FACULTY	Faculty of Health Sciences & Veterinary Medicine		
DEPARTMENT	SCHOOL OF VETERINARY MEDICINE		
SUBJECT	Wildlife Clinical Studies I		
SUBJECT CODE	V3863PC		
DATE	November 2024		
DURATION	3 HRS	**MARKS**	150

UNIVERSITY OF NAMIBIA
SUPPLEMENTARY EXAMINATION

Examiner: Dr. M. Jago

Internal Examiner: Dr. O. Aschenborn

External Moderator: Dr. R. Burroughs

This question paper consists of twelve pages including this front page. Additional materials to be supplied: **None**
Instructions: ***Answer ALL questions*** ***Write your answers on this paper*** ***Ensure your name and student number is clearly written on the cover page*** ***If you require extra space for an answer please write on the back side of the previous page and clearly indicate to which question your answer refers.*** ***Calculators may be used where required***

STUDENT NAME:_____

STUDENT NUMBER:_____

The following 5 multiple choice questions are designed on the Single Best Answer basis. In other words, although several options may be potentially correct, only one option is the BEST answer to the question stem. Therefore, the right answer (and the one for which you will receive two marks) is the BEST option.

1. A game farmer is considering the following strategies to control a clinical outbreak of *Haemonchus contortus* in a herd of sable in a game camp. Which one is most likely to have a sustainable impact on the control of *Haemonchus contortus*?

A) The judicial use of suitable anthelmintics which are changed over time
B) The adherence to the principle of refugia and incorporating habitat modification and biological controls
C) The identification and breeding of tick resistant sable
D) The combining of sable-specific grazing strategies with veld rotation and rest
E) The applying quarantine and endo parasite treatment of all new sable arrivals before releasing them on the farm
Answer:

Score: 2 marks

2. The Serengeti/Mara ecosystem in Tanzania and Kenya includes a population of about 1.3 million wildebeest. What is likely to be the most critical factor in the transmission dynamics of bovine malignant catarrhal fever from the wildebeest to cattle in the Serengeti/Mara ecosystem?

A) Seasonal migration patterns of wildebeest
B) Availability of preferred grass species
C) Genetic diversity of the wildebeest population
D) Integrity of fencing on the borders of the parks
E) Social structure of the wildebeest population
Answer:

Score: 2 marks

3. Which of the following statements is most accurate when evaluating the current diagnostic methods used for *Theileria parva* infections in buffalo?

A) Blood smears analyzed by microscopy provides sufficient accuracy for the testing of *T. parva* in buffalo
B) PCR testing offers good sensitivity for the testing of *T. parva* in buffalo
C) Molecular methods are more repeatable than serological tests for the testing of *T. Parva*
D) Parallel testing using PCR and a serological test improves the accuracy for the testing of *T. parva* in buffalo
E) Parallel testing using PCR and microscopy of a blood smear improves the accuracy for the testing of *T. parva* in buffalo
Answer:

Score: 2 marks

4. Which of the following statements is most significant when evaluating the risk of transmission of foot and mouth disease virus from buffalo to cattle in Namibia?

A) Buffalo are seasonal breeders with most calves born in the winter months
B) Most buffalo calves become infected from 1 year of age
C) Transmission from adult carrier buffalo to susceptible cattle occurs frequently in the Zambezi region of Namibia
D) After 5 years of age the majority of adult buffalo remain persistently infected
E) During acute infection in buffalo there is considerable excretion of virus in all body secretions for 1 and 14 days
Answer:

Score: 2 marks

5. In a study examining the control of rabies in jackal in Namibia it was found that the vaccination of jackal through the use of oral bait was a successful strategy to reduce the incidence of rabies. This was most likely because:

A) Seroconversion was observed in 50 % of vaccinated jackals on day 150 after receiving the oral rabies vaccine
B) 90% of jackal were found to readily ingest rabies vaccine through the use of an oral meat bait
C) 80% of jackal challenged with rabies virus 150 days post vaccination survived
D) The oral rabies vaccine used in the jackal was an attenuated (modified-live) recombinant vaccinia virus vector vaccine
E) The recombinant vaccine used in the jackal was found not to demonstrate any tendency towards reversion to virulence
Answer:

Score: 2 marks

6. You are the state vet for Rundu. It is October, the rains have not yet started. Reports of a sudden outbreak of multiple hippo deaths in Mahango Game Reserve, east of Rundu, have been confirmed as anthrax. Describe in detail a step by step One Health response plan you will put into place in an attempt to control the outbreak. (25 marks)

7. There are a number of "animal" factors which may influence the process and/or outcome of a chemical or physical restraint of a wild animal. Using the following headings, discuss, giving examples where appropriate, these animal factors. ***{some factors may be considered to fall into either a) or b). Marks will be awarded for these correctly-identified factors irrespective of whether you place them in a) or b)}***

a) Animal behaviour/physiology (7 marks)

b) Animal health/physiology (7 marks)

c) Species response to being darted (6 marks)

8.

a) Non-technical skills or human issues are a critical component of successful game capture. As the veterinarian on a game capture operation describe what you should do to prepare yourself prior to an operation. (5 marks)

b) Having all equipment routinely services is a general principle with respect to equipment safety. List other equipment safety general principles. (5 marks)

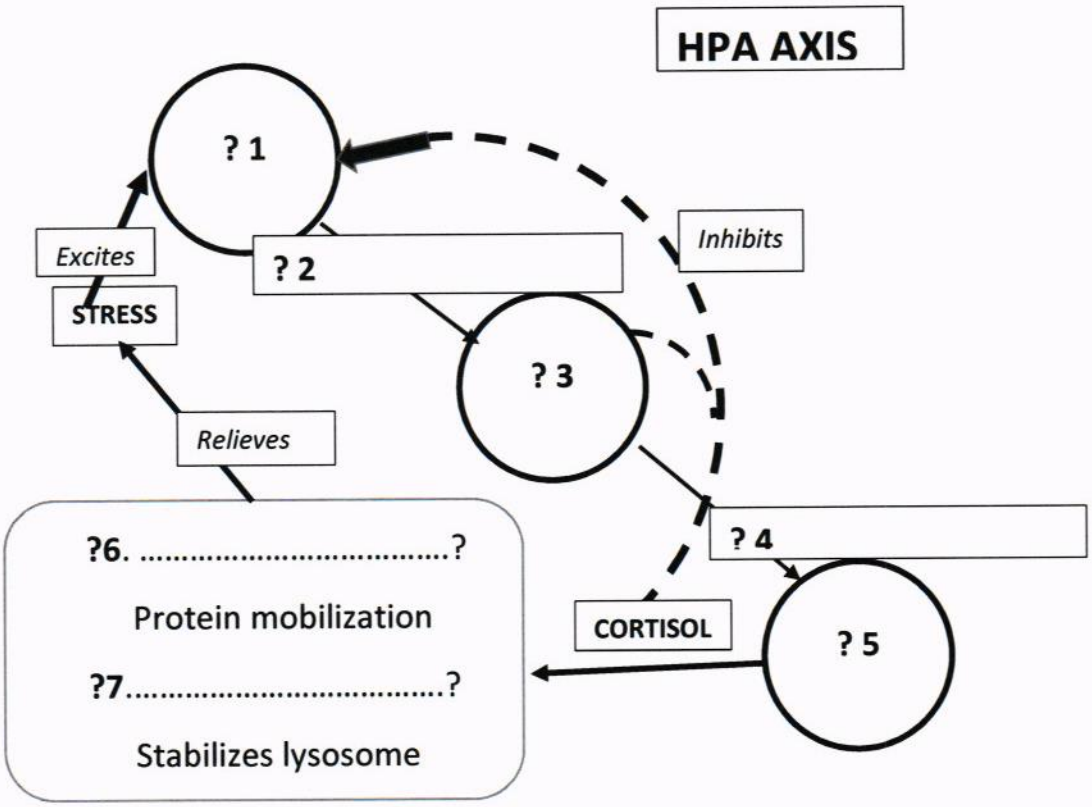
c) List three conditions to avoid so as to operate a helicopter optimally. (3 marks)

d) From which direction should you approach to enter a helicopter when the rotor blades are turning? (1 mark)

e) Describe the licensing requirements (licence and rating) of a helicopter pilot before he may carry out darting with a veterinarian using a helicopter in Namibia. (1 mark)

9.

a) **Complete the following diagram** **(7 marks)**



b) **Capture shock syndrome and ataxic myoblobinuric syndrome are two of four syndromes recognized by Spraker under the Capture Myopathy umbrella. List the other two syndromes in the "Spraker Classification".** **(2 marks)**

c) **Describe the clinical presentation of capture shock syndrome in wild animals.** **(4 marks)**

d) **Describe the clinical presentation of ataxic myoglobinuric syndrome in wild animals.**
(4 marks)

e) **Describe what measures you would take to prevent capture myopathy in a wild animal during its capture.**
(3 marks)

10. Draw a well-designed water trough for a rhino captive holding facility. Identify and label five key features of the water trough. For each feature give a brief explanation for the particular design you have chosen.
(1 mark for each design feature and 1 mark for the reason you have designed the feature in this way – total 10 marks)

11.

a) Vultures are obligate scavengers which may be described as ecosystem service providers. One such service that vultures provide to the ecosystem is to "encourage regional cooperation". List another 3 ecosystem services vultures provide. (3 marks)

b) List 4 reasons for why vultures are poisoned. (4 marks)

c) Describe 4 possible ways in which veterinarians may inadvertently poison vultures. (4 marks)

12.

a) List 10 principles (not precautions) involved in the hand rearing of orphaned animals, and give one reason for why each principle is considered to be important.

(1 mark for each principle and ½ mark for each reason for why the principle is considered important. 15 marks total)

b) Give 5 specific conditions in which an animal that is injured or that has physiological weaknesses or pathological problems should not be considered fit for transport as set out in the CITES guidelines for the non-air transport of live wild animals. (5 marks)

13.

a) Control of pathogenic agents and/or clinical disease may be controlled in wildlife populations through either reactive or proactive strategies. Compare these two strategies by completing the following table. (12 marks)

	Reactive	Proactive
The aim of the strategy	**(2)**	**(2)**
List four methods of control for each strategy. Do not repeat a control method (i.e. 4 different control methods for each strategy, and therefore a total of 8 strategies)	**(4)**	**(4)**

b) Starting from the central column with the name of the clinical disease, draw a line from the disease to the one pathogen in the left-hand column that causes the clinical disease. Starting again from the column with the name of the clinical disease, draw a line to the one box in the right-hand column which best describes the species as most likely to be, or has been reported as being, clinically affected by this disease. If you need to make a correction to your work, it must be clear. (1/2 mark per correct line). **(7 marks)**

Pathogen responsible for this disease	Clinical Disease in Domestic and/or Wildlife	The species which has been most frequently reported as being clinically affected by this disease
Theileria parva	Heartwater	"Disease free" buffalo
A member of the *Asfarviridae*	Babesiosis	Black rhino
Influena A - H5N1	Equine Piroplasmosis	Blue wildebeest
Babesia Bicornis	Corridor Disease	Donkey
Ehrlichia ruminantium	Canine Distemper	Lion
Babesia caballi/Theileria equi	African Swine fever	Chicken
Alcelaphine Herpes Virus	Highly Pathogenic Avian Influenza	Domestic pig
A member of the *Paramyxoviridae*		Springbok
A member of *Reoviridae; Orbivirus*		Wild waterfowl