

INTERNAL STUDENTS ONLY

EXAMINATION PAPER
NOT TO BE REMOVED
FROM ROOM

**The University of Queensland
Second Semester Examination, November 2000**

**VJ410
APPLIED NUTRITION
(BVSc IV, BAgrSc III, DipAgSc.)**

**Time: Two (2) hours for working
Ten (10) minutes for perusal**

***All questions to be answered
EXCEPT that Section E is NOT to be answered
by AgrSc or DipAgrSc students***

***Questions carry the number of marks indicated (total of 120)
Each of Sections A to E are to be answered
in separate Examination Booklets***

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SECTION A

Question 1.

- (a) You have been asked to give advice on a horse stud in south-east Queensland regarding the feeding management of next year's (February 2001) Thoroughbred weanlings. The paddocks contain Rhodes grass (30%) and Kikuyu (70%) with an average yield of 5000 kg/ha and a height of 50 cm. The horses are supplemented with 2 kg of oats and 30 grams of salt per day. Discuss the positives and negatives of this feeding regime and how it may effect the weanlings. Also discuss any changes that need to be made. (10 marks)
- (b) Prior to this years Sydney Olympics you have been asked to advise the Australian Three Day Eventing Team on the feeding management practices and any specific feeding requirements of the team's horses. The team's horses have specific problems such as fussy eaters, horses prone to tying up and nervous/excitable horses. (10 marks)

SECTION B

(go to new answer booklet)

Question 2.

Ration formulation is a management procedure of increasing importance to dairy farmers. Make comments on the following points as they relate to the use of ration formulation on dairy farms.

- Effective ration formulation needs information on both the cow's requirements and the nutrient contents in feeds. What type of information is required, and how does it differ between these two categories?
- Are there simple ration formulation assessments the farmer can do without a computer? If so, what questions would they answer?
- What would be the limits to the usefulness of a sophisticated ration formulation package imported from overseas and used on a Queensland dairy farm.
- Place the following nutrients in one of the following categories when formulating rations for Queensland dairy farms. Metabolisable energy, crude protein, RDP, UDP, NDF, ADF, sodium, calcium, iron, magnesium, silicon, vitamin D.

Always relevant – sometimes relevant – never relevant.

(20 marks)

SECTION C

(go to new answer booklet)

Question 3.

Matching reproducing ewes' nutrient requirements to pasture availability and quality is important if maximum reproductive capacity of the ewes is to be obtained. Describe how sheep producers in both summer (tropical, sub-tropical) and winter (Mediterranean) environments attempt to attain this objective.

(20 marks)

Question 4.

- a) Discuss the feeding and feeding management of cattle in a feedlot. **(10 marks)**
- b) Discuss feeding practices that could be adopted when drought feeding cattle (fully hand feeding for survival).

(10 marks)

SECTION D

(go to new answer booklet)

Question 5.

- (a) List the **eight** most important nutrient constraints in formulating poultry diets from typical ingredients and give suggested minimum (or maximum) levels (g/kg) for **four** of these for (i) starter broiler and (ii) adult layer (winter) diets.
- (b) List the reasons why it is desirable to include more than one ingredient in a given feedstuff category when formulating a diet for poultry.
- (c) What reasonable level of accuracy should be applied when weighing out feedstuff ingredients prior to mixing diets for poultry?
- (d) Under what circumstances are tallow and/or vegetable oils included in poultry feed formulations?
- (e) What effect does season have on the nutrient composition of layer diets?

(10 marks)

Question 6.

Discuss the value of the different sorts of creep diets for piglets and the influence that age at weaning and digestive enzymes have on response to such diets.

(10 marks)

(Section E begins on following page)

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SECTION E

STUDENT NAME: STUDENT No.

(Tick the correct answer – 0.8 mark per question)
(go to new answer booklet)

1. A two year old Alaskan Malamute is presented to you with complaints of a thin, depigmented hair coat, scaly dermatitis (particularly around the eyes, mouth and ears) and parakeratosis. If the cause of these clinical signs is nutritional, the condition is most likely to be a deficiency of:
 - (a) selenium
 - (b) calcium
 - (c) taurine
 - (d) zinc.

2. Feeding a solely dog food diet to a queen of reproductive age is likely to lead to:
 - (a) reproductive failure and central retinal degeneration
 - (b) dilated cardiomyopathy and reproductive failure
 - (c) central retinal degeneration and cerebrocortical necrosis
 - (d) reproductive failure or central retinal degeneration or dilated cardiomyopathy.

3. Which feeding regime would be most appropriate for an adult dog of normal body weight and condition, hit by a motor vehicle this morning and scheduled for femoral fracture repair in two days?
 - (a) enteral feeding of a liquefied diet via stomach tube
 - (b) parental feeding by intravenous infusion
 - (c) voluntary oral consumption
 - (d) parenteral feeding by intraosseus infusion.

4. The most appropriate feeding regime for a three month old Great Dane is:
 - (a) unlimited access to an unlimited amount of food
 - (b) unlimited access to a limited amount of food
 - (c) limited access to an unlimited amount of food
 - (d) limited access to a limited amount of food.

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5. A three month old Nova Scotia Duck Tolling Retriever being fed on meat scraps alone would have:
- (a) a tendency to develop hypocalcaemic seizures
 - (b) a tendency to develop vitamin D deficiency (= "rickets")
 - (c) a high serum calcium as the vitamin D in the meat would increase the calcium uptake above normal
 - (d) a low normal serum calcium as the calcium resorbed from the bone compensates for the low dietary calcium.
6. Defining the "ideal weight" of a client's dog is difficult because:
- (a) there is a large, normal variability of body weights within breeds
 - (b) old dogs weigh more than young dogs
 - (c) there is a large, normal variability of body weights between breeds
 - (d) neutered dogs are always heavier than intact dogs.
7. The clinical signs of hypervitaminosis A are:
- (a) radiolucency at bone growth plates and pathological fractures of bones
 - (b) mild fever, painful to palpate fatty tissues and a characteristic, deep yellow colour to the fatty tissues
 - (c) seizures with a characteristic opisthotonic posture
 - (d) inability to walk distances because of an inability to flex and extend joints.
8. It is best to feed Himalayan kittens (< 3months of age)
- (a) kitten food as two meals daily
 - (b) ad libitum as they are unlikely to overeat
 - (c) adult cat food three times daily
 - (d) pet's mince four times daily.
9. During early (say during the second to third week) lactation, bitches require:
- (a) less energy intake/day than late pregnancy
 - (b) same energy intake/day as late pregnancy
 - (c) same energy intake/day as mid pregnancy
 - (d) more energy intake/day than late pregnancy.

10. During pregnancy a queen requires extra nutrition:
- (a) from the beginning of the third week after mating
 - (b) from the beginning of the fifth week after mating
 - (c) from the beginning of the eighth week after mating
 - (d) during the entire pregnancy.
11. Cats with thiamin deficiency typically exhibit:
- (a) bilateral mydriasis with cervical ventroflexion
 - (b) bilateral miosis and opisthotonus
 - (c) a pendulous abdomen with painful to palpate inguinal fat pad
 - (d) dyspnoea because of thoracic effusion and dilated cardiomyopathy.
12. You would recommend that a St. Bernard pup should be fed a diet formulated for adult dogs from:
- (a) approximately 6 months of age
 - (b) approximately 9 months of age
 - (c) approximately 12 months of age
 - (d) approximately 18 months of age.
13. A 15 week old Burmese kitten fed liver as its sole diet could show clinical signs of:
- (a) an inability to groom itself due to exostoses of the cervical vertebrae
 - (b) an inability to walk because of exostoses of the elbows and stifles
 - (c) chronic iron deficiency anaemia (microcytic, hypochromic)
 - (d) an inability to walk because of pathologic bone fractures.
14. Which feeding regime is most appropriate for a healthy adult Cairn Terrier of normal weight:
- (a) unlimited access to an unlimited amount of food
 - (b) unlimited access to a limited amount of food
 - (c) limited access to an unlimited amount of food
 - (d) limited access to a limited amount of food.
15. During pregnancy, a Cocker Spaniel bitch requires extra nutrition:
- (a) from the beginning of the third week after mating
 - (b) from the beginning of the fifth week after mating
 - (c) from the beginning of the eighth week after mating
 - (d) during the entire pregnancy.

16. Of the choices below, which category of Siamese cats is most likely to exhibit signs of hypervitaminosis A?
- (a) usually young (<9 months of age), on an all meat diet
 - (b) usually older cats (>5 years of age), on a vegetarian diet
 - (c) usually young (<9 months of age), on an all cooked meat diet
 - (d) usually older cats (>5 years of age), fed fish oil to enhance their hair coat.
17. Treatment of obesity in dogs commonly doesn't work because:
- (a) owners use their own appetite suppressant drugs that don't work on dogs
 - (b) owners don't like to starve their dogs
 - (c) owners think increasing the exercise of their dog is sufficient
 - (d) owners need a lot of psychological support and encouragement.
18. Domestic Shorthaired cats with idiopathic hepatic lipidosis are often:
- (a) starved and very thin as a result
 - (b) polyuric/polydipsic with a low urine specific gravity (1.008 - 1.012) because the liver is compromised
 - (c) still relatively "normal" weight because they lose muscle, not fat
 - (d) have seizures which respond to therapy with intravenous thiamin.
19. The most appropriate initial feeding regime for an otherwise healthy Labrador Retriever that has been vomiting during the previous 24 hours is:
- (a) no food but water by free choice
 - (b) no food or water for about 15-18 hours
 - (c) small amounts of digestible food with unlimited water access
 - (d) small amounts of digestible food with limited access to water.
20. To provide a suitable diet for an Australian Cattle Dog during a working period (such as a large muster) for say, two to three weeks is a diet containing:
- (a) a higher amount of protein
 - (b) a higher amount of fibre
 - (c) a higher amount of fat
 - (d) a higher amount of carbohydrates.

21. Which feeding regime is most appropriate for an adult Scottish Fold cat of normal weight?
- (a) unlimited access to an unlimited amount of food
 - (b) unlimited access to a limited amount of food
 - (c) limited access to an unlimited amount of food
 - (d) limited access to a limited amount of food.
22. Which feeding regime is most appropriate for a healthy adult dog of normal weight?
- (a) unlimited access to an unlimited amount of food
 - (b) unlimited access to a limited amount of food
 - (c) limited access to an unlimited amount of food
 - (d) limited access to a limited amount of food.
23. Which amino acid is essential for cats but not for dogs?
- (a) valine
 - (b) lysine
 - (c) methionine
 - (d) taurine.
24. What is the ideal calcium:phosphorus (Ca:P) ratio for food in a young, growing pup or kitten?
- (a) 1.3:1
 - (b) 3.1:1
 - (c) 1:20
 - (d) 20:1
25. Cats are more likely to become thiamin deficient after long exposure to:
- (a) being fed a raw carp
 - (b) being fed a vegetarian diet
 - (c) being fed a dog food only diet
 - (d) being fed a raw kangaroo meat diet.