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 2018042

TEST CODE **01203010**

MAY/JUNE 2018

CARIBBEAN EXAMINATIONS COUNCIL

CARIBBEAN SECONDARY EDUCATION CERTIFICATE® EXAMINATION

AGRICULTURAL SCIENCE

(Single Award)

Paper 01 – General Proficiency

1 hour 15 minutes

06 JUNE 2018 (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) Pig
   (B) Cow
   (C) Goat
   (D) Chicken

   Sample Answer

   The best answer to this item is "Chicken", so (D) 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 country is said to have food security when it can

(A) feed most of its population
(B) provide a protein-rich diet for everyone
(C) secure food for everyone during periods of natural disasters
(D) provide safe and nutritionally balanced food for everyone at all times

2. Which of the following is the MOST likely reason for the proliferation of praedial larceny in the Caribbean?

(A) The fines are too small.
(B) There are no laws against it.
(C) It is difficult to catch the person committing the act.
(D) Vendors do not have to show origin of farm produce.

3. Which of the following can be considered roles of agriculture in the economy of Caribbean territories?

I. Contributing to the GDP
II. Reducing the regional food import bill
III. Securing foreign exchange

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

4. A bio-terrorism attack on agriculture may result in

I. an increase in food prices
II. destruction of ecological habitats
III. destabilization of a system of food security

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

5. Which of the following is NOT considered a good agricultural practice?

(A) Slash and burn
(B) Aerobic composting
(C) Cleaning and sanitizing
(D) High temperature treatment

6. Which of the following are benefits of organic farming?

I. Biodiversity
II. Income to farmers
III. Ecological balance

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

7. Which of the following is MOST likely associated with crops grown in wet climatic conditions?

(A) Plants are hardier than usual.
(B) Irrigation is usually a major concern.
(C) Yield per acre is usually higher than normal.
(D) Disease and pest outbreaks are usually high.

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8. Farm record keeping is important because it

(A) allows for large farm profits
(B) minimizes workload on the farm
(C) provides information to analyse farm business
(D) reduces the number of farm transactions

9. Legumes are especially important on organic crop farms because legumes

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

Items **10–12** refer to the following budgeting terms.

(A) Gross farm income
(B) Net farm income
(C) Gross margin
(D) Expenditure

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

10. This is the amount of money left after all deductions are made.

11. This is the total income minus (–) total variable expenditure.

12. This is the amount of money received before any deductions are made.

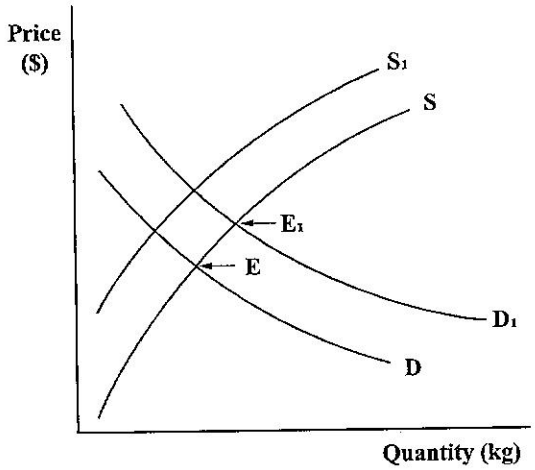
13. Which of the following summarizes the principles of the Economic Partnership Agreement (EPA)?

(A) Protection of the European Union (EU) trade markets
(B) Global integration for African, Caribbean and Pacific (ACP) countries
(C) Reciprocal trade between ACP countries and the EU
(D) Free movement of skilled workers in CARICOM member states

14. Which of the following is NOT true of a complete budget?

(A) Provides an estimate of net farm income
(B) Provides an estimate of farm expenditure
(C) Contains only some items of income and expenditure
(D) Can be used to compare profitability of other farm plans

Item **15** refers to the following graph of a demand and supply curve.



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

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

16. A business owned and controlled by farmers who use it to create surplus earnings that are divided among members is BEST described as

(A) a farmers' club
(B) an agricultural bank
(C) an agricultural cooperative
(D) an agricultural corporation

17. Interest, depreciation, insurance and taxes are all examples of

(A) capital
(B) fixed cost
(C) variable cost
(D) actual income

18. The government of a Caribbean country provides farmers with a rebate of 25% of the purchase price of agricultural equipment. Which of the following terms describes this arrangement?

(A) Tax
(B) Subsidy
(C) Insurance
(D) Price support

19. Fixed capital describes inputs such as

(A) feed, chemicals, cash
(B) tractors, sprayers, seeds
(C) buildings, machines, land
(D) labour, management, tools

20. Which of the following is considered a conventional farming system?

(A) Aquaponics
(B) Hydroponics
(C) Trough culture
(D) Contour farming

21. A mixed fertilizer of Grade 15:35:10 contains 60% plant nutrients. The other 40% of the fertilizer is referred to as

(A) side dressing
(B) top dressing
(C) granules
(D) carrier

22. Which of the following soil organisms is capable of converting atmospheric nitrogen to nitrates?

(A) Fungi
(B) Viruses
(C) Bacteria
(D) Protozoa

23. Which of the following structures is responsible for the increase in growth of plant stems?

(A) Cambium
(B) Phloem
(C) Xylem
(D) Cortex

24. In a germinating seed, which structure emerges first?

(A) Plumule
(B) Radicle
(C) Epicotyl
(D) Cotyledon

25. Translocation in plants refers to the

(A) transport of organic and inorganic substances
(B) combustion of organic compounds
(C) absorption of certain ions
(D) movement of water

26. The MOST water-conserving system of irrigating crops in the Caribbean is a

(A) flood
(B) drip
(C) sprinkler
(D) sub-surface

27. Which of the following is MOST likely to occur when crops are grown in an area with high relative humidity?

(A) An increased incidence of fungal diseases
(B) An increase in the rate of transpiration
(C) The drying out of the surface soil
(D) Reduced risk of fungal diseases

28. Which of the following is NOT a benefit of farm mechanization?

(A) Farm operations performed on time
(B) Better yield and quality of produce
(C) Improved standard of living for rural farmers
(D) Increased losses in crop handling

29. Which of the following weed control methods is considered to be biological?

(A) Mulching with organic material
(B) Spraying with a contact weedicide
(C) Application of a systemic herbicide
(D) Introduction of parasites to feed on weeds

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

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

31. Which of the following organisms causes root knot in tomatoes?

(A) Virus
(B) Fungus
(C) Bacterium
(D) Nematode

32. Which of the following strategies may be used by a plant breeder to improve crop quality?

(A) Mutation and cover cropping
(B) Selection and hybridization
(C) Tissue culture and bench terracing
(D) Hybridization and contour cropping

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33. Which of the following BEST represents the mode of action of insecticides?

I. Stomach
II. Systemic
III. Contact

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

34. An advantage of the use of postharvest technology is that it results in

(A) a reduction in loss due to spoilage
(B) physiological breakdown
(C) compositional changes
(D) physical injury

35. Which of the following crops is LEAST suited for mechanical harvesting?

(A) Tomato
(B) Lettuce
(C) Mango
(D) Potato

36. Which of the following pest control methods can be categorised as cultural?

I. Crop rotation
II. Field sanitation
III. Setting of insect traps

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

37. The BEST time of the day to transplant seedlings is

(A) early afternoon
(B) late afternoon
(C) late morning
(D) midday

38. Which of the following types of chemicals can be applied to treat early blight in tomatoes?

(A) Herbicide
(B) Fungicide
(C) Insecticide
(D) Nematicide

39. The commercial application of ethylene to fruits accelerates the

(A) ripening and even colour development
(B) growth and development
(C) ageing and senesence
(D) ripening and shape

40. The processing of harvested produce does NOT allow for the

(A) improvement in food quality
(B) increase in plant population
(C) killing of microorganisms
(D) increase in shelf life

41. The purpose of the crop in the digestive system of a bird is to

(A) store ingested food
(B) absorb digested food
(C) churn and grind food
(D) secrete digestive enzymes

42. In rabbits, most cellulose digestion takes place in the

(A) rectum
(B) caecum
(C) stomach
(D) oesophagus

43. The first compartment of the ruminant stomach is called the

(A) rumen
(B) omasum
(C) reticulum
(D) abomasum

44. Which of the following organisms is the causative agent of Avian influenza?

(A) Virus
(B) Protozoan
(C) Bacterium
(D) Mycoplasma

45. Which of the following practices is optional in broiler production but compulsory in layer production?

(A) Culling
(B) Brooding
(C) Debeaking
(D) Deworming

46. Good brooding practices result in

I. better development of chicks
II. faster weight gains
III. increased egg production

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

Items 47–49 refer to the following information.

A ram and ewe, both heterozygous for the trait, having horns, are mated.

47. What are the chances of a hornless offspring being produced?

(A) 25%
(B) 50%
(C) 75%
(D) 100%

48. If H represents the dominant allele for horns and h represents the recessive allele, the possible genotype of the offspring from the cross is

(A) HH, HH, Hh, hh
(B) HH, HH, hh, hh
(C) HH, Hh, Hh, hh
(D) HH, Hh, hh, hh

49. Out of a herd of 12 offspring, how many will MOST likely be homozygous for the horn trait?

(A) 3
(B) 6
(C) 10
(D) 12

50. The MOST common symptom of coccidiosis is

(A) loss of appetite
(B) difficulty breathing
(C) green watery faeces
(D) diarrhoea with streaks of blood

51. A likely DISADVANTAGE of artificial insemination in cows is

(A) less disease transmission
(B) cross breeding of local stock
(C) less technical skills required
(D) more technical skills required

52. A maintenance ration is one that has the nutrients needed

(A) for the animal to increase in weight
(B) to allow for some activities to go on
(C) to keep the animal in a producing mode
(D) to keep the animal alive in its initial condition

53. Which of the following is a sign of heat in rabbits?

(A) Excessive noisemaking
(B) Acceptance of the buck
(C) Rejection of the buck
(D) Loss of appetite

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

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

55. The queen bee in the hive is the female that is

(A) sterile
(B) fertile
(C) smallest
(D) sexually immature

56. Which of the following BEST explains how honey is purified after harvesting?

(A) Heat to 80 °C, strain, allow to cool and bottle.
(B) Heat to 100 °C, allow to cool and bottle.
(C) Strain through a small strainer and bottle.
(D) Leave to stand for 30 minutes and bottle.

57. The queen bee in a hive is fed with special food called

(A) bee bread
(B) royal jelly
(C) bee wax
(D) honey

58. Eggshell can be used as a feed supplement for layers because it supplies

(A) magnesium
(B) calcium
(C) sulphur
(D) sodium

59. Selecting eggs by weight, size and shape is known as

(A) sorting
(B) grading
(C) candling
(D) preparation

60. The live weight of a goat is 50 kg. The dressed carcass weight is 30 kg. What is the dressing percentage?

(A) 30
(B) 40
(C) 50
(D) 60

END OF TEST

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