics of male turkeys. (4)

1

2

(Total for Question 1 = 8 marks)



2 (a) Give **four** factors that would affect your choice of a turkey to breed from.

(4)

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You have been asked to recommend the best variety of turkey for Bob. He has told you that the turkeys must have the following characteristics:

- a good temperament so they are safe around the public
 - be able to thrive in a free-range system
 - distinctive looking to attract the public to the farm
 - be able to produce fertile eggs to incubate in the farm.
- (b) Discuss the breed of turkey that you would recommend Bob buys and justify your choice.

Use your research notes to help you make a recommendation.

(12)

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Lined writing area for Question 2.

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(Total for Question 2 = 16 marks)



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QUESTION 3 BEGINS ON THE NEXT PAGE.



- 3 Some turkeys have red blood cells with two nuclei, this is a recessive trait. The majority of turkeys have red blood cells with one nucleus, this is a dominant trait. The symbol **N** is for the dominant allele, the symbol **n** is for the recessive allele.

Turkeys can be different colours.

Black is dominant over bronze and this is controlled by the gene with the symbol **B** for black, **b** for bronze.

- (a) Calculate the phenotypic probabilities if a male bronze turkey that is heterozygous for blood cell type is mated with a heterozygous black female with two nuclei in her red blood cells.

(8)

Phenotypic probability

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(b) Describe **two** of Mendel's laws of inheritance.

(4)

Law of dominance

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Law of independent assortment

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(Total for Question 3 = 12 marks)

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4 (a) Explain **three** ways breeders make sure that turkey eggs in an incubator hatch successfully.

(6)

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(b) Explain **two** signs of poor health in young turkeys.

(4)

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(c) Explain what a lethal allele is.

(2)

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(d) Explain **two** reasons breeders would use artificial insemination when breeding turkeys.

(4)

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(Total for Question 4 = 16 marks)

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5 (a) Explain **three** applications of gene manipulation.

(6)

Transgenics

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Gene therapy

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DNA screening

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(b) Explain **two** traits that are selected in turkeys to improve commercial meat production.

(4)

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(Total for Question 5 = 10 marks)

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QUESTION 6 BEGINS ON THE NEXT PAGE.



(b) Discuss the ethical issues and regulation of genetically modified animals for the food industry.

(12)

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Lined writing area for student response.

(Total for Question 6 = 18 marks)

TOTAL FOR TASK = 80 MARKS



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