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TOTAL
MARKS

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NATIONAL SENIOR CERTIFICATE EXAMINATION
NOVEMBER 2023

EQUINE STUDIES

EXAMINATION NUMBER

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Time: 3 hours

200 marks

PLEASE READ THE FOLLOWING INSTRUCTIONS CAREFULLY

1. This question paper consists of 28 pages. Please check that your question paper is complete.
2. Read the questions carefully.
3. Answer **all** the questions.
4. Answer all the questions **ON** this question paper and hand it in at the end of the examination. Remember to write your examination number in the blocks above.
5. Please number your answers exactly as the questions are numbered.
6. It is recommended that you spend approximately one hour on each section.
7. It is in your own interest to write legibly and to present your work neatly.
8. ONE blank page (page 28) is included at the end of the paper. If you run out of space for an answer, use this page. Clearly indicate the number of your answer should you use this extra space.

FOR MARKERS' USE ONLY

Question	1	2	3	4	5	6	Total
Marks	24	38	38	35	35	30	200
Marked							
Moderated							

SECTION A**QUESTION 1**

1.1 Select the correct answer for 1.1.1 – 1.1.6 and write the answer in the space provided.

1.1.1 A horse persistently rubbing its tail is likely to have an infestation of:

- A Bloodworms
- B Roundworms
- C Hair worms
- D Pinworms

(1)

1.1.2 Zoonotic disease is best referred to as one that ...

- A is notifiable.
- B is highly infectious.
- C requires quarantine.
- D is passed from animals to humans.

(1)

1.1.3 Transporting horses over long distances without a break can have a potentially serious impact on which system?

- A Urinary
- B Nervous
- C Reproductive
- D Respiratory

(1)

1.1.4 In stabled horses, insufficient time spent eating forage such as grass, chaff and hay can lead to the development of:

- A Laminitis
- B Gastric ulcers
- C Choke
- D Monday morning disease

(1)

1.1.5 Cushing's disease is specifically caused by ...

- A. advanced age.
- B a brain tumour.
- C digestive dysfunction.
- D a pituitary gland tumour.

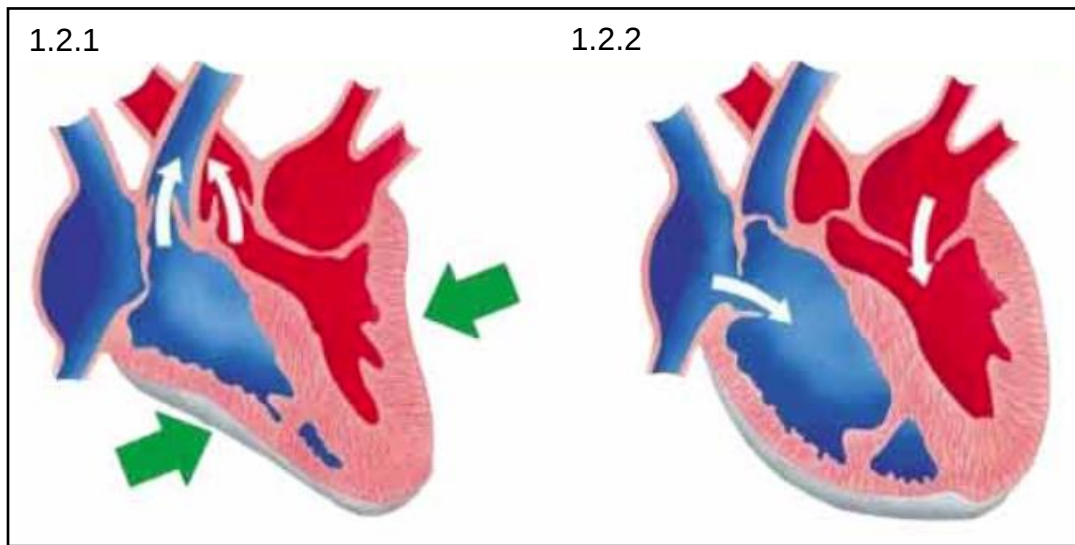
(1)

1.1.6 Locking or upward fixation of the patella occurs in which equine joint?

- A Fetlock
- B Stifle
- C Knee
- D Hip

(1)

1.2 Provide the correct term for each phase of the cardiac cycle in the diagrams below.



[Source: <<https://healthy-ojas.com>>]

1.2.1 _____

1.2.2 _____ (2)

1.2.3 Give a brief explanation of why the heart wall is thicker on the one side than on the other side.

_____ (3)

- 1.3 Using the key below complete the table indicating the average timeframe for the eruption of both **milk teeth** and **permanent teeth**.

AGE OF ERUPTION	0–1 MONTHS	1–3 MONTHS	9 MONTHS	18 MONTHS	2,5 YRS.	3,5 YRS.	4,5 YRS.
CENTRAL INCISORS							
LATERAL INCISORS							
CORNER INCISORS							

Key:

Milk teeth: M

Permanent teeth: P

Example:

AGE OF ERUPTION	0–1 MONTHS	1–3 MONTHS	9 MONTHS	18 MONTHS	2,5 YRS.	3,5 YRS.	4,5 YRS.
1ST MOLAR			P				

(6)

- 1.4 Give the functions of the following hoof structures.

1.4.1 Frog

(1)

1.4.2 Wall

(1)

1.4.3 Sole

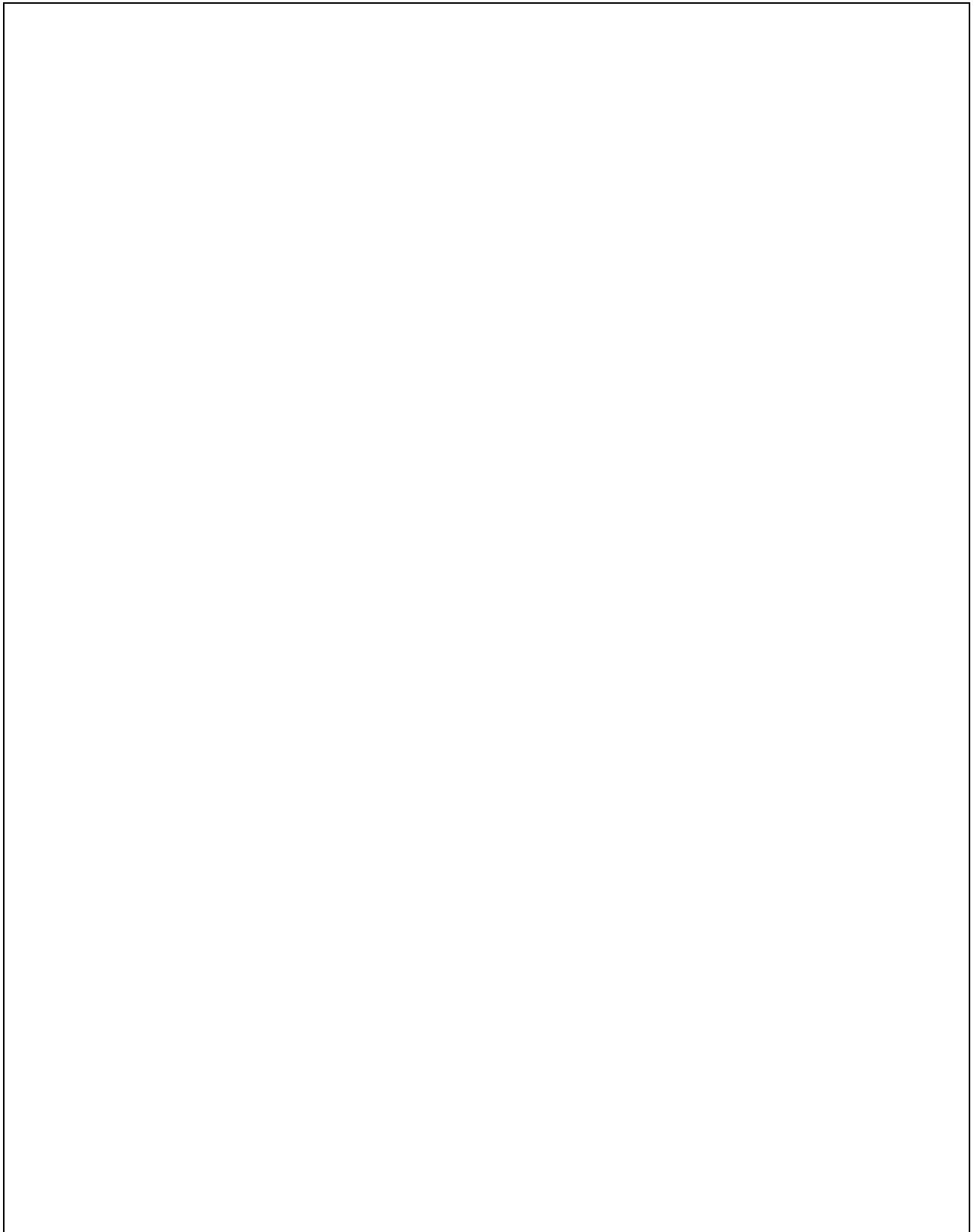
(1)

- 1.5 You suspect a horse in your care is experiencing respiratory distress; list the symptoms you would give your vet.

(4)
[24]

QUESTION 2

2.1 Draw and label a diagram of the horse's gastrointestinal tract.



Note: 2 marks will be awarded for the scale and accuracy of your diagram.

(12)

- 2.2 Give the term for involuntary muscular wavelike movement in the horse's digestive tract and discuss the role it plays in digestion.

(5)

- 2.3 Explain the digestion of fibre in the hindgut of the horse.

(5)

2.4 Outline the role prebiotics, as opposed to probiotics, play in the horse's diet.

(4)

2.5 Create a feed plan for the following horse:

A 10-year-old gelding weighing 500 kgs, shire cross, living in the northern hemisphere during winter. He is not in work. He suffers from laminitis from time to time.

[illegible]

[illegible]

(12)
[38]

62 marks

SECTION B**QUESTION 3**

Read the following extract from an article in the *Farmer's Weekly* and answer the questions that follow.

When horses' feet land unevenly, the hooves become misshapen and out of balance – crooked legs, bad joints or upper-leg pain can all cause this. Likewise, hooves that have been neglected or subjected to bad trimming or shoeing are also prone to this problem.

'An unbalanced hoof puts uneven stress on the rear part of the foot, resulting in too much force on one side, and one heel bulb ending up higher than the other,' Kim Dyson told *Farmer's Weekly*.

To recognise this condition, Dyson says to view the horse from behind while it stands on a flat surface. If the horse has this issue, one side of the heel will be higher than the other.

[Adapted from <<https://www.farmersweekly.co.za>>]

3.1 Name the condition described above.

(2)

3.2 Summarise in your own words the paragraphs above.

(4)

3.3 Explain the connection between the condition described above and thrush.

(4)

3.4 Read the following extract from later in the article:

'The horse will require some type of support over its frog, either a heart bar shoe or a shoe with a plate across the heel to support it,' she says. 'The better the load is distributed over the frog, the better the overall health of the hoof.'

Defend the argument given above.

[illegible]

(5)

3.5 Predict the prognosis of a sport horse having the condition described on page 11, along with thrush and quarter cracks. Justify your answer with sound reasoning.

(4)

3.6 You have been asked to present an argument in favour of 'barefoot versus shod'.

Your argument will be used to open a debate on the topic at an inter-riding club debating competition.

[illegible]

3.7 Study the photo below and answer the questions that follow.



[Source: www.iusarecords.com/doom.aspx?yid=3&tags=premier+equine.]

3.7.1 Name and describe the boots in the photo above.

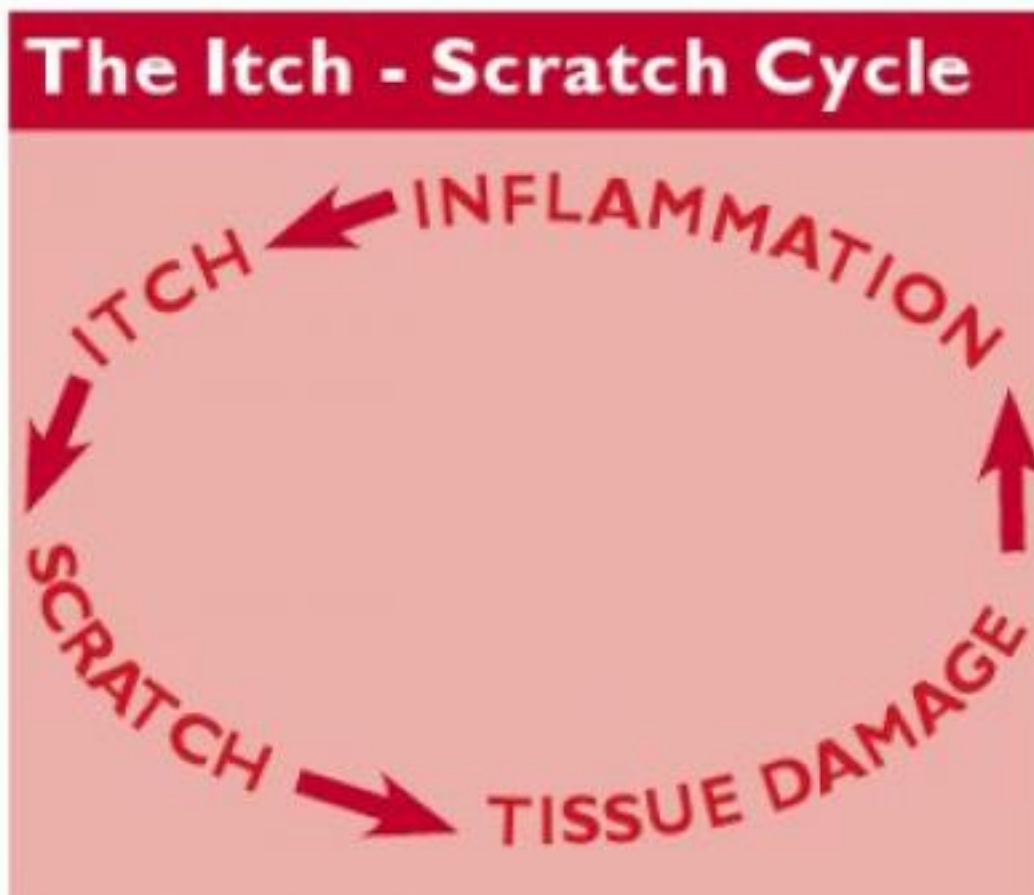
(3)

3.7.2 These boots are often used to prevent a very common issue in the lower leg. Name this condition.

(2)

3.7.3 Certain yard managers are reluctant to use these boots. Suggest FOUR possible reasons for their reluctance.

(4)
[38]

QUESTION 4

[Source: <https://horseanswerstoday.com/media/k2/items/cache/c9a74589709dbb1f577a8098addf6a36_M.jpg>]

4.1 Name two skin conditions that can cause the itch-scratch cycle in horses.

_____ (2)

4.2 List four specific entities (plant, substance, microbe, etc.) that can cause itching on the horse's skin.

(4)

(4)

This image shows a blank sheet of white paper with horizontal blue 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.

(8)

4.5 Explain what inflammation is.

(4)

4.6 List treatments you can use to treat inflammation in your horse before calling the vet.

(4)

4.7 What symptoms or areas that are inflamed in your horse would indicate that the vet needs to be called concerning this inflammation?

(4)

4.8 Documenting incidents is a requirement for every yard manager. Give FIVE examples of incidents that should be registered in your Incident Register.

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.

(5)
[35]

QUESTION 5

Study the table below and answer the questions that follow.

Length of trip (Hours)	Number of horses	Number of horses with pyrexia	Incidence of horses with pyrexia (%)
0–4	69	3	4.3
5–9	58	3	5.2
10–14	44	0	0
15–19	65	2	3.1
20–24	46	12	26.1
25–29	66	19	28.8
30–34	37	8	21.6
35–39	77	18	23.4
50–60	24	0	0

[Adapted from: <<https://www.frontiersin.org/articles/10.3389/fvets.2019.00027/full>>]

- 5.1 Which condition do you think the horses with pyrexia were suffering from after the long-distance travel?

(2)

- 5.2 After how many hours of travel did the largest number of horses experience pyrexia?

(1)

- 5.3 Suggest some reasons why the 24 horses that travelled for 50–60 hours did not have an incidence of pyrexia.

(4)

5.4 Give another term for pyrexia.

(1)

5.5 What other symptoms could the horses that were experiencing pyrexia also show?

(5)

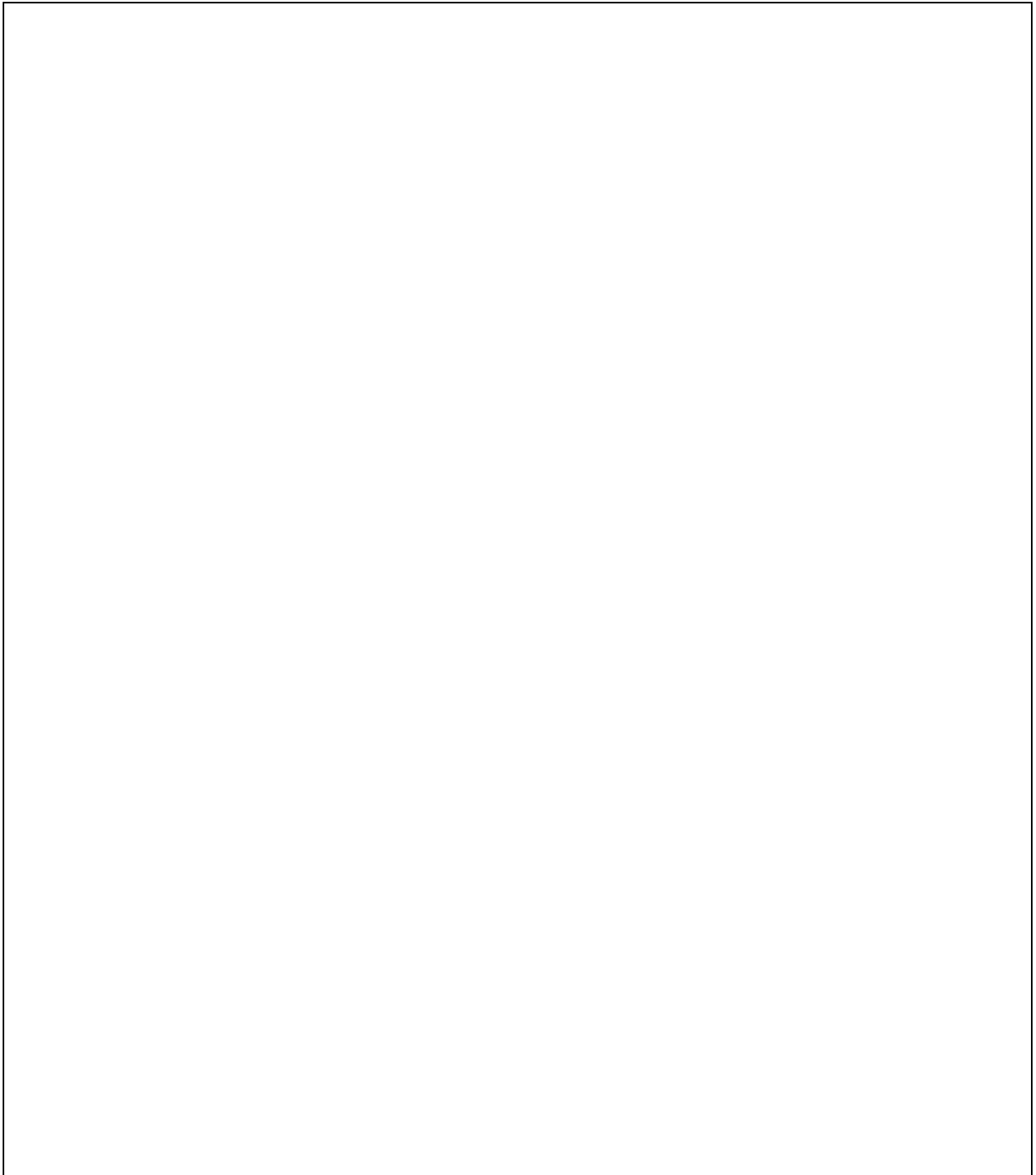
5.6 List FIVE items that must be packed when horses are transported over a long distance in South Africa.

(5)

5.7 Create a checklist that can be used when you arrive at your destination to check the health of the horses in your care.

(7)

- 5.8 Construct a bar graph that represents the information in the table on page 20. Include the number of hours travelled and the percentage of horses with pyrexia.



(10)
[35]

108 marks

SECTION C**QUESTION 6**

Read the following case study and answer the questions that follow.

Barn or Yard? When given the choice, where does a horse choose to spend its time?**Horse Management**

Horses are commonly stabled in barns during the night and during bad weather. Turn-out is based on human schedules and preferences.

Sue Wilson is a researcher from Wishing Well Services in Ontario, Canada. She did a scientific study of where a horse chooses to be during typical winter and spring weather.

The Study

Sue designed a study to assess the amount of time that a horse chooses to spend in the shelter of a barn or outside in a paddock versus time of day and seasonal weather conditions.

A small herd of horses lives freely in a 4-hectare paddock with easy access to a 70 m² barn. Free-choice hay is available in four widely spaced slow feeders in the paddock. Four hay bags are available in the barn. Water is also available in the paddock and in the barn.

Sue attached a Garmin GPS to the dominant horse (Major). She tracked his location for 10 days from 25 January to 4 February 2019 (winter) and for seven days from 19 to 26 May 2019 (spring). She downloaded data into MapQuest software. Location was classified as either 'in the barn' or 'outside'. She summed location data for each hour for comparisons of location to time of day and weather conditions. Hourly weather data was available from a Canadian Weather Station nearby. This data included temperature, wind speed, wind chill and humidity.

Results

Sue analysed Major's location in the barn or outside for 368 hours during the study period. In total, Major spent 79% of his time outside. He spent significantly more time outside in spring compared to in winter (87% vs. 74%). The weather conditions varied considerably over the study period. Hourly average temperatures, including wind chill and humidity, ranged from -36°C to +30°C. The temperature range dataset was divided into ten 37-hour periods. Major's location was analysed over this range.

Major spent significantly more time in the barn during the four extreme temperature periods than during the six mid-range periods. (Temperatures below -18°C or above +15°C were considered extreme. Temperatures between -18°C and +15°C were considered mid-range). He was in the barn 40% of the time during extreme cold and hot temperatures. He was in the barn only 9% of the time during moderate temperatures.

The daily pattern of his location was significantly different between the two seasons. In the 'dead of night' (21:00–03:00), Major was in the barn 54% of the time in the winter. He was in the barn only 1% of the time in the spring. On the other hand, during the 'heat of the day' (09:00–15:00), Major was in the barn only 2% of the time in the winter, but 41% of the time in the spring.

[Adapted from: <<https://eurodressage.com/2019/09/22/barn-or-yard-when-given-choice-where-does-horse-choose-spend-its-time>>]

6.1 List three of the variables* in the study above.

*variable: an element, feature or factor that can vary or change

(3)

6.2 Do you think using slow feeders outside and hay bags inside could make a difference to the outcome of the study? Give reasons for your answer.

(3)

6.3 In your opinion, why are horses stabled as a general practice?

(5)

6.4 Why is it important to question established beliefs in horse care?

(4)

6.5 The conclusion to this study has been removed. Create your own conclusion.

(5)

- 6.6 Looking to the future, suggest how stable yards can be converted to take this research into account and allow the horse's natural tendencies.

(4)

- 6.7 Were you surprised by the results? Give reasons for your answer.

(3)

6.8 When is it appropriate to stable a horse 24 hours a day seven days a week.

(3)
[30]

30 marks

Total: 200 marks

[illegible]