Name ____________________________

AVS 305  
Final Exam  
December 17, 1999

1. What is the first component to balance a ration for? 2 pts

2. Name 1 fat soluble and 1 water soluble vitamin. Identify them as fat or water soluble. 4 pts

3. Lactate is produced during what process? 3 pts

4. As diets change from 100% roughage to 100% concentrates, does heat increment of feeding increase, decrease or not change? 2 pts

5. True or False. Only a very small (<10%) portion of the energy value of feed is used to meet maintenance requirements of growing ruminants. 2 pts

6. True or False. The bigger an animal is, the more heat it produces. 2 pts

7. How does prolonged cold impact basal heat production? 2 pts

8. Where is the bulk of carbohydrate absorbed from in a ruminant? 2 pts

9. Where is the bulk of protein absorbed from in a nonruminant? 2 pts

10. What are lipoproteins? 2 pts

11. Do grazing systems allow an animal to reach their genetic potential for production? Why or why not? 5 pts

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12. True or False. The gastrointestinal tract and liver consume oxygen directly in proportion to their percent of body weight. 2 pts

13. Why do fish have lower maintenance requirements for energy than other animals? 4 pts

14. When is energy demand of pregnancy the greatest? 3 pts

15. True or False. The bulk of ATP is directly formed during reactions of the TCA cycle. 2 pts

16. What is body condition? 2 pts

17. True or False. In general, milk yield and various indices of cow fertility are inversely related. 2 pts

18. Where does fermentation occur in horses? 4 pts

19. What is(are) the fatty acid(s) required by poultry? 2 pts

20. If you wanted to lose weight, how could you do it? 4 pts

21. What can someone measure in blood, plasma or milk that can indicate an overfeeding of protein? 2 pts

22. Give 2 advantages to having a rumen. 6 pts
23. Why, in fish, does metabolizable energy offer little advantage over DE in evaluating useful energy in feedstuffs? 4 pts

24. Glucose and amino acids are vital to the developing fetus. Are amino acids actively or passively transported across the placenta to supply the fetus? 2 pts

25. The pregnant ewe must increase her glucose production in late pregnancy. Describe how she accomplishes this. 3 pts

26. What is lactose? 2 pts

27. What is the principal form of lipid in milk fat? 2 pts

28. What is the most abundant type of protein found in bovine milk? 2 pts

29. What are the two factors used to estimate the nutrient requirements for milk production? 4 pts

30. What is NDF and ADF and what do each measure? 4 pts
31. Describe lipid digestion in a pig. 6 pts

32. In endurance exercise, what are 2 sources for generation of ATP? 6 pts

33. What limits the rate of ATP synthesis from the sources in question #32? 3 pts

34. In general, what is the maximum allowable amount of fat in a dog's ration? 3 pts

35. How much energy is in 1 g of fat? 2 pts

36. How much energy is in 1 g of carbohydrate? 2 pts

37. Name 2 factors that affect body composition. 6 pts

38. True or False. Empty body weight is a very good predictor of body composition independent of age or plane of nutrition. 3 pts

39. In the stomach of the dog, protein digestion is initiated by the enzyme ________________, which is activated by the secretion of __________________. 4 pts

40. What is the linkage of molecules in cellulose? 2 pts

41. What is the linkage of molecules in amylose? 2 pts
42. What is the linkage of molecules in amylopectin? 2 pts

43. What is the linkage of molecules in hemicellulose? 2 pts

44. Which fatty acid, palmitate or stearate, has a longer carbon chain? 2 pts

45. Which fatty acid, palmitate or oleate, has double bonds? 2 pts

46. The major dietary form of vitamin A available to grazing ruminants is ____________ (chemical), which is converted to its active form ________________ (chemical) in ________________ (tissue). 3 pts

47. What is the average nitrogen content of proteins? 3 pts

48. Why are dairy farmers advised to reduce the calcium content of rations fed to dry cows during the last couple of weeks of pregnancy? 3 pts

49. Why can urea be fed to ruminants as a source of nitrogen? 3 pts

50. Ruminants do not generally require these vitamins since rumen bacteria make them? 3 pts

*Use the following sheet with chemical compounds to answer the remaining questions.*

51. Which molecule is produced to dispose of N in terrestrial animals? 2 pts

52. Which molecule is a 4-carbon volatile fatty acid? 2 pts

53. Which molecule is lysine? 2 pts

54. Which molecule is a product of rumen fermentation and is the principal source of glucose in ruminants? 2 pts

55. Which molecule is the basic unit of cellulose and hemicellulose? 2 pts

56. Identify the basic unit used by ruminants to synthesize fatty acids? 2 pts

57. Which molecule is methionine? 2 pts
BONUS Identify these 2 compounds. 2 pts each