

**2018 National FFA Poultry Evaluation CDE
Written Examination KEY**

1. A broiler should reach 3.5 to 4.5 pounds of live weight in 6 to 7 weeks and require ____ or fewer pounds of feed per pound of body weight.
 - a. Two
 - b. Three
 - c. Four
 - d. Five

Reference: C-4

AS.03.02 Analyze feed rations and assess if they meet the nutritional needs of animals.

2. ____ turkey production occurs under a contract system and growers are typically paid based on the number of birds produced.
 - a. 75%
 - b. 85%
 - c. 95%
 - d. 100%

Reference: C-5

AS.01.02. Assess and select animal production methods for use in animal systems based upon their effectiveness and impacts.

3. According to the Aviagen Turkey Guide, the basis of the generally accepted practices of animal welfare are the five basic freedoms. Which of the following is not one of these listed freedoms?
 - a. Freedom from thirst and hunger
 - b. Freedom from confinement
 - c. Freedom from fear and distress
 - d. Freedom from pain, injury, and disease

Reference: Turkey Guide, Page 4

AS.01.02. Assess and select animal production methods for use in animal systems based upon their effectiveness and impacts.

4. In the Aviagen Turkey Guide, what related management activity will help optimize foot pads and leg integrity?
 - a. Walk the turkeys
 - b. Provide slatted flooring
 - c. Maintain deep pit manure levels below 4' in depth
 - d. Turning litter each week or as needed

Reference : Broiler Management Guide, page 12

AS.05. Evaluate environmental factors affecting animal performance and implement procedures for enhancing performance and animal health.

5. According to the general recommendations for broiler stocking density around the world in the Cobb Broiler Management Guide, which system has the highest maximum stocking density of 8.6 pound/ft²?
 - a. Solid wall house with tunnel ventilation and evaporative cooling.
 - b. Solid wall house with tunnel ventilation and foggers.

- c. Open sided house with positive pressure ventilation and side wall fans at 60°.
- d. Open sided house with natural ventilation and stir fans.

Reference : Broiler Management Guide, page 1

AS.08.01. Design and implement methods to reduce the effects of animal production on the environment.

- 6. A watering system utilizing Bell or Cup drinkers would be considered what type water system?
 - a. High flow rate
 - b. Low flow rate
 - c. Open
 - d. Closed

Reference : Broiler Management Guide, page 1

AS.07.01. Design programs to prevent animal diseases, parasites and other disorders and ensure animal welfare.

- 7. When analyzing hatchery data for chicks produced from a specific breeder farm that produces hatching eggs from 60-week-old hens, you determine that hatch of fertile was 88.6% and percentage hatch was 79%. This would indicate a hatchability problem likely related to:
 - a. Problems associated at the breeder farm.
 - b. Problems associated at the hatchery.
 - c. Both farm and hatchery are likely not to be performing to standard.
 - d. No trouble shooting information are indicated by this data.

Reference: Hatchery Management Guide, page 2

AS.06.02. Apply principles of comparative anatomy and physiology to uses within various animal systems.

- 8. In the section related to marketing of poultry products, branded poultry products have marketed well as an identifiable brand associated with a specific company; however, along with this brand identity is:
 - a. Increased reluctance of merchandisers to stock these identified products for sale.
 - b. Brands are associated with a processor and the reputation of the processor must be maintained to assure market presence and acceptability.
 - c. A recall of a branded product is no trouble for the producer as product has no association.
 - d. None of the above.

Reference: Marketing of Poultry Products, C-98, page 4

FPP.02.03.01.a. Examine and explain the importance of food labeling to the consumer.

- 9. The HACCP System has been implemented to prevent the potential of hazards associated with products. HACCP refers to:
 - a. Hazard and Critical Commercial Products
 - b. Hazard and Citizens Certification Process
 - c. Hazard Analysis Certification Control Process

d. Hazard Analysis Critical Control Points

Reference: Marketing of Poultry Products, C-98, page 4

FPP.01.02. Apply food safety and sanitation procedures in the handling and processing of food products to ensure food quality.

10. In the processing of poultry broiler carcasses, chicken parts which are destined to be utilized as bone-in, breaded product in fast-food would typically be:

- a. **Hard scalded**
- b. Soft scalded
- c. Skinned
- d. None of the above

Reference: Processing Poultry Products, C-97, Page 3

FPP.01.03.01.a. Identify and summarize purposes of food storage procedures (e.g., first in/first out, temperature regulation, monitoring, etc.).

11. Reducing carcass temperature in processing is a critical step in broiler processing. The USDA requires that the carcasses must be chilled below:

- a. 45° F in 4 to 8 hours
- b. **40° F in 4 to 8 hours**
- c. 40° F in 1 hour
- d. None of the above

Reference: Processing Poultry Products, C-97, Page 4

FPP.01.03.01.a. Identify and summarize purposes of food storage procedures (e.g., first in/first out, temperature regulation, monitoring, etc.).

12. The main objective of cooling of poultry meat during processing is to:

- a. Minimize muscle breakdown yet achieve tenderness
- b. Maintain favorable color of the product
- c. Remove residual heat from scalding process
- d. **Minimize bacterial growth**

Reference: Processing Poultry Products, C-97, Page 4

FPP.01.03.01.a. Identify and summarize purposes of food storage procedures (e.g., first in/first out, temperature regulation, monitoring, etc.).

13. The USDA, FSIS, stands for:

- a. **Food Safety Inspection Service**
- b. Federal and State Inspection Service
- c. Federal Services Inspection Safety
- d. None of the above as FSIS is a unit of the FDA (Food and Drug Administration)

Reference: Processing Poultry Products, C-97, Page 1

FPP.03.01.03.a. Identify and describe protocols for inspection and harvesting techniques for animal food products (e.g., pre-mortem and post-mortem inspections, Food Safety Inspection Service guidelines (FSIS), etc.).

14. Body conformation, fleshing and finish are factors to consider when evaluating broilers for meat production. What percentage should be assigned to the finish of the broiler.
- a. 45%
 - b. 35%
 - c. 40%
 - d. 10%

Reference: B-2.

AS.06.02.03.c. Apply knowledge of anatomical and physiological characteristics of animals to make production and management decisions.

15. The fleshing on a broiler refers to the distribution of muscle and the total _____.
- a. of thigh meat
 - b. of wing and back meat
 - c. of drum and thigh meat
 - d. of breast meat

Reference: B-3

AS.06.02.03.c. Apply knowledge of anatomical and physiological characteristics of animals to make production and management decisions.

16. The width of muscling is in direct correlation with the _____.
- B-19
- a. width of breast between the top keel to the point of the keel.
 - b. width of breast between the points of the wing attachments.
 - c. width of breast between the Pectoralis Major and Pectoralis Minor.
 - d. width of breast between the Clavicle and Pectoralis Major.

Reference: B-4

AS.06.02.03.a. Identify and summarize the properties, locations, functions and types of animal cells, tissues, organs and body systems.

17. The specifications for standards of quality for individual carcasses and parts state that exposed flesh factors for a poultry carcass that weighs from 2 to 6 pounds is allowed no more than _____ inches of exposed flesh on the breast and leg area to grade USDA Grade A.
- a. ½"
 - b. ¼"
 - c. 1"
 - d. ¾"

Reference: B-19

FPP.03.01.01.a. Summarize characteristics of quality and yield grades of food products.

18. The specifications for standards of quality for individual carcasses and parts state that “when grading parts the thigh with back portion, Leg, and Leg Quarter may have the _____ disjointed from the hip joint.”
- a. back portion
 - b. drumstick
 - c. humorous
 - d. femur

Reference: B-19

FPP.03.01.01.a. Summarize characteristics of quality and yield grades of food products.

19. There are 4 major parts of an egg. The outer thin is found in which part of the four (4) parts? B-27
- a. Membrane
 - b. Shell
 - c. Ovum
 - d. White

Reference: B-27

FPP.03.01.04.a. Identify and describe foods derived from different classifications of food products (e.g., meat, egg, poultry, fish, dairy, fruits, vegetables, grains, legumes, oilseeds, etc.).

20. Practically all freshly laid eggs contain four layers of albumen — chalaziferous, inner thin, thick, and outer thin. Another term for the chalaziferous is _____.
- a. outer thick
 - b. outer membrane
 - c. inner thick
 - d. middle thick

Reference: B-33

AS.06.02.02.a. Examine the basic functions of animal cells in animal growth and reproduction.

21. An egg shell that has localized stains covering less than 1/32 of the shell or scattered stains covering less than 1/16 of the shell should receive a USDA grade of _____?
- a. Loss
 - b. AA
 - c. A
 - d. B

Reference: B-33

FPP.03.01.01.a. Summarize characteristics of quality and yield grades of food products.

22. The Total surface area of a normal 2-ounce egg = ___ square inches?
- a. $1 \frac{9}{16} \times 1 \frac{9}{16}$
 - b. $13/16 \times 13/16$
 - c. $9/16 \times 9/16$
 - d. $10\frac{1}{2}$

Reference: B-33

FPP.03.01.04.a. Identify and describe foods derived from different classifications of food products (e.g., meat, egg, poultry, fish, dairy, fruits, vegetables, grains, legumes, oilseeds, etc.).

23. An egg shell that cracked inside the hen's body and then was repaired by additional calcium deposited over the cracked area, resulting in a ridged area should be graded a USDA ____.
- a. B Quality
 - b. A Quality
 - c. C Quality
 - d. non-gradable

Reference: B-34

FPP.03.01.01.a. Summarize characteristics of quality and yield grades of food products.

24. Products with a "homestyle" appearance, will have greater than ____% coating pickup; at this level of pickup with products will be labeled as "fritters."
- a. 25
 - b. 10
 - c. 75
 - d. 30

Reference: B-38

FPP.02.03.01.a. Examine and explain the importance of food labeling to the consumer.

25. There are several species of quail that exist in the world, but only four (4) are the most common. What species of quail cannot survive in the wild? C-151
- a. chukar
 - b. coturnix
 - c. bobwhite
 - d. blue

Reference: C-151

AS.01.02.04.a. Identify and summarize wildlife management methods.

26. It takes 8-10 gallons of water to fill and clean 100 feet of ¾ inch waterline in a turkey house. If your building is 500 feet long and has two water lines you should make up a minimum of _____ gallons of cleaning solution.
- a. 90
 - b. 100
 - c. 110
 - d. 120

Reference: Turkey Guide, Page 28; $10 \times 5 \times 2 = 100$

BS.02.03. Apply standard operating procedures for the safe handling of biological and chemical materials in a laboratory.

27. Because hatcheries have no influence over fertility, it is important to consider hatch of fertile in addition to hatchability. The hatch of fertile percent is a measurement of the efficiency of the hatchery machinery. Hatch of fertile takes into account the flock fertility as well as hatchability. If you set 100,000 eggs from farm A on a given day and you have 86,000 chicks hatch from those eggs and you know that the eggs were 97% fertile, what is the hatch of fertile percentage for those eggs?

- a. 80.66%
- b. 84.66%
- c. 88.66%**
- d. 92.66%

Reference: Hatchery management, page 2
 $\% \text{ Hatch} / \% \text{ Fertile} = \% \text{ Hatch of Fertile}$
 $\% \text{ Hatch} = 860,00/100,000 = .86 \text{ (86\%)}$
 $\% \text{ Fertile} = 97\% \text{ (given in question)}$
 $.86 / .97 = .8866 \text{ (88.66\%)}$

AS.03. Design and provide proper animal nutrition to achieve desired outcomes for performance, development, reproduction and/or economic production.

28. A common feed blend for laying hens is based on a mixture of 67% corn, 22% soybean meal, 8% limestone and 3% other ingredients. If you had a 10-ton delivery of feed to your storage bin how many pounds of soybean meal was in the delivery?

- a. 4,000 lbs.
- b. 4,100 lbs.
- c. 4,200 lbs.
- d. 4,400 lbs.**

Reference: C-125; $10 \times .22 = 2.2 \text{ (tons)}$; $2.2 \times 2,000 = 4,400 \text{ pounds}$

AS.03. Design and provide proper animal nutrition to achieve desired outcomes for performance, development, reproduction and/or economic production.

29. If you have 80,000-layer hens in your layer houses and you collected 71,155 eggs today, what is your percent hen-day egg production for today?

- a. 87.61%
- b. 88.94%**
- c. 89.12%
- d. 90.67%

Reference: C-128; $71,155 / 80,000 = .8894 \text{ or } 88.94\%$

AS.03. Design and provide proper animal nutrition to achieve desired outcomes for performance, development, reproduction and/or economic production.

30. According to the Poultry Manual, only 49% of rated lumens of lighting systems in poultry houses are available to chickens in the house. If one 60-watt incandescent bulb produces 753.6 lumens; considering that one watt equals 12.56 lumens, how many lumens will actually be available to the chicken?

- a. ~392.3
- b. ~408.3
- c. ~369.3**
- d. ~3,693

Reference: (C-129) $753.6 \text{ lumens} \times 49\% = 369.3 \text{ (} 753.6 \times .49 = 369.264 \text{)}$

AS.06.03.02.c. Choose, implement and evaluate sustainable and efficient procedures (e.g., selection, housing, nutrition and management) to produce consistently high-quality animals that are well suited for their intended purposes.

**2018 National FFA Poultry Evaluation CDE
Written Examination
KEY**

1. A, C-4; ABS.01.02
2. C, C-5
3. B, Turkey Guide, page 4
4. D, Broiler Management Guide, page 12
5. A, Broiler Management Guide, page 1
6. C, Broiler Management Guide, page 4
7. A, Hatchery Management Guide, page 2
8. B, Marketing of Poultry Products, C-98, page 4
9. D, Marketing of Poultry Products, C-98, page 4
10. A, Processing Poultry Products, C-97, page 3
11. B, Processing Poultry Products, C-97, Page 4
12. D, Processing Poultry Products, C-97, Page 4
13. A, Processing Poultry Products, C-97, Page 1
14. D, B-2
15. D, B-3
16. B, B-4
17. B, B-19
18. D, B-19
19. D, B-23
20. C, B-27
21. D, B-33
22. D, B-33
23. A, B-34
24. D, B-38
25. B, C-151
26. B, Turkey Guide, Page 28
 $10 \times 5 \times 2 = 100$
27. C, Hatchery management, page 2
 $\% \text{ Hatch} / \% \text{ Fertile} = \% \text{ Hatch of Fertile}$
 $\% \text{ Hatch} = 860,00/100,000 = .86 (86\%)$
 $\% \text{ Fertile} = 97\% (\text{given in question})$
 $.86 / .97 = .8866 (88.66\%)$
28. D, C-125
 $10 \times .22 = 2.2 (\text{tons})$
 $2.2 \times 2,000 = 4,400 \text{ pounds}$
29. B, C-128
 $71,155 / 80,000 = .8894 \text{ or } 88.94\%$
30. C, C-129
 $753.6 \text{ lumens} \times 49\% = 369.3 (753.6 \times .49 = 369.264)$



Poultry Evaluation Career Development Event

WRITTEN EXAM KEY

1. Hens that have laid large numbers of eggs are usually bleached in all the body parts. What is the approximate number of weeks should it take for the bottom of the foot to fade?
 - A. 0 to 2
 - B. 3 to 4
 - C. 4 to 5
 - D. 8 to 12**

Reference: B-7

AFNR Standard: AS.06.03.03.c Evaluate and select animals to produce superior animal products based on industry standards.

2. The U.S. Standards for Quality of Individual Shell Eggs uses different factors as the basis to determine egg quality. Of the factors listed below, which one does not fit into the Standards for Quality of Individual Shell eggs?
 - A. cleanness and soundness of shell
 - B. shell color**
 - C. size of air cell
 - D. white or yolk

Reference: B-22

AFNR Standard: FPP.03.01.03.b Examine and evaluate inspection and harvesting of animals using regulatory agency approved or industry-approved techniques.

3. When candling an egg, the maximum depth of an air cell for a Grade A quality should be:
 - A. up to 1/8"
 - B. 1/8" to 3/16"**
 - C. greater than 3/16"
 - D. Less than 1 inch

Reference: B-25

AFNR Standard: FPP.03.01.01.c. Outline procedures to assign quality and yield grades to food products according to industry standards.

4. Pronounced ridges _____.
 - A. Detract from the appearance of the egg while increasing the soundness/strength of the egg.
 - B. Decrease shell soundness/strength and detract from the appearance of the egg.**
 - C. Should be marked as an NG (nongradable) Quality.
 - D. None of the above.

Reference: B-34

AFNR Standard: FPP.03.01.04.c. Evaluate and grade food products from different classifications of food products.

5. Some Further Processed Poultry Meat Products are Whole Muscle Boneless or Bone-In Products: These products go through a five-step process flow starting with Portioning. What is the final process step these products go through before packaging?

- A. Glazing
- B. Portioning
- C. Marination
- D. Predust/Batter/Bread

Reference: B-38

AFNR Standard: FPP.03.01.02.b. Assemble procedures to perform quality-control inspections of raw food products for processing.

6. When identifying poultry parts, the part that is the inner pectoral muscle (pectoralis minor, underlying the pectoralis major) along the breastbone. It is a boneless, skinless portion of white meat. Tendons may be present. This part should be identified as:

- A. Boneless/Skinless split breast
- B. Pectoralis Major
- C. Pectoralis Minor

D. Tenderloin

Reference: B-47

AFNR Standard: AS. 06. 02. 03. c. Apply knowledge of anatomical and physiological characteristics of animals to make production and management decisions.

7. For a typical egg laying operation, the production goals are to produce an average of one dozen table eggs for every 3.0 to 3.5 pounds of feed provided, and to gather 240 to 350 eggs per hen housed during the _____ week laying period.

- A. 35 to 52
- B. 52 to 80
- C. 80 to 95
- D. 100 to 135

Reference: C-3

AFNR Standard: AS.04.03.04.c. Select and assess animal performance based on quantitative breeding values for specific characteristics.

8. The supplying of producers with the services and materials necessary for production, including the processing and marketing of products to meet the consumer's needs is called.

- A. Agribusiness
- B. Ag Communication
- C. Ag Education
- D. Ag Marketing

Reference: C-9

AFNR Standard: ABS.01 .02.02.a. Identify the meaning and importance of goals and objectives in AFNR business enterprises.

9. The muscles of poultry have distinct purposes to assist poultry to be mobile and assist in flight. The muscle that flexes the knee joint and extends the thigh is the _____ muscle.

- A. Adominus
- B. Peroneus
- C. Satorius
- D. Semitendinosus**

Reference: C-17

AFNR Standard: AS.06.02.01.c. Correlate the functions of animal cell structures to animal growth, development, health and reproduction.

10. The _____ is a cavity for the entrance of the genital, urinary, and digestive tracts.

- A. Cecum
- B. Cloaca**
- C. Glandular Stomach
- D. Follicular Membrane

Reference C-23

AFNR Standard: AS.06.02.01.c. Correlate the functions of animal cell structures to animal growth, development, health and reproduction.

11. The _____ system consists of a number of glands that produce secretions called hormones.

- A. Alimentary
- B. Endocrine**
- C. Reproductive
- D. Urinary

Reference: C-25

AFNR Standard: AS.06.02.01.c. Correlate the functions of animal cell structures to animal growth, development, health and reproduction.

12. When candling a fertile egg, a healthy embryo causes the egg to have a _____ appearance.

- A. Dark
- B. Clear
- C. Cloudy
- D. Red**

Reference: C-29

AFNR Standard: AS.06.02.02.c. Apply the processes of meiosis and mitosis to solve animal growth, development, health and reproductive problems.

13. _____ is the ability of an organism to produce disease in poultry.

- A. Bacteria
- B. Disease
- C. Infection
- D. Pathogenicity

Reference: C-38

AFNR Standard: AS.07.01.03.b. Identify and describe common illnesses and disorders of animals based on symptoms and problems caused by wounds, diseases, parasites and physiological disorders.

14. _____ Disease, is a highly contagious viral disease of young chickens characterized by high mortality, anorexia, diarrhea, and depression. It is caused by a virus that has a preference for lymphoid tissue, primarily the bursa of Fabricius.

- A. Cholera
- B. Fowl Pox
- C. Gumboro
- D. Infectious Laryngotracheitis

Reference: C-47

AFNR Standard: AS.07.01.03.b. Identify and describe common illnesses and disorders of animals based on symptoms and problems caused by wounds, diseases, parasites and physiological disorders.

15. Which of the following terms indicates without oxygen?

- A. Anaerobic
- B. Aerotolerant organism
- C. Antioxidant
- D. Obligate organisms

Reference: C-60

AFNR Standard: AS.08.01.01.b. Assess methods of reducing the effects of animal agriculture on the environment.

16. A moisture content considered proper for successful aerobic composting would be?

- A. 20% to 30%
- B. 30% to 40%
- C. 40% to 50%
- D. 50% to 60%

Reference: C-62

AFNR Standard: AS.08.01.01.b. Assess methods of reducing the effects of animal agriculture on the environment

17. During grow out of broilers, the temperature target for best performance ranges from ___°F on day one to near ___°F or lower just before catch at time for slaughter. What are these temperatures?

- A. 80°F and 75°F
- B. 90°F and 70°F
- C. 95°F and 70°F
- D. 99°F and 75°F

Reference: C-68

AFNR Standard: AS.06.03.02.c. Choose, implement and evaluate sustainable and efficient procedures (e.g., selection, housing, nutrition and management) to produce consistently high-quality animals that are well suited for their intended purposes.

18. The scientific name for the ancestor of the domestic chicken, red jungle fowl is:

- A. Anser anser
- B. Gallus gallus
- C. Gallus melegrus
- D. Phasianus Phasianus

Reference: C-78

AFNR Standard: AS.07.01.03.b. Identify and describe common illnesses and disorders of animals based on symptoms and problems caused by wounds, diseases, parasites and physiological disorders.

19. The turkey was domesticated in Mexico over 2000 years ago by the

- A. Aztecs
- B. Choushatas
- C. Mexico
- D. Navaho

Reference: C-79

AFNR Standard: AS.01.01.01.c. Evaluate the implications of animal adaptations on production practices and the environment.

20. A _____ is a segment of DNA that carries a blueprint for the function of a cell.

- A. Chromosome
- B. DNA
- C. Gene
- D. Genotype

Reference: C-81

AFNR Standard: AS.06.02.01.c. Correlate the functions of animal cell structures to animal growth, development, health and reproduction.

21. _____ are complex organic macromolecules containing carbon, hydrogen, oxygen, nitrogen, and usually sulfur.

- A. Carbohydrates
- B. Lipids
- C. Proteins
- D. Minerals

Reference: C-83

AFNR Standard: AS.03.02.02.c. Select and utilize animal feeds based on nutritional requirements, using rations for maximum nutrition and optimal economic production.

22. Single stomach, or monogastric, animals require 22 amino acids in their body. Those animals can manufacture a portion of the 22 non-dietary essential amino acids, but cannot store the amino acids in their bodies. As a result, they must get a daily dose of protein containing which of the following?

- A. Adequate dietary methionine levels to cover the shortage.
- B. Dietary protein exclusively from plant feedstuffs.
- C. Dietary nitrogen levels to build these odd amino acids.
- D. The other 10 dietary essential amino acids.

Reference: C-84

AFNR Standard: AS.03.01.01.c. Assess nutritional needs for an individual animal based on its growth stage and production system.

23. Animals need very small amounts of some types of minerals that are called Trace Minerals. Which of the following would be listed as a Trace Mineral?

- A. Biotin
- B. Choline
- C. Cobalt
- D. Sodium

Reference: C-86

AFNR Standard: AS.03.01.02.b. Correlate a species' nutritional needs to feedstuffs that could meet those needs.

24. According to the Section, Marketing Poultry Products in the Poultry Science Manual, in the U.S., food is packaged and sold in a/an _____ market.

- A. Consumer-driven
- B. Fad or Niche-driven
- C. Finance-driven
- D. Regulatory-driven

Reference: Marketing Poultry Products C-98, Page 1

AFNR Standard: ABS.05.03.01.b. Assess alternative marketing strategies as related to marketing principles for AFNR businesses (e.g. value-adding, branding, niche marketing, etc.)

25. Food safety is an important part of the marketing program when the company's products are branded. In addition, the HACCP system is implemented in all facilities to prevent the potential of hazards associated with the branded poultry products. HACCP refers to:

- A. Hazard Analysis and Crucial Controller Positioning
- B. Hazard Analysis and Central Control Points
- C. Hazard Analysis and Critical Control Points
- D. Hazard Analysis and Crucial Control Points

Reference: *Marketing Poultry Products, C-98, Page 4*

AFNR Standard: FPP.01.03.01.a. Identify and summarize purposes of food storage procedures (e.g., first in/first out, temperature regulation, monitoring, etc.).

26. If broiler litter contains 25% moisture, then one ton will contain:

- A. 800 pounds dry matter
- B. 1,500 pounds dry matter
- C. 1,600 pounds dry matter
- D. 1,800 pounds dry matter

Reference: C-65

AFNR Standard: ESS.04.02.01.c. Develop a plan for solid waste disposal for a given situation that considers the environmental hazards, economic realities and social concerns associated with this task.

27. If a house of 6-week-old Broilers eat between 26 to 30 pounds of feed per day per 100 birds, what is the total feed consumption for a house containing 29,500 birds per day?

- A. 1.3 tons to 1.5 tons
- B. 2 tons to 4 tons
- C. 2.6 tons to 3 tons
- D. 3.8 tons to 4.4 tons

Reference: C-65

$$29,500/100 = 295; 295 \times 26 = 7,670; 7670/2000 = 3.835$$

$$29,500/100 = 295; 295 \times 30 = 8,850; 8850/2000 = 4.425$$

AFNR Standard: AS.03.02.01.c. Select appropriate feedstuffs for animals based on a variety of factors (e.g., economics, digestive system and nutritional needs, etc.).

28. If the soil nutrient value of broiler litter contains 1.2% phosphorus as P₂O₅, then a ton will contain:

- A. 12 pounds of phosphorus
- B. 20 pounds of phosphorus
- C. 24 pounds of phosphorus
- D. 48 pounds of phosphorus

Reference: C-64

$$2,000 \times 0.012 = 24 \text{ pounds}$$

AFNR Standard: ESS.04.02.03.c. Evaluate the appropriateness of composting methods in different situations

29. Dry-Stack Storage Systems with a gable-roofed structure is an option for storing large quantities of manure in a dry environment. What is the total cost of a 40-foot by 60-foot structure at \$3.75 per square foot?

- A. \$4,500
- B. \$8,400
- C. \$9,000
- D. \$10,400

Reference: C-59

$$40 \text{ ft.} \times 60 \text{ ft.} = 2400 \text{ square feet; } 2400 \text{ sq. feet} \times \$3.75 = \$9,000$$

AFNR Standard: ESS.04.02.01.c. Develop a plan for solid waste disposal for a given situation that considers the environmental hazards, economic realities and social concerns associated with this task.

30. How many pounds of ground corn (9% protein) and pounds of soybean meal SBM (44% protein) needed to formulate a ton of 22% crude protein mix?

- A. 63 pounds of corn; 37 pounds of SBM
- B. 900 pounds of corn; 1,100 pounds of SBM
- C. 1,257 pounds of corn; 743 pounds of SBM
- D. 1,560 pounds of corn; 440 pounds of SBM

Reference: C-95

Using Pearson's Square

Corn	9	22
Desired		22
SBM	44	13
		<hr/>
		35 total parts

$$\text{Corn: } 22 \div 35 = 0.6285 \times 2000 = 1,257 \text{ pounds}$$

$$\text{SBM: } 13 \div 35 = 0.3714 \times 2000 = 743 \text{ pounds}$$

AFNR Standard: AS.03.02.02.c. Select and utilize animal feeds based on nutritional requirements, using rations for maximum nutrition and optimal economic production.

**2021 National FFA Poultry Evaluation CDE
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1. On Leghorn-strain pullet farms, birds are raised from hatchlings to approximately _____ weeks of age, so pullet growers must provide facilities capable of brooding and growing the pullets. In most cases, the egg company pays pullet growers based on the number of birds produced or for returns per square foot, and efficiency bonuses may be available.
- a. 15 to 20
 - b. 20 to 24
 - c. 16 to 17**
 - d. 15 to 18

Reference: C-2

AFNR Standard: AS.06.03.03.c. Evaluate and select animals to produce superior animal products based on industry standards.

2. A broiler should reach 3.5 to 4.5 pounds of live weight in 6 to 7 weeks and require two or fewer pounds of feed per pound of body weight. A broiler dresses into a _____-pound ready-to-cook carcass to be marketed whole, by parts, or further-processed.
- a. 2 to 3**
 - b. 2.5 to 3.5
 - c. 4 to 5
 - d. 6 to 7

Reference: C-4

AFNR Standard: FPP.03.01.03.b. Examine and evaluate inspection and harvesting of animals using regulatory agency approved or industry-approved techniques.

3. Most (95%) turkey production occurs under a _____ system, and growers are typically paid based on the number of birds produced.
- a. straight-run
 - b. contract**
 - c. grow-out
 - d. free range

Reference: C-5

AFNR Standard: AS.04.03.04.c. Select and assess animal performance based on quantitative breeding values for specific characteristics.

4. The various species of poultry belong to the animal kingdom and to the class _____.
- a. mammilla
 - b. verbrata
 - c. aves**
 - d. Gallus gallus

Reference: C-13

AFNR Standard: AS.06.02.03.c. Apply knowledge of anatomical and physiological characteristics of animals to make production and management decisions.

5. Which of the following are unique characteristics poultry possess when compared to other forms of livestock?
 - a. Poultry has a more dense skeleton with heavier bones
 - b. Poultry has a lower respiration rate
 - c. Poultry has a higher body temperature**
 - d. Poultry has a lower pulse rate

Reference: C-13

AFNR Standard: AS.06.02.03.c. Apply knowledge of anatomical and physiological characteristics of animals to make production and management decisions.

6. Quail belong to the order _____
 - a. columbiformes
 - b. anseriformes
 - c. numididae
 - d. galliformes**

Reference: C-14

AFNR Standard: AS.04.03.04.c. Select and assess animal performance based on quantitative breeding values for specific characteristics.

7. The distinct feather tracts from which feathers originate are called
 - a. Coccygis
 - b. Feather Follicles
 - c. Pterylae**
 - d. Peroneus

Reference: C-16

AFNR Standard: AS.06.02.03.c. Apply knowledge of anatomical and physiological characteristics of animals to make production and management decisions.

8. Which of the 2 skin features are important in regulating the bird's body temperature and their development is closely related to the gonadal activity?
 - a. Wattles and earlobes
 - b. Comb and feathers
 - c. Wattles and feathers
 - d. Comb and wattles**

Reference: C-16

AFNR Standard: AS.06.02.03.c. Apply knowledge of anatomical and physiological characteristics of animals to make production and management decisions.

9. Which muscle depresses the wing in it's downward motion?
 - a. Pectoralis Major**
 - b. Pectoralis Minor
 - c. Flexor perforans
 - d. Obliquus

Reference: C-17

AFNR Standard: AS.06.02.03.c. Apply knowledge of anatomical and physiological characteristics of animals to make production and management decisions.

10. In the fowl, the senses _____ are poorly developed.
- sight and hearing
 - taste and smell**
 - walking and running
 - flight and gliding

Reference: C-19

AFNR Standard: AS.06.02.03.c. Apply knowledge of anatomical and physiological characteristics of animals to make production and management decisions.

11. The lower larynx (syrinx) is the _____
- voice box**
 - trachea
 - bronchi
 - lungs

Reference: C-20

AFNR Standard: AS.06.02.03.c. Apply knowledge of anatomical and physiological characteristics of animals to make production and management decisions.

12. The fowl's circulatory system differs slightly from mammals in that avian red blood cells are _____
- smaller
 - larger
 - non-nucleated
 - nucleated**

Reference: C-21

AFNR Standard: AS.06.02.03.c. Apply knowledge of anatomical and physiological characteristics of animals to make production and management decisions.

13. In which ways does the avian lung differ from the mammalian lung?
- Avian lung is partially imbedded in the ribs
 - Avian lung is non-expandable
 - Avian lung is non-lobed
 - All of the above**

Reference: C-20

AFNR Standard: AS.06.02.03.c. Apply knowledge of anatomical and physiological characteristics of animals to make production and management decisions.

14. How do the number of chambers in the avian heart compare to the mammalian heart?
- They are the same, each have four**
 - Avian hearts have fewer chamber
 - Avian hearts have more chambers

d. None of these answers is correct

Reference: C-21

AFNR Standard: AS.06.02.03.c. Apply knowledge of anatomical and physiological characteristics of animals to make production and management decisions.

15. The proventriculus of a fowl's alimentary canal is found after the _____.

- a. **ingulvies**
- b. glandular stomach
- c. duodenum
- d. colon

Reference: C-22

AFNR Standard: AS.06.02.03.c. Apply knowledge of anatomical and physiological characteristics of animals to make production and management decisions.

16. The ____ marks the junction of the small and large intestine

- a. cloaca
- b. **cecum**
- c. liver
- d. gallbladder

Reference: C-23

AFNR Standard: AS.06.02.03.c. Apply knowledge of anatomical and physiological characteristics of animals to make production and management decisions.

17. Which of the following would contain the genetic information supplied by the female chicken?

- a. **Blastodisc**
- b. Sperm
- c. Albumen
- d. Allantois

Reference: C-27

AFNR Standard: AS.06.02.03.c. Apply knowledge of anatomical and physiological characteristics of animals to make production and management decisions.

18. The moment an egg becomes fertilized in the oviduct of the chicken, the sperm and blastodisc merge to become how many cells?

- a. **1**
- b. 2
- c. 3
- d. 4

Reference: C-32

AFNR Standard: AS.06.02.02.c. Apply the processes of meiosis and mitosis to solve animal growth, development, health and reproductive problems.

19. Which of the following poultry diseases is egg transmissible and is unaffected by antibiotics such as penicillin that target bacterial cell wall synthesis?

- a. Cholera
- b. Pullorum

c. Mycoplasmosis

d. Fowl pox

Reference: C-39, C-53

AFNR Standard: AS.07.01.03.b. Identify and describe common illnesses and disorders of animals based on symptoms and problems caused by wounds, diseases, parasites and physiological disorders.

20. _____ refers to precautions taken to minimize the risk of introducing an infectious disease into an animal population.
- a. vaccination.
 - b. biosecurity.**
 - c. vector.
 - d. contamination.

Reference: C-40

AFNR Standard: AS.07.01.03.b. Identify and describe common illnesses and disorders of animals based on symptoms and problems caused by wounds, diseases, parasites and physiological disorders.

21. A disease affecting birds as well as many other animals, _____ is caused by the multiplication of single celled animals (protozoa) primarily in the digestive tract.
- a. coryza.
 - b. coccidiosis**
 - c. rickets
 - d. bursa disease

Reference: C-48

AFNR Standard: AS.07.01.03.b. Identify and describe common illnesses and disorders of animals based on symptoms and problems caused by wounds, diseases, parasites and physiological disorders.

22. Which of the following terms would refer to the frequency of birds displaying signs of a disease within a flock?
- a. Morbidity**
 - b. Intensity
 - c. Mode
 - d. Mortality

Reference: C-51

AFNR Standard: AS.07.01.03.b. Identify and describe common illnesses and disorders of animals based on symptoms and problems caused by wounds, diseases, parasites and physiological disorders.

23. When adding built-up poultry litter material to a composter, if four or more flocks have been raised on the litter, what probably needs to be considered to ensure a proper C:N (carbon to nitrogen) ratio?
- Add equal weight of water
 - Aerate the litter prior to addition to the compost
 - Aerate the litter with nitrogen prior to addition
 - Add a source of additional carbon**

Reference: C-62

AFNR Standard: AS.08.01.01.b. Assess methods of reducing the effects of animal agriculture on the environment.

24. When considering the concepts and methods of poultry genetic selection the _____ method is defined as: a Breeder uses a closed flock, continuously selecting the better birds each generation and breeding from them.
- hybrid vigor
 - two-line cross
 - inbred crosses
 - single line**

Reference: C-80

AFNR Standard: AS.06.02.01.c. Correlate the functions of animal cell structures to animal growth, development, health and reproduction.

25. Turkey semen can be chemically extended and:
- Used up to 24 hours after collection.**
 - Frozen and effective up to 24 hours after collection
 - Frozen and used up to 24 months after collection
 - Used effective up to 24 months after collection

Reference: C-80

AFNR Standard: AS.06.02.01.c. Correlate the functions of animal cell structures to animal growth, development, health and reproduction.

26. To achieve the most effective wind-chill cooling effect the air velocity in a tunnel ventilated broiler house will be approximately how fast?
- 1 to 2 MPH (mile per hour)
 - 2 to 4 MPH
 - 5 to 7 MPH**
 - 10 to 15 MPH

Reference: C-74

AFNR Standard: AS.06.03.02.c. Choose, implement and evaluate sustainable and efficient procedures (e.g., selection, housing, nutrition and management) to produce consistently high-quality animals that are well suited for their intended purposes.

27. The soil nutrient value of egg layer manure is assumed to be 1.4% nitrogen, 1% phosphorus as P₂O₅, .6% K as K₂O, and 4% calcium all on a dry matter basis of the manure. Manure from 125,000 hens over a period of a week (yielding 207 lb

of manure dry matter per 1000 hens each day). After 1 week (7 days), how many pounds of nitrogen will be in this manure?

- a. 207 lb
- b. 25875 lb**
- c. 2535.75 lb
- d. cannot be calculated

$$125,000 / 1000 = 125 \text{ thousand}$$

$$125 * 207 \text{ lb/day/thousand} = 25875$$

AFNR Standard: AS.06.03.02.c. Choose, implement and evaluate sustainable and efficient procedures (e.g., selection, housing, nutrition and management) to produce consistently high-quality animals that are well suited for their intended purposes

28. A local backyard poultry producer has 80 production laying hens at her house. Over the course of a seven-day period she had an 80% production rate and the hens consumed 93.71 lbs. of feed. What is the feed conversion per dozen eggs?

- a. 2.51**
- b. 2.71
- c. 2.99
- d. 3.16

feed conversion

$$= \text{lbs. of feed} / (\text{total eggs} / 12 \text{ eggs in each dozen})$$

$$= 93.71 \text{ lbs. of feed} / ((80 \text{ hens} \times .80 \times 7) / 12 \text{ eggs in each dozen})$$

$$= 93.71 \text{ lbs. of feed} / ((64 \times 7) / 12 \text{ eggs in each dozen})$$

$$= 93.71 \text{ lbs. of feed} / (448 / 12 \text{ eggs in each dozen})$$

$$= 93.71 \text{ lbs. of feed} / 37.3 \text{ dozen eggs}$$

$$= 2.512$$

$$= 2.51$$

AFNR Standard: AS.06.03.02.c. Choose, implement and evaluate sustainable and efficient procedures (e.g., selection, housing, nutrition and management) to produce consistently high-quality animals that are well suited for their intended purposes

29. A broiler processing facility processed a total of 285,485 chickens in one day of operation with an average live weight of 6.14 pounds of bird. The average carcass weighed 4.54 pounds with an average breast meat yield per carcass of 20.9%. What was the total production of breast meat for this day of operation?

- a. 270,885.3 lbs.**
- b. 298,914.2 lbs.
- c. 315,879.8 lbs.
- d. 336,351.5 lbs.

total breast meat

$$= (\text{average breast meat}) \times (\text{number of chickens})$$

$$= (\text{average whole carcass weight} \times \% \text{ of carcass that is breast}) \times 285,485$$

$$= (4.54 \times 0.209) \times 285,485$$

$$= 0.94886 \times 285,485$$

$$= 270,885.297$$

= 270,885.3 lbs.

AFNR Standard: AS.06.03.02.c. Choose, implement and evaluate sustainable and efficient procedures (e.g., selection, housing, nutrition and management) to produce consistently high-quality animals that are well suited for their intended purposes

30. If the daily feed intake of 100 laying hens is 23 lbs. and the daily manure output is 27 lbs., what percentage of the manure output is the feed intake?
- a. 117.39%
 - b. 85.19%**
 - c. 46%
 - d. cannot be calculated

$23/27 = .85185 * 100 = 85.19\%$

AFNR Standard: AS.06.03.02.c. Choose, implement and evaluate sustainable and efficient procedures (e.g., selection, housing, nutrition and management) to produce consistently high-quality animals that are well suited for their intended purposes.

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1. C
2. A
3. B
4. C
5. C
6. D
7. C
8. D
9. A
10. B
11. A
12. D
13. D
14. A
15. A
16. B
17. A
18. A
19. C
20. B
21. B
22. A
23. D
24. D
25. A
26. C
27. B
28. A
29. A
30. B

**2022 National FFA Poultry Evaluation CDE
Written Examination - KEY**

1. The approximate number of weeks in which body pigment fades in an Egg-Type hen for production in the entire beak. **Reference: B-7**
 - a. 3-4
 - b. 4-5
 - c. **5-8**
 - d. 2.5-3

AFNR Standard: AS.06.03.03.c. Evaluate and select animals to produce superior animal products based on industry standards.

2. Although fading of pigment is a reasonably good indicator of egg production, it is not entirely accurate. Factors that affect rate of pigment fading are: Body size, health of the bird, the amount of pigment at start of egg laying, environmental temperature and _____. **Reference: B-8**
 - a. **feed composition (especially for the concentration of pigment)**
 - b. amount of melanin in the feed
 - c. too low of protein for the age of the hen
 - d. the rate of handling qualities found in the individual hen at the time of evaluation

AFNR Standard: AS.06.03.03.c. Evaluate and select animals to produce superior animal products based on industry standards.

3. When evaluating the internal contents of an egg using the candling method, development of the germ spot on the yolk of a fertile egg has progressed to the point where it is plainly visible as a definite circular area or spot but with no blood in evidence should receive a grade of USDA _____. **Reference: B-26**
 - a. Loss
 - b. Bloody
 - c. A
 - d. **B**

AFNR Standard: FPP.03.01.03.b. Examine and evaluate inspection and harvesting of animals using regulatory agency approved or industry-approved techniques.

4. Chopped and formed products can be made using white meat only (typically breast meat), dark meat only (leg meat) or a combination of white and dark, in addition a natural proportion of skin can be used, USDA defines natural proportion skin as up to ____ of the total weight (meat + skin). **D pb38**
 - a. 25%
 - b. 10%
 - c. 20%
 - d. **18%**

FPP.03.01.01.a. Summarize characteristics of quality and yield grades of food products.

**2022 National FFA Poultry Evaluation CDE
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5. Bone-in products are also evaluated for miscuts, which refers to several types of defects. Miscuts will most commonly occur during the _____ debone or portioning process. **B pb41**
- pre-slaughter
 - post-slaughter**
 - packaging
 - shipping

FPP.03.01.04.a. Identify and describe foods derived from different classifications of food products (e.g., meat, egg, poultry, fish, dairy, fruits, vegetables, grains, legumes, oilseeds, etc.).

6. Table eggs are processed at facilities that wash, grade, and sort eggs. Many eggs are sold as shell eggs, but the _____ of eggs into various products (hard-cooked eggs, frozen scrambled eggs, dried or liquid whole eggs, dried or liquid egg whites, etc.) also occurs. **B pC3**
- pre-collection
 - further processing**
 - past-production
 - post-production

FPP.01.03.01.a. Identify and summarize purposes of food storage procedures (e.g., first in/first out, temperature regulation, monitoring, etc.).

7. The various species of poultry belong to the animal kingdom and to the class Aves. They are feathered, biped, warm-blooded vertebrates with a _____ heart. **A pC13**
- four-chambered**
 - two-chambered
 - enlarged
 - double atrial

AS.06.02.03.c. Apply knowledge of anatomical and physiological characteristics of animals to make production and management decisions.

8. Poultry have unique anatomical and physiological characteristics compared to other livestock. For example, poultry have higher body temperatures. The nominal temperature for poultry exists in a range of _____. **D pC13**
- 98.6°F to 99.2°F
 - 105°C to 107°C
 - 40.6°F to 41.7°F
 - 105°F to 107°F**

AS.06.02.03.c. Apply knowledge of anatomical and physiological characteristics of animals to make production and management decisions.

**2022 National FFA Poultry Evaluation CDE
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9. The chicken (*Gallus gallus*), guinea fowl (*Numida meleagris*), turkey (*Meleagris gallapavo*), and pheasant (*Phasianus colchicus*) belong to the order _____. **C**
pc13
- Anseriformes
 - Columbiformes
 - Galliformes**
 - Aves

AS.06.02.03.c. Apply knowledge of anatomical and physiological characteristics of animals to make production and management decisions.

10. Functions of the _____ system (skin and its appendages) are protection, regulation of body temperature, flight, and development of secondary sex characteristics. **C pC16**
- Skeletal
 - Muscular
 - Integumentary**
 - Respiratory

AS.06.02.03.c. Apply knowledge of anatomical and physiological characteristics of animals to make production and management decisions.

11. Another term for the crop is the _____. **C pC22**
- Proventriculus
 - Ventriculus
 - Ingulvies**
 - Gizzard

AS.06.02.03.c. Apply knowledge of anatomical and physiological characteristics of animals to make production and management decisions.

12. The ____ is an accessory organ to the digestive tract. It synthesizes lipids and proteins (for eggs), secretes bile (for absorption of fat), and stores excess carbohydrates (as glycogen). **C pC23**
- gizzard
 - gall bladder
 - liver**
 - muscular stomach

AS.06.02.03.c. Apply knowledge of anatomical and physiological characteristics of animals to make production and management decisions.

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13. A nonvascular stigma or _____ is on each mature follicle. During normal ovulation, the follicular membrane ruptures along the stigma to prevent hemorrhaging and blood spots in the egg. **C pC23**
- a. blood ring
 - b. suture ring
 - c. **suture line**
 - d. yolk release point

AS.06.02.03.c. Apply knowledge of anatomical and physiological characteristics of animals to make production and management decisions.

14. The ____ is a gland at the base of the brain, which when stimulated by neural stimuli, secretes releasing factors that regulate the release of hormones from the pituitary gland. **A pC25**
- a. **hypothalamus**
 - b. pituitary
 - c. thyroid
 - d. pancreas

AS.06.02.03.c. Apply knowledge of anatomical and physiological characteristics of animals to make production and management decisions.

15. _____ is responsible for growth and maturation of ovarian follicles (egg yolks) in the ovary. Secretion of this hormone is under the influence of a gradual increase or decrease in duration of the diurnal photoperiod. **A pC25**
- a. **FSH (follicle stimulating hormone)**
 - b. FAH (follicle activating hormone)
 - c. EDH (egg development hormone)
 - d. OSH (ovulation stimulating hormone)

AS.06.02.03.c. Apply knowledge of anatomical and physiological characteristics of animals to make production and management decisions.

16. Changes occur rapidly in an embryo. As soon as fertilization occurs, cell division begins. The ____ is the part of the blastoderm from which the embryo develops. **C pC30**
- a. area opaca
 - b. sclerotome
 - c. **area pellucida**
 - d. derma-myotome

AS.06.02.03.c. Apply knowledge of anatomical and physiological characteristics of animals to make production and management decisions.

**2022 National FFA Poultry Evaluation CDE
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17. All the parts of a chick are in place by day _____. From then until the chick hatches, most development involves enlarging the parts already in existence, resulting in the form that we recognize as a chick. **D pC32**
- a. 5
 - b. 20
 - c. 15
 - d. **10**

AS.06.02.02.a. Examine the basic functions of animal cells in animal growth and reproduction.

18. The embryo's head should be tucked under the right wing and located toward the round (large) end of the egg, which puts the embryo in position to _____ the egg at the normal place. **A pC33**
- a. **pip**
 - b. crack
 - c. check
 - d. leak

AS.06.02.02.a. Examine the basic functions of animal cells in animal growth and reproduction.

19. A carrier that transmits an infective agent from one host to another is called a/an _____. **A pC.38**
- a. **Vector**
 - b. Pathogen
 - c. Host
 - d. Zoonotic

AS.07.01. Design programs to prevent animal diseases, parasites and other disorders and ensure animal welfare.

20. The most successful poultry vaccines are against _____ diseases. **C-44**
- a. Direct stress agents
 - b. Injury
 - c. **Viral**
 - d. Bacteria

AS.07.01. Design programs to prevent animal diseases, parasites and other disorders and ensure animal welfare.

**2022 National FFA Poultry Evaluation CDE
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21. A disease affecting birds as well as many other animals, _____ is caused by the multiplication of single celled animals (protozoa) primarily in the digestive tract. The protozoa belong to the genus Eimeria. **A pC48**
- a. **coccidiosis**
 - b. fowl pox
 - c. infectious bronchitis
 - d. newcastle

AS.07.01. Design programs to prevent animal diseases, parasites and other disorders and ensure animal welfare.

22. Which of the following dangerous gases is heavier than air and may be expected to occur in poultry waste pits even after the pit has been emptied? **C-58**
- a. Oxyacetylene
 - b. Nitrogen
 - c. **Hydrogen sulfide**
 - d. Hydrogen fluoride

AS.08.01. Design and implement methods to reduce the effects of animal production on the environment.

23. How should hatching eggs be placed in the setter or transport tray? (*Cobb Hatchery Management Guide 3*)
- a. **Small end down**
 - b. Larger end down
 - c. On side
 - d. None of the above

FPP.01.03.01.a. Identify and summarize purposes of food storage procedures (e.g., first in/first out, temperature regulation, monitoring, etc.).

24. For hatchery management for broiler chick production, which of the following statements is false relating to hatching egg setting? (*Cobb Hatchery Management Guide 4*).
- a. Remove and discard Dirty eggs
 - b. **Remove and discard eggs with the lightest and darkest shell color**
 - c. Remove and discard very large or double yolk eggs
 - d. Remove and discard cracked eggs

FPP.01.03.01.a. Identify and summarize purposes of food storage procedures (e.g., first in/first out, temperature regulation, monitoring, etc.).

**2022 National FFA Poultry Evaluation CDE
Written Examination - KEY**

25. Aviagen's Turkey Guide recommends which feeding strategy when moving turkey poults from brooding facilities to growing/finishing barns. (*Aviagen Turkey Guide, 15.*)
- a. Switch from crumbles a few days prior to move so as to allow adjustment to the new feed prior to movement into the differing environment.
 - b. **Feed crumbled feed a few days in the grower/finisher barn to allow birds to adjust to the new environment prior to feed form change.**
 - c. Start poults on pelleted feed in the brooder barn at 3-week of age to allow for the poults to acclimate to pellet feeding and to reduce potential stress at housing change.
 - d. None of the above as crumble feed is also recommended for finishing poults.

AS.01.02. Assess and select animal production methods for use in animal systems based upon their effectiveness and impacts.

26. At the Roost Bounty Hatchery in Indiana, they recently incubated 3 million fertile eggs and 2.5 million chicks hatched. What was the percentage hatched? (*Cobb Hatchery – 2*)

- A. 16.00%
- B. 40.00%
- C. 80.00%
- D. **83.33%**

$$2.5/3 = 0.8333 \times 100 = 83.33\%$$

AS.06.02. Apply principles of comparative anatomy and physiology to uses within various animal systems.

27. Using the % Hatch determined from question #26, and a given 97% fertile rate, please determine % Hatch of Fertile Rate for this scenario? (*Cobb Hatchery – 2*)
- a. 80%
 - b. **85.91%**
 - c. 88.66%
 - d. 90%

$$0.8333/.97 = .8591 \times 100 = 85.91\%$$

AS.06.02. Apply principles of comparative anatomy and physiology to uses within various animal systems.

**2022 National FFA Poultry Evaluation CDE
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Please use this scenario to complete the next two questions:

The Rule of Thumb is 1 square foot of floor space for every 7 pounds of body weight. This converts to a range of 3 square feet per hen and 5 square feet per toms. (based off *Aviagen Turkey Guide*, 34.)

28. Use the rule of thumb above. If a house averages 39,600 square feet and you have four houses – How many toms can be housed?
- a. 7,920
 - b. 10,000
 - c. **31,680**
 - d. 39,600

$$39,600 / 5 \text{ feet per tom} = 7,920 \text{ toms per house}$$

$$7,920 \times 4 \text{ houses} = 31,680 \text{ total toms can be housed}$$

AS.06.02. Apply principles of comparative anatomy and physiology to uses within various animal systems.

29. Use the rule of thumb above. If a you have 15,000 hens and 13,000 toms – How many square feet would be required to house the birds?
- a. 100,000
 - b. 103,000
 - c. **110,000**
 - d. 112,000

$$15,000 \times 3 \text{ feet per hen} = 45,000 \text{ square feet}$$

$$13,000 \times 5 \text{ feet per tom} = 65,000 \text{ square feet}$$

$$45,000 + 65,000 = 110,000 \text{ total square feet}$$

AS.06.02. Apply principles of comparative anatomy and physiology to uses within various animal systems.

30. When setting up multi-brooder rings, *Aviagen Turkey Guide* recommends a maximum of 350 tom poults or 400 hen poults per stove. If you have 15,000 hen poults and 13,000 tom poults – how many total stoves will you need for hens? based off *Aviagen Turkey Guide*, 10.)
- a. 33
 - b. **38**
 - c. 66
 - d. 70

$$15000/400 = 37.5... \text{ rounded up to } 38$$

AS.06.02. Apply principles of comparative anatomy and physiology to uses within various animal systems.

2022 National FFA Poultry Evaluation CDE
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Answer Key

Question #	Answer	Reference
1	C	B-7
2	A	B-8
3	D	B-26
4	D	B-38
5	B	B-41
6	B	C-3
7	A	C-13
8	D	C-13
9	C	C-13
10	C	C-16
11	C	C-22
12	C	C-23
13	C	C-23
14	A	C-25
15	A	C-25
16	C	C-30
17	D	C-32
18	A	C-33
19	A	C-38
20	C	C-44
21	A	C-48
22	C	C-58
23	A	Cobb Hatchery-3
24	B	Cobb Hatchery-4
25	B	Aviagen Turkey-15
26	D	Cobb Hatchery – 2
27	B	Cobb Hatchery – 2
28	C	Aviagen Turkey Guide, 34
29	C	Aviagen Turkey Guide, 34
30	B	Aviagen Turkey Guide, 10

**2023 National FFA Poultry Evaluation CDE
Written Examination KEY**

1. The carry of muscling in market broilers is determined by how well the breast meat width carries from the _____ to the end of the keel bone.
 - a. middle of the breast
 - b. front of the tibia
 - c. **points of wing attachment**
 - d. point of sacral attachment

Reference: B-4

AFNR Standard: AFNR Standard: FPP.03.01.03.b. Examine and evaluate inspection and harvesting of animals using regulatory agency approved or industry-approved techniques.

2. While candling an egg, an individual observes very small blood spots that do not aggregate to more than 1/8 inch in diameter. This egg would be assigned a USDA Grade of _____.
 - a. AA
 - b. A
 - c. **B**
 - d. Loss

Reference: B-27

AFNR Standard: FPP.03.01.01.a. Summarize characteristics of quality and yield grades of food products.

3. While evaluating exterior shell quality, slight/moderate, localized stains covering less than 1/32 of the shell are observed. Which USDA Grade should be assigned to this egg?
 - a. A
 - b. AA
 - c. **B**
 - d. C

Reference: B-35

4. On Leghorn-strain pullet farms, birds are raised from hatchling to approximately how many weeks age?
 - a. 6-7
 - b. 9-12
 - c. 20-24
 - d. **16-17**

Reference: C-2

AFNR Standard: AS.01.02. Assess and select animal production methods for use in animal systems based upon their effectiveness and impacts.

5. For a typical egg laying operation, the production goals are to produce an average of one dozen table eggs for every 3.0 to 3.5 pounds of feed provided, and to gather how many eggs per hen housed during the 52 to 80-week laying period?
- 200-250
 - 220-275
 - 240-350**
 - 320-355

Reference: C-3

AFNR Standard: AS.01.02. Assess and select animal production methods for use in animal systems based upon their effectiveness and impacts.

6. Which following statement is most true regarding turkey breeders?
- Turkey breeders require more labor than do broiler breeders, but payments are higher.**
 - Turkey breeder hens naturally mate and do not require artificial insemination.
 - Tom and hens are housed together to ensure fertility.
 - None of the above are true.

Reference: C-5

AFNR Standard: AS.06.02. Apply principles of comparative anatomy and physiology to uses within various animal systems.

7. Which of the following is true relating to the need for engineer in the poultry industry?
- The efforts of agriculturally oriented engineers in the poultry industry have advanced toward complete automation as compared to any other livestock enterprise.**
 - Additional innovation to increase automation and reduce potential production costs is probably not needed in the poultry industry.
 - The prohibitive cost of automation has apparently limited its application in the poultry industry.
 - None of the above are true.

Reference: C-8

AFNR Standard: AS.07.01. Design programs to prevent animal diseases, parasites and other disorders and ensure animal welfare.

8. Which of the following are unique characteristics poultry possess when compared to other forms of livestock?
- Poultry has a denser skeleton with heavier bones
 - Poultry has a lower respiration rate
 - Poultry has a higher body temperature**
 - Poultry has a lower pulse rate

Reference: C-13

AFNR Standard: AS.06.02. Apply principles of comparative anatomy and physiology to uses within various animal systems.

9. A wing's secondaries form the _____.
- wing-bay**
 - wing-bow
 - wing-bar
 - wing-front

Reference: C-15

AFNR Standard: AS.06.02. Apply principles of comparative anatomy and physiology to uses within various animal systems.

10. Increased embryo mortality in incubating chicken usually occurs
- around day 4 and an even larger percentage at day 18.**
 - with the largest percentage on day 14.
 - with the largest mortality, early on day 4.
 - near hatching on day 24.

Reference: C-35

AFNR Standard: AS.06.02.02.a. Examine the basic functions of animal cells in animal growth and reproduction.

11. Vent pasting in young chicks and poults is a major gross symptom of _____?
- Cholera
 - Aspergillosis
 - Newcastle
 - Pullorum**

Reference: C-53

AFNR Standard: AS.07.01. Design programs to prevent animal diseases, parasites and other disorders and ensure animal welfare.

12. If a disease condition should occur, a _____ is very important in the investigation to determine of the cause of a disease condition in a flock. This includes such information as age of the birds, source, nutritional programs, lighting, housing, disease signs, when the disease condition was first observed, mortality rate (death loss), when mortality occurred and frequency, morbidity (frequency of birds displaying signs), vaccination programs, etc.
- blood test
 - laboratory analysis
 - veterinarian consultation
 - flock history**

Reference: C-51, C-52

AFNR Standard: AS.07.01. Design programs to prevent animal diseases, parasites and other disorders and ensure animal welfare.

13. Disadvantages and risks relating to high-rise water storage systems include polluted drainage as the manure pile may be turned into a slurry and wash away from the storage area, serious fly infestation can develop, and excessive ammonia may form. A common cause of these conditions is/are.
- High winds
 - Earthquakes or fault lines
 - Excessive salt in diet or excessive protein
 - Leaking waters or rainfall or roof runoff**

Reference: C-58, C-59

AFNR Standard: AS.08.01. Design and implement methods to reduce the effects of animal production on the environment.

14. Regarding poultry waste management and the storage of broiler litter, research performed on roofed storage systems shows that this type of system loses what percentage of ammonia nitrogen after two months, assuming no airtight cover is used.
- 15%
 - 30%
 - 10%**
 - 5%

Reference: C-60

AFNR Standard: AS.08.01. Design and implement methods to reduce the effects of animal production on the environment.

15. Biogas production is the conversion of manure into a combustible gas. The gas consists primarily of methane. What is the chemical equation for methane?
- H₂O
 - CO₃
 - CH₄**
 - H₂S

Reference: C-63

AFNR Standard: AS.08.01. Design and implement methods to reduce the effects of animal production on the environment.

16. Daily manure production by 100 six-week-old broilers consuming 26 to 30 pounds feed per day may be expected to produce how much manure each day?
- 30 to 35 pounds**
 - 26 to 30 pounds
 - 50 to 60 pounds
 - 13 to 15 pounds

Reference: C-65

AFNR Standard: AS.08.01. Design and implement methods to reduce the effects of animal production on the environment.

17. One of the primary goals of ventilation is for temperature control and moisture removal. Two other goals are removal of:
- Carbon monoxide and methane gases
 - Disease organisms and carbon monoxide
 - Carbon dioxide and heading off buildup of ammonia**
 - None of the above

Reference: C-68

AFNR Standard: AS.08.01. Design and implement methods to reduce the effects of animal production on the environment.

18. High humidity is most often a _____ problem and can affect bird health.
- Summer
 - winter**
 - spring
 - fall

Reference: C-68

AFNR Standard: AS.08.01. Design and implement methods to reduce the effects of animal production on the environment.

19. Used alone, the wind-chill effect of tunnel ventilation becomes less pronounced as air temperatures rise much above 90°F, and above 100°F the air begins to _____ the birds.
- to warm instead of cool**
 - become less effective for
 - only flow along the ceiling of the house not benefiting
 - none of the above

Reference: C-74

AFNR Standard: AS.06.03.02.c. Choose, implement and evaluate sustainable and efficient procedures (e.g., selection, housing, nutrition and management) to produce consistently high-quality animals that are well suited for their intended purposes.

20. Which civilization or group of people are recognized as having created an entire poultry industry utilizing hybrid vigor and caponizing along with keeping chickens for agriculture purposes. These practices of keeping poultry were later lost until the 1800's.
- The Saxons
 - The Greeks
 - The Romans**
 - The Babylonians

Reference: C-78, C-79

AFNR Standard: FPP.03.01.03.b. Examine and evaluate inspection and harvesting of animals using regulatory agency approved or industry-approved techniques.

21. Comb type in chickens is controlled by two different genes on two separate chromosomes. The first gene is the rose comb gene (R), and the second gene is the _____.
- a. **pea comb gene (P)**
 - b. single comb gene (S)
 - c. walnut comb gene (W)
 - d. naked comb, naked neck gene (Kn)

Reference: C-82

AFNR Standard: AS.06.02.03.c. Apply knowledge of anatomical and physiological characteristics of animals to make production and management decisions.

22. Electrolytes are elements that have either a positive or negative electrical charge in solution. Which of the following is considered to have a negative electrical charge in solution?
- a. Salt
 - b. Sodium
 - c. Potassium
 - d. **Chloride**

Reference: C-85

AFNR Standard: AS.06.02.01.c. Correlate the functions of animal cell structures to animal growth, development, health and reproduction.

23. Which feedstuff might be used to increase omega-3 fatty acid content of eggs?
- a. Soybean oil meal 48% crude protein.
 - b. Ground corn
 - c. **Linseed meal**
 - d. Cassava flour

Reference: C-89

AFNR Standard: AS.06.03.02.c. Choose, implement and evaluate sustainable and efficient procedures (e.g., selection, housing, nutrition and management) to produce consistently high-quality animals that are well suited for their intended purposes.

24. According to the Processing Poultry Products sections in the Poultry Science Manual, what may be a representative statement regarding market meat chicken?
- a. Most can range from 28 to 60+ days with weights of 3.6 pounds to over 7.5 pounds.
 - b. Chickens are marketed in a variety of market ages/weights depending on the end product.
 - c. The heavier birds are used for in further processing.
 - d. **All of the above**

Reference: PPP-1

AFNR Standard: FPP.03.01.03.b. Examine and evaluate inspection and harvesting of animals using regulatory agency approved or industry-approved techniques.

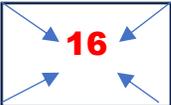
25. Which statement would be true as stated in the Marketing Poultry Product section of the Poultry Science Manual relating to rotisserie-roasted chicken?
- Market for this product increased in the mid 1990's
 - The product appeared as a revitalized product
 - The product did not cannibalize existing markets.
 - All of the above are correct.**

Reference: MPP-6

AFNR Standard: FPP.03.01.03.b. Examine and evaluate inspection and harvesting of animals using regulatory agency approved or industry-approved techniques.

26. How many pounds of corn (9.00% crude protein) and pounds of protein concentrate (37.00% crude protein) are required to formulate 100 lb. of 16.00% crude protein mix?
- 75 lb. protein concentrate, 25 lb. corn
 - 21 lb. corn, 7 lb. protein concentrate
 - 75 lb. corn, 25 lb. protein concentrate**
 - 84 lb. corn, 16 lb. protein concentrate

Calculations:

Corn 9%		21 (37-16) parts of corn
Protein 37%		7 (16-9) parts of protein concentrate
<hr style="width: 20%; margin: 0 auto;"/> Total Parts in Mixture = 28		
Corn $21/28 = 75\%$ $75\% \times 100 = 75$ pounds of corn		
Protein $7/28 = 25\%$ $25\% \times 100 = 25$ pounds of protein		

Reference: C-95

AFNR Standard: AS.06.03.02.c. Choose, implement and evaluate sustainable and efficient procedures (e.g., selection, housing, nutrition and management) to produce consistently high-quality animals that are well suited for their intended purposes.

27. If the recommended application rate for poultry litter is 4 tons per acre. How many tons of poultry litter will a producer need for 30 acres?
- 7.5 tons
 - 30 tons
 - 60 tons
 - 120 tons**

Calculations: 30 acres x 4 tons/acre = 120 tons

Reference: C-61

AFNR Standard: AS.08.01. Design and implement methods to reduce the effects of animal production on the environment.

Nutrient Content in Various Types of Poultry Wastes				
1 ton = 2,000 pounds				
Nutrient	Broiler Litter (pound/ton)	Layer litter High Rise System (pound/ton)	Layer litter Lagoon System (pound/1,000 gallon)	
			Liquid	Sludge
Nitrogen (N)	63	40	4	32
Phosphate (P ₂ O ₅)	55	50	2	46
Potash (K ₂ O)	47	40	3	46

28. Using the chart above, approximately how many pounds of Nitrogen (N) can a broiler producer anticipate, if the broilers produce 40 tons of poultry waste as litter?

- a. 310 pounds
- b. 1,500 pounds
- c. **2,520 pounds**
- d. 5,040 pounds

Calculations: 40 tons x 63 pounds/ton = 2,520 pounds

Reference: C-61

AFNR Standard: AS.08.01. Design and implement methods to reduce the effects of animal production on the environment.

29. Using the chart above, approximately how many tons of Phosphate (P₂O₅) can a Layer litter High Rise System producer anticipate, if the layers produce 80 tons of poultry waste as litter?

- a. **2 tons**
- b. 3 tons
- c. 6 tons
- d. 8 tons

Calculations:

80 tons x 50 pounds/ton = 4,000 pounds

1 ton = 2,000 pounds

4,000 pounds/2,000 pounds = 2 tons

Reference: C-61

AFNR Standard: AS.08.01. Design and implement methods to reduce the effects of animal production on the environment.

30. Using the chart above, approximately how many pounds of Potash (K₂O) can a producer with a Layer Litter Lagoon system anticipate in 15,000 gallons liquid litter?

- a. 5 pounds
- b. 10 pounds
- c. 15 pounds
- d. **45 pounds**

Calculations:

**15,000 gallon of liquid. Potash is 3 pound per 1000 gallon of liquid
(15000/1000) * 3 lb = 45 lb**

Reference: C-61

AFNR Standard: AS.08.01. Design and implement methods to reduce the effects of animal production on the environment.

Answer Key

1. C
2. C
3. C
4. D
5. C
6. A
7. A
8. C
9. A
10. A
11. D
12. D
13. D
14. C
15. C
16. A
17. C
18. B
19. A
20. C
21. A
22. D
23. C
24. D
25. D
26. C
27. D
28. C
29. A
30. D