2015 National FFA Poultry Evaluation Career Development Event
Written Examination

Directions: Please read each item carefully. Using a **No. 2 pencil**, bubble the letter on your scan sheet that corresponds with the most correct answer.

1. A 21-week old market tom turkey should be expected to weigh
   a. less than 20 pounds.
   b. 20 to 30 pounds.
   c. 30 to 40 pounds.
   d. more than 40 pounds.
   d) C-5

2. The expected body temperature range of healthy poultry is
   a. 98.6 to 99.0° C
   b. 99.0 to 102° F
   c. 98.6° F
   d. 105.0° F to 107.0° F
   d) C-13

3. *Anser anser* is the species name for
   a. chickens (domestic).
   b. pheasants (ring-necked).
   c. geese (domestic).
   d. ducks (mallards).
   c) C-14

4. Which muscle draws the head of the chicken left or right and moves the scapula?
   a. flexor perforan
   b. obliquus
   c. savorius
   d. trapezius
   d) C-17

5. Sternum, breastbone, and keel are
   a. names for the bone in the chicken that provides attachment for the pectoralis major and pectoralis minor muscles.
   b. names for the bone that supports the breast muscles.
   c. different names for the bone which, if deformed (crooked), may reduce market value of the carcass.
   d. Answers a., b., and c. are correct.
   d) C-18 & C-19

6. What is a common name for the hypotarsal?
   a. neck
   b. phalanges
   c. knee cap
   d. hock joint
   d) C-19

7. Which part of the ovum (yolk) is penetrated by an avian sperm during fertilization?
   a. blastoderm
   b. blastodisc
   c. chalazae
   d. shell membrane
   b) C-27 & C-28

8. Which part of an incubating egg contains enzymes that digest yolk material so it can be absorbed by the developing embryo?
   a. area opaca
   b. yolk sac
   c. allantois
   d. chalazae
   b) C-28 & C-29

9. Which is the proper order of development of a chick embryo from earliest to latest?
   a. gastrulation, primitive streak, primitive groove
   b. gastrulation, primitive groove, primitive streak
   c. primitive groove, primitive streak, gastrulation
   d. All embryonic development occurs simultaneously.
   a) C-30

10. Direct, indirect (both vector-borne and vehicle-borne), and airborne refer to
   a. transmission mechanisms of infectious agents.
   b. vaccine applications.
   c. transmission of disease immunity.
   d. types of poultry ventilation systems.
   a) C-41 & C-42

11. This disease is caused by a herpes virus and may be observed in pullets from 2 to 16 weeks of age. To prevent it, which vaccination is usually given to pullet chicks grown for egg production?
   a. Marek's
   b. Newcastle
   c. Infectious bronchitis
   d. Fowl Pox
   a) C-47

12. This disease is caused by protozoa of the genus *Eimeria.* Nine species affect chickens and three species are pathogenic to turkeys. Symptoms include enteritis, decreased production performance, and mortality.
a. Avian influenza
b. Marek's
c. Infectious bursal disease
d. Coccidiosis
d) C-52

13. Leg disorders in broilers can be caused by nutritional, genetic, or infectious factors. Conditions that may be nutrition-related include
a. rickets.
b. tibial dyschondraplasia.
c. perosis.
d. Answers a., b., and c. are leg disorders in broilers that may be nutrition-related.
d) C-53

14. When poultry manure is converted into a biogas, it contains almost 30%
a. methane (CH_4).
b. carbon dioxide (CO_2).
c. water vapor.
d. hydrogen sulfide (H_2S).
b) C-69

15. A large amount of moisture is created within a poultry building. Most of it must be removed by
a. cooling of incoming air.
b. methods of evaporative cooling.
c. exchange of air with the outside environment.
d. mechanically replacing the litter.
c) C-74

16. Which statement is true?
a. In all types of poultry housing and conditions, reducing the ventilation rate will not increase moisture removal.
b. Too low a ventilation rate will not result in damp, muggy conditions for the birds.
c. During cold weather, the outdoor air entering a facility must be cooled to increase its capacity to hold moisture.
d. All of the above answers are false regarding the ventilation of poultry houses and the removal of moisture.
d) C-76

17. Source of the genetic trait providing the modern broiler with a large, broad breast is the _____ breed of chicken.
a. Wyandotte
b. Rock
c. Cochin
d. Cornish
d) C-91

18. Which class of nutrient contains carbon, hydrogen, oxygen, nitrogen, and in some cases sulfur?
a. proteins
b. carbohydrates
c. fats and oils
d. electrolytes
a) C-94 & C-95

19. The fat soluble vitamins include
a. A, B_1, B_2, and B_{12}.
b. A, D, B_1, and B_2.
c. A, D, E, and folic acid.
d. None of the above answers is entirely correct.
d) C-97

20. Which of the following elements are considered *macro minerals* in regard to poultry nutrition?
a. Ca
b. P
c. Mg
d. Calcium, phosphorus, and magnesium are classified as *macro minerals.*
d) C-96

21. Which hormones and/or steroid implants or feed additives are used in poultry production in the United States?
a. DES (diestibestrol)
b. zeranol
c. combinations involving six types of anabolic steroids
d. None of the above substances is approved by the FDA for use in poultry production.
d) C-103

22. Which of the federal agencies listed, as identified by their respective acronyms, has regulatory oversight of poultry processing?
a. NIH
b. NASA
c. FSIS
d. NOAH
c) C-107

23. Proper timing of feed withdrawal for pre-slaughter birds has what effect during processing?
a. limits fecal matter in the intestine and aids in reducing fecal contamination
b. eliminates weak birds prior to slaughter
c. is critical in cost savings due to less shrinkage of poultry viscera
d. proper timing of feed withdrawal for pre-slaughter birds is only important in the processing of market turkeys
a) C-108

24. The USDA requires that carcasses must be chilled to below which temperature within 4 to 8 hours depending on carcass weight?
a. 32°F
b. 40°F
c. 45°F
d. 27°F
b) C-110

25. The dressed carcass without neck and WOG comprises what percentage of a broiler's live weight?
a. 57% to 61%
b. 63% to 65%
c. 67% to 71%
d. 75%
b) C-115

26. Calculate the number of pounds of ground corn (9.0% crude protein) and concentrate (41.0% crude protein) required to formulate 100 pounds of an 18.0% crude protein feed. Assume the concentrate will contain all additional nutrients, vitamins, and other additives necessary to produce a complete feed.

a. 23 pounds of corn and 9 pounds of concentrate
b. 41 pounds of corn and 23 pounds of concentrate
c. 72 pounds of corn and 28 pounds of concentrate
d. 28 pounds of corn and 72 pounds of concentrate

Answer c)

Using Pearson's Square

CORN	9		23
DESIRED		18	
CONCENTRATE	41		9
			32

Corn = 23/32 (72.0% or 72/100) and Concentrate = 9/32 (28.0% or 28/100)

Based on related content found on C-105 & C-106

27. Egg layer manure containing 78.0% moisture was analyzed to contain 4.4% calcium (Ca) and 1.5% nitrogen (N) on a dry matter (DM) basis,. How many pounds of each mineral would be found in one ton of the fresh (wet) egg layer manure?

a. 19.36 pounds Ca and 6.60 pounds N
b. 68.64 pounds Ca and 23.47 pounds N
c. 88.87 pounds Ca and 30.12 pounds N
d. None of the above answers is correct.

Answer a)

1 ton or 2000 lbs x (1.00 - .78) = 440 lbs of DM in 1 ton of fresh (wet) manure

440 lbs DM * 4.4% Ca = 19.36 lbs of Ca and 440 lbs DM * 1.5% N = 6.60 lbs of N

Based on related content found on C-70 & C-71

28. Broiler litter was analyzed and found to contain 38.0% moisture and it had the following analysis on a dry matter basis (DMB): Total nitrogen (N), 4.48%; total phosphorus (P), 2.17%; and total potassium (K), 3.61%. How many **pounds** of total N, P, and K are in one ton of the fresh (or as-is or non-dried) broiler litter?

a) N = 55.6, P = 26.9, K = 44.8
b) N = 89, P = 43, K = 72
c) N = 4.48, P = 2.17, K = 3.61
d) None of the above answers is correct.

Answer a)

2000 lbs litter * (1 - .38) = 1240 lbs DM
1240 lbs DM * 4.48 % N DMB = 55.6 lbs N
1240 lbs DM * 2.17 % P DMB = 26.9 lbs P
1240 lbs DM * 3.61 % N DMB = 44.8 lbs K

Based on related content found on C-70 & C-71

29) A broiler company expects to produce 850,000 birds per week, and typically loses 1% of all birds due to leg problems. The average live weight of birds at the time of processing is 5.75 pounds/bird, and the expected dressing percentage (WOG) is 63.0%. If the carcass value (WOG) is $0.78/pound, calculate approximately how much money would be lost annually due the birds with leg problems.

a) ~$1,601,145
b) ~$240,172
c) ~$48,875
d) ~$1,248,884

Answer d)

850,000 birds x 1% = 8500 birds lost/week
8500 birds x 5.75 pounds/bird x 63.0% WOG yield x $0.78/pound = ~$24,017 lost/week
~$24,017/week x 52 weeks/year = ~$1,248,884 lost annually

Based on related content found on C-53 & C-115

30) A poultry house is equipped for tunnel ventilation with 8 outward-facing fans at one end of the house and a pad system at the other end. Each fan is capable of moving 23,500 cubic feet of air/minute. The pad system is evenly divided with half on one sidewall, and the other half on the opposite sidewall. For hot weather cooling, at least 1 square foot of pad space is recommended for every 250 cubic feet/minute of air movement. If the pads are 4.5 feet high and all fans are operating, the total length of pad needed, including both sidewalls, is _____ feet.

a. 167
b. 83.5
c. 752
d. 334

Answer a)

Total air movement = 8 fans x 23,500 cfm/fan = 188,000 cfm
Square feet of pad needed = 188,000 cfm x 1 square foot/250 cfm = 752 square feet
Length of pad = 752 square feet/4.5 feet high = 167 feet

Based on related content found on C-84 & C-85