Name: ……………………………………………………… Index No: ……………...

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*P515/1*

*Principles and Practices of Agriculture*

*July/August 2019*

*2 Hours*

**EXTERNAL MOCK EXAMINATIONS 2019**

**Uganda Advanced Certificate of Education**

**PRINCIPLES AND PRACTICES OF AGRICULTURE**

**Paper 1**

2 Hours 30 Minutes

**Instructions to candidates:**

* Answer**ALL** questions in this paper.
* For section A, write the letter corresponding to the best alternative in the box provided at the right-hand side.
* For section B, answers should be written in the spaces provided.

**SECTION A (30 MARKS)**

1. During the mixing of livestock feeds, the ingredient: Soya bean MUST be roasted before being incorporated. The reason for this is to
2. improve the palatability of the feed.
3. enable easy grinding.
4. economise the proportion of the soyabean used.
5. destroy the toxin (soyin)
6. The following crop pests transmit viral pathogens EXCEPT
7. Tobacco whitefly C. leaf hoppers
8. Groundnut aphids D. cotton stainers
9. Which of the following livestock diseases is a protozoan disease?
10. Infectious bursal disease (Gumboro) in poultry.
11. African swine fever in pigs.
12. Crazy chick disease in poultry.
13. East coast fever in cattle.
14. Which of the fertilizers below has the highest proportion of nitrogen (N)?
15. (NH2)2 CO - Urea
16. NH4NO3 – Ammonium nitrate
17. (NH4)2SO4 – Sulphate of ammonia
18. (NH4)2HPO4 – Diammonium phosphate
19. One of the following is NOT a benefit of draining water logged soils.
20. Reducing soil acidity
21. Neutralising the soil acidity.
22. Increasing soil microbial activity.
23. Enabling better respiration in the tissues.
24. A feed weighing 800g was provided to an animal. The feed had the following proportions of nutrients (with their corresponding digestibilities):

Nutrient (in g) Digestibility (%)

Carbohydrates 500 60

Fats 100 80

Proteins 200 70

Calculate the total digestible nutrients (TDN) as a percentage of the whole feed.

1. 70 B. 65 C.77.5 D. 80
2. The following are benefits of liming fish ponds EXCEPT
3. Modifying pH of the pond waters.
4. Killing some bacteria in the pond
5. Improving the microbial activity in the pond.
6. Increasing the acidity of the pond.
7. Which of the following sources of energy is non-renewable?
8. Solar B. wind C. Biogas D. fossil fuels
9. A cargo of mass 0.5 tonne is lifted through a vertical height of 2m. Determine the potential energy attained by the cargo.
10. 10J B. 2500J C. 10.000J D. 100J
11. Most of the water fed upon by the ruminant animal is absorbed in the
12. colon B. omasum C. Reticulum D. rumen
13. While swimming, the fish balances in the pond waters by the aid of
14. Pectoral fins B. caudal fin C. dorsal fin D. lateral line
15. Which of the following is NOT a role of crop research institutes in Agricultural production?
16. Breeding disease-resistant varieties.
17. Marketing of farmers’ produce
18. Educating the farmers.
19. Coordinating with extension workers.
20. When the price of an agricultural product is 100/= per unit, the quantity bought is 12 units. When the price increases to 1500/- per unit, the quantity bought falls to 9 units. Calculate the price elasticity of demand for the commodity.
21. 2 B. 0.5 C. 1 D. 0.75
22. Which of the following is NOT a characteristic of a leguminous agroforestry tree?
23. Fibrous root system C. Tap root system
24. Possession of root nodules D. Profuse branching
25. The application of methylated spirit in the production of mushrooms may be for
26. Encouraging rooting
27. Killing pathogenic organisms.
28. Providing growth hormones.
29. Regulating the pH from alkaline to acidic.
30. Nutrient synergism means that presence of a nutrient
31. promotes the presence and utilisation of another nutrient.
32. Inhibits the presence and utilisation of another nutrient.
33. Increases acidity of the soil.
34. Increases alkalinity of the soil.
35. Which of the following insect pests attacking cultivated crops is NOT a defoliator?
36. The sweet potato weevil C. The orange dog
37. The African army worm D. The diamond back moth
38. In the processing of crystalline sugar from sugarcanes, lime is added during the clarification stage in order to
39. remove impurities which inhibits the formation of the crystals.
40. Increase the volume of juice.
41. Drive off the excezs water.
42. Facilitate the formation of molasses.
43. Stainless steel is an alloy of
44. Iron and carbon C. Iron, chromium and nickel
45. Iron and manganese D. Iron and tungsten
46. Which of the following are the recessive traits in garden peas
47. green seeds, yellow pods C. Round seeds, purple flowers
48. Yesllow seeds, green pods D. Green pods, white flowers.
49. In chicken, there is also complementary interaction of genes. The allele R produces a rose comb. Another allele P (on different chromosome) produces a pea comb. When R and P both present, they combine to produce a walnutcomb. The absence of R and P alleles produces a single comb. Therefore chicken with genotypes RrPP, RRpp and rrpp will, respectively be
50. pea, walnut, rose combs C. single, pea, rose combs
51. walnut, rose, single combs D. rose, pea, single combs
52. The enzyme in yeast that catalyses the conversion of glucose to ethanol and carbon dioxide is
53. sucrose B. diastase C. zymase D. maltase
54. Which one of the following is NOT an agro-based industry?
55. Milk-processing plant C. Fertilizer-manufacturing plant
56. Fruit-processing plant D. Maize milling machinery
57. Which of the factors below is considered as an output in the the production function?
58. skilled labour force C. milk yield from the animals.
59. feeds provided to the animals. D. fertilizers applied in the garden.
60. Alleloparthy refers to some plants producing
61. hormones that promote growth.
62. flowers that are wind-pollinated.
63. chemicals that prevent other plants from growing around them.
64. fruits without out fertilisation.
65. An agrochemical is supposed to be diluted with water before spraying; in the ratio 3 : 40 respectively. If the solution to be made measures 5000 litres, then the proportions would be
66. 375*l* of chemical + 5000*l* of water.
67. 3*l* of chemical + 4997*l* of water.
68. 349*l* of chemical + 4651*l* of water.
69. 375*l* of chemical + 4625*l* of water.
70. A fertiliser is labelled NPK, 20 : 10 : 15, meaning the nutrient composition is 45% The remaining 55% is referred to as
71. active ingredient C. toxic material
72. inert ingredient D. liming material
73. When partially dried grains are stored, they become toxic. The toxicity is due to the development of micro organisms known as
74. staphylococcus B. aflatoxins C. salmonella D. escherichia
75. Zoonotic diseases are transmitted from animals to humans through consuming contaminated animal products. Examples of such diseases include
76. East coast fever C. Foot and mouth disease
77. Coccidiosis D. brucellosis
78. The yolk of chicken is fertilized in the
79. Uterus B. isthmus C. magnum D. infundibulum

**SECTION B (70 Marks)**

31. (a) State why concrete is a good building material. (5 mks)

(b) Explain factors that affect the strength of a material. (5 mks)

32. (a) State the differences between ruminants and non-ruminants regarding the following; (5mks)

|  |  |  |
| --- | --- | --- |
|  | **Ruminants** | **Non-ruminants** |
| Saliva |  |  |
| Digestion in the stomach |  |  |
| Absorption of water |  |  |
| Source of body energy |  |  |
| Absorption of food |  |  |

(b) State the factors that affect the digestibility of feeds in animals. (5mks)

33. (a) State the hardy-Weinberg principle of population genetics. (1 mk)

(b) The principle above is represented mathematically as p2 + 2pq + q2 = 1

where

p represents:

q represents:

(c) State five conditions under which the hardy-weinberg principle can be fulfilled.

(d) If a dominant allele T has a frequency of 0.7 (i.e. found in 70% of the genes), then the recessive allele t has a frequency of 1.0 – 0.7 = 0.3. Buy use of a punnet square, determine the expected frequency of the three possible genotypes TT, Tt and tt. (2 mks)

34. (a) State any five qualities that are desired in a variety of a crop seed. (5 mks)

(b) State four methods of protecting crop seeds against insect damage. (4 mks)

(c) State the meaning of the term “certified seed.” (1 mk)

35. (a) Explain the meaning of the following as applied in crop production. (5mks)

1. Biological pest control

1. Translocated herbicides

1. Polyphagous pest

1. Residual pesticide

1. Legislative pest control

(b) State the avenues through which crop diseases are transmitted. (5mks)

36. Explain the meaning of the following as used to describe the pesticides. (10mks)

1. mode of action.

1. pre-harvest period

1. active ingredient

1. pesticide formulation

1. range of ability

37. (a) Explain why water in a fish pond should be flowing in and out. (2mks)

(b) State the importance of adequate light in a fish pond. (2mks)

(c) What is eutrophication in fish ponds? (2mks)

(d) State the dangers of eutrophication in fish pond. (4mks)

***E N D***