CANDIDATE – PLEASE NOTE!

PRINT your name on the line below and return this booklet with your answer sheet. Failure to do so may result in disqualification.

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FORM TP 2019045

TEST CODE **01203010**

MAY/JUNE 2019

CARIBBEAN EXAMINATIONS COUNCIL

CARIBBEAN SECONDARY EDUCATION CERTIFICATE® EXAMINATION

AGRICULTURAL SCIENCE

(Single Award)

Paper 01 – General Proficiency

1 hour 15 minutes

05 JUNE 2019 (a.m.)

READ THE FOLLOWING INSTRUCTIONS CAREFULLY.

1. This test consists of 60 items. You will have 1 hour and 15 minutes to answer them.

2. In addition to this test booklet, you should have an answer sheet.

3. Each item in this test has four suggested answers lettered (A), (B), (C), (D). Read each item you are about to answer and decide which choice is best.

4. On your answer sheet, find the number which corresponds to your item and shade the space having the same letter as the answer you have chosen. Look at the sample item below.

   Sample Item

   Which of the following animals has the highest dressing percentage?

   (A) Chicken
   (B) Goat
   (C) Cow
   (D) Pig

   Sample Answer

   The best answer to this item is "Chicken", so (A) has been shaded.

5. If you want to change your answer, erase it completely before you fill in your new choice.

6. When you are told to begin, turn the page and work as quickly and as carefully as you can. If you cannot answer an item, go on to the next one. You may return to that item later.

DO NOT TURN THIS PAGE UNTIL YOU ARE TOLD TO DO SO.

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1. A farmer who does NOT use pesticides or chemical fertilizers is MOST likely practising

(A) crop farming
(B) mixed farming
(C) organic farming
(D) continuous farming

2. Biodiversity refers to the

(A) impact of humans on a given habitat
(B) differences in the individuals within each species
(C) different species of organisms and the variety of habitats in which they live
(D) different habitats in which animals live

3. Which institution has the following objectives?

I. To facilitate trade between member countries
II. To develop a common trade policy
III. To act as a bargaining body when negotiating with outside forces

(A) Caribbean Community (CARICOM)
(B) Caribbean Development Bank (CDB)
(C) Caribbean Public Health Agency (CARPHA)
(D) Caribbean Research and Development Institute (CARDI)

4. An agronomist is a person who specializes in the study of the

(A) management of animals
(B) control and use of insects
(C) growth of ornamental plants
(D) growth and management of crops

5. Which of the following constraints to agriculture is remedied to a large extent by the farmer?

(A) Lack of infrastructure
(B) Trade barrier
(C) Land tenure
(D) Topography

6. Which of the following is NOT considered a factor of production?

(A) Land
(B) Capital
(C) Marketing
(D) Management

7. The growing of crops in a liquid nutrient medium is known as

(A) hydroponics
(B) trough culture
(C) organic farming
(D) subsistence farming

Item 8 refers to the following table which shows the demand, supply and price of tomato in a country.

Quantity Demanded (kg)	Quantity Supplied (kg)	Price ($)
400	1 000	1.00
500	800	1.50
700	700	2.00
1 000	400	2.50

8. Based on the information in the table, the equilibrium price of tomato is

(A) $1.00
(B) $1.50
(C) $2.00
(D) $2.50

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9. Legumes are especially important in organic crop farming because they

(A) are easy to cultivate
(B) provide a good cover
(C) promote nitrogen fixation
(D) have a high market demand

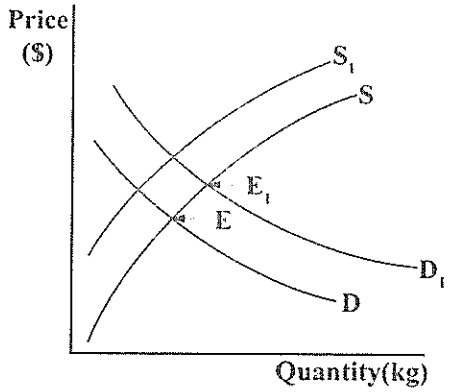
10. Which of the following is NOT a fixed cost?

(A) Fuel
(B) Tax
(C) Machinery
(D) Depreciation

11. Which of the following can be done to speed up the breakdown of organic matter in a compost heap?

(A) Gather dead plants and animals faster.
(B) Add water to the compost when it is dry.
(C) Light a fire on top of the heap to create more heat.
(D) Allow a long time to pass before applying another layer of compost.

Item 12 refers to the following graph of a demand and supply curve.



12. During Lent, people demand more fish than any other meat. This is represented by a shift from

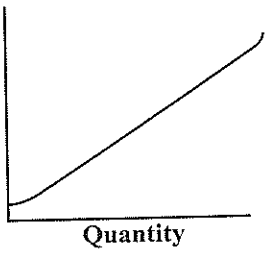
(A) D_1 to D
(B) D to D_1
(C) S_1 to S
(D) E_1 to E

13. Which of the following is a feature of a cooperative?

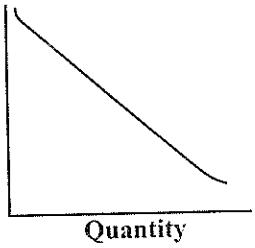
(A) Each member has one vote.
(B) Non-members have one vote.
(C) Members cannot obtain a loan.
(D) Members with more shares vote more than once.

Item **14** refers to the following graphs.

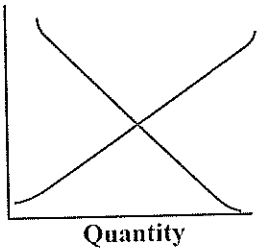
(A)



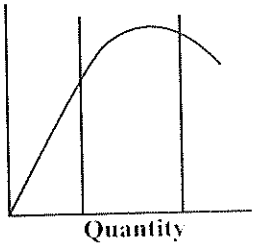
(B)



(C)



(D)



14. From which of the graphs above can the equilibrium price of a product be determined?

15. Which of the following records is designed to give information on the yield of yams?

(A) Production
(B) Inventory
(C) Financial
(D) Labour

16. Which of the following groups of requirements is essential for a banker to consider when processing a loan application from a farmer?

(A) Collateral, project proposal, knowledge of customer's spouse
(B) Character references, project proposal, credit history
(C) Credit history, character references, collateral
(D) Collateral, project proposal, credit history

17. A farmer intends to expand his poultry farm. Which of the following budgets will he prepare?

(A) Partial
(B) Complete
(C) Whole farm
(D) Gross margin

Items 18–19 refer to the following economic terms.

(A) Net profit
(B) Gross margin
(C) Fixed expenses
(D) Gross farm income

Match each item below with one of the options above. An option may be used once, more than once or not at all.

18. Total income

19. Total income – total expenses

Item 20 refers to the following information.

The yield and average price per kilogram of four crops are given in the table below.

Crop	Yield (thousand kg)	Price (dollar per kg)
Cabbage	27	2.00
Cauliflower	17	3.50
Lettuce	27	1.25
Tomato	22	2.50

20. Based on gross returns alone, which is the MOST profitable crop for the farmer to plant?

(A) Lettuce
(B) Tomato
(C) Cabbage
(D) Cauliflower

21. A soil sample was collected from a school farm and found to be very high in H^+ ions. This indicates that this soil MOST likely

(A) has a high calcium content
(B) is alkaline
(C) is neutral
(D) is acidic

22. A bag of mixed fertilizer is labelled 7:14:21. What is the ratio of nitrogen to phosphorus in this fertilizer?

(A) 1:2
(B) 3:1
(C) 2:3
(D) 3:2

23. Which of the following is NOT a physical property of soil?

(A) pH
(B) Texture
(C) Structure
(D) Capillarity

24. Farmer Zara observes the premature falling of buds in her tomato crop. Which of the following fertilizers would MOST likely correct this problem?

(A) Urea
(B) Calcium nitrate
(C) Muriate of potash
(D) Sulphate of ammonia

25. Which of the following should be recommended to a farmer cultivating a parcel of land that floods in the rainy season?

I. Construct deep drains.
II. Plant on high beds.
III Plant crops without preparing the land.

(A) I only
(B) I and II only
(C) II and III only
(D) I, II and III

26. The atmospheric gas being utilized in the manufacture of food by plants is

(A) oxygen
(B) nitrogen
(C) hydrogen
(D) carbon dioxide

27. Which of the following will NOT take place if the air temperature rises above 37 °C?

(A) Increased evaporation
(B) Increased rate of transpiration in plants
(C) Increased drying out of the surface soil
(D) Increased risk of fungal diseases in plants

28. The transfer of pollen grains from the anther of one plant to the stigma of another plant of the same or closely related species is known as

(A) self-pollination
(B) cross-pollination
(C) wind-pollination
(D) insect pollination

29. The process by which plants lose water in the form of vapour to the air is called

(A) absorption
(B) respiration
(C) transpiration
(D) translocation

30. Altering an organism by inserting, deleting or changing specific pieces of its DNA is normally done to improve food production. This process is called

(A) cloning
(B) mutation
(C) tissue culture
(D) genetic engineering

31. Farmer Derek has a farm on 20 hectares of land. He cultivates vegetables and irrigates his crops with water from a pond in which he rears tilapia and ducks. This practice is called

(A) mixed farming
(B) mixed cropping
(C) the plantation system
(D) the monoculture system

32. Farmer Dass has an excess of pesticide after spraying his crops. The BEST way for him to take care of the pesticide is to

(A) throw it away at another location
(B) pour it into a container and burn it
(C) store it in the sprayer for future use
(D) store it in a labelled container for future use

33. Which of the following are true for mitosis?

I. New plants have a different growth habit from parent plants.
II. Characteristics of the species are the same.
III. Species chromosome number is the same.

(A) I and II only
(B) I and III only
(C) II and III only
(D) I, II and III

34. A tall pigeon pea plant with the genotype Tt is crossed with a dwarf pigeon pea plant with the genotype tt.

What is the possible phenotype of the offspring?

(A) $\frac{3}{4}$ tall plants, $\frac{1}{4}$ short plants
(B) $\frac{1}{2}$ tall plants, $\frac{1}{2}$ short plants
(C) All short plants
(D) All tall plants

35. A selective herbicide is one which

(A) destroys all types of weeds
(B) destroys the chlorophyll in leaves
(C) is applied to weeds that have grown
(D) kills some plants but has no effect on others

36. The use of living organisms to control weeds is a practice known as

(A) cultural control
(B) chemical control
(C) biological control
(D) mechanical control

37. In the agricultural sector, quarantine usually results in

(A) an increase in the quantity of produce due to useful pests
(B) a reduction in the quality of produce due to pests and diseases
(C) the production and spread of disease-causing organisms from one place to another
(D) the prevention and control of the spread of disease-causing organisms from one place to another

38. The correct sequence of steps followed in cleaning and maintaining tools is

(A) sharpen, wash, oil and dry
(B) oil, wash, sharpen and dry
(C) wash, oil, dry and sharpen
(D) wash, dry, sharpen and oil

39. Which of the following are advantages of processing hot peppers?

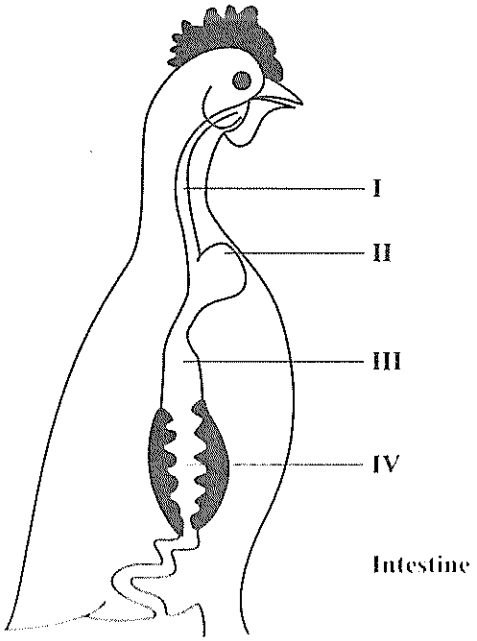
I. Allows the farmer to maximize profits
II. Reduces the incidence of post-harvest disease
III. Prolongs the storage life of the produce

(A) I and II only
(B) I and III only
(C) II and III only
(D) I, II and III

40. The technique which can be used to remove the water content of a crop is

(A) drying
(B) freezing
(C) preserving
(D) fermenting

Items 41–42 refer to the following diagram showing part of the digestive tract of poultry.



41. The function of the part labelled II is to

(A) grind food
(B) store food
(C) secrete gastric juices
(D) facilitate regurgitation

42. Which of the parts labelled I, II, III, IV is the proventriculus?

(A) I
(B) II
(C) III
(D) IV

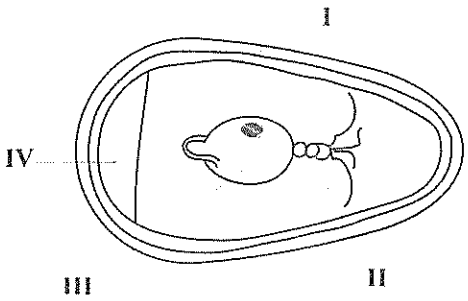
43. Fish meal in an animal ration is a rich source of

(A) fats
(B) protein
(C) vitamins
(D) carbohydrate

44. How much space per bird is required for rearing broilers in the deep litter system?

(A) 0.09 m^2
(B) 1.0 m^2
(C) 9.0 m^2
(D) 10.0 m^2

Item 45 refers to the following diagram of an egg.



45. Which two parts of the egg are rich in protein?

(A) I and III only
(B) I and IV only
(C) II and III only
(D) II and IV only

46. Legumes are planted in a pasture MAINLY to

(A) provide variety for animals
(B) increase carbohydrate content
(C) provide extra vitamins and minerals
(D) increase the protein content of a diet

47. A rabbit farmer adds double the recommended dosage of antibiotics to the drinking water of his rabbits. He is advised that this practice is wrong MAINLY because it may

(A) endanger the farm workers
(B) reduce the growth rate of the rabbits
(C) endanger the health of consumers
(D) lead to low mortality rates among his rabbits

48. Which of the following occurs during the oestrus cycle?

(A) Gestation
(B) Ovulation
(C) Parturition
(D) Fertilization

49. Which of the following demonstrate a good rotational grazing system?

I Undergrazing is done to conserve fodder.
II Animals are placed in paddocks for four to six days.
III Milking animals are grazed first followed by dry and non-productive cows.

(A) I and II only
(B) I and III only
(C) II and III only
(D) I, II and III

50. Which of the following would give a farmer precise information on the effectiveness of feed given to broilers?

(A) Stage of maturity of birds
(B) Commercial ration label
(C) Feed conversion ratio
(D) Health of the birds

51. Broilers are slaughtered at six weeks old. The most suitable ration for a five-week old broiler is

(A) millet
(B) starter
(C) grower
(D) finisher

52. During the actual process of artificial insemination, which of the following is NOT used?

(A) Bull
(B) Glove
(C) Sperm
(D) Syringe

53. Concrete floors in pig pens are gently sloping to

(A) prevent feed spillage
(B) facilitate easy cleaning
(C) prevent animals from slipping
(D) encourage animals to move around

54. Two diseases affecting rabbits are

(A) mastitis and pullorum
(B) coccidiosis and snuffles
(C) bronchitis and brucellosis
(D) coccidiosis and Newcastle disease

55. Debeaking is done in layers mainly to

I. reduce the occurrences of cannibalism
II. improve the dressing percentage
III. improve carcass quality

(A) I only
(B) I and II only
(C) I and III only
(D) I, II and III

56. Broiler birds with signs of blisters on the face, legs and other body parts are MOST likely infected with

(A) marex
(B) fowl cholera
(C) fowl pox disease
(D) gumbaro disease

57. Bees are of economic importance to a citrus farmer because they

(A) test fruit for ripeness
(B) prevent praedial larceny
(C) increase fruit production
(D) biologically control pests

58. The function of the drone in a hive is to

(A) forage for nectar and pollen
(B) mate with the queen
(C) protect the hive
(D) produce honey

59. At which stage of growth is it MOST appropriate to feed layers with laying ration?

(A) Two to three months
(B) Less than one month
(C) Three to four months
(D) Five months and over

60. A livestock farmer uses the formula

$$\frac{\text{Total kg of feed eaten}}{\text{Total kg of live weight gain}} \times 100$$

to calculate

(A) LCR
(B) FCR
(C) GAP
(D) GMP

END OF TEST

IF YOU FINISH BEFORE TIME IS CALLED, CHECK YOUR WORK ON THIS TEST.