FORM TP 2020088

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.

TEST CODE **01230010**

MAY/JUNE 2020

CARIBBEAN EXAMINATIONS COUNCIL

CARIBBEAN SECONDARY EDUCATION CERTIFICATE® EXAMINATION

INTEGRATED SCIENCE

Paper 01 – General Proficiency

1 hour 15 minutes

29 MAY 2020 (p.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

   Benzene dissolves stains caused by

   (A) tar
   (B) fruit
   (C) paint
   (D) starch

   Sample Answer

   ● Ⓑ Ⓒ Ⓓ

   The best answer to this item is "tar", 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. Which of the following word equations represents the process of photosynthesis?

(A) Carbon dioxide + Water $\xrightarrow{\text{Energy}}$ Sucrose + Oxygen

(B) Carbon dioxide + Water $\xrightarrow{\text{Energy}}$ Glucose + Oxygen

(C) Alcohol + Oxygen $\longrightarrow$ Carbon dioxide + Water + Energy

(D) Oxygen + Glucose $\longrightarrow$ Carbon dioxide + Water + Energy

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2. Antibodies are important in the human body because they

(A) control hormones
(B) protect against diseases
(C) help make red blood cells
(D) regulate blood glucose levels

3. Which of the following systems is likely to be affected by the presence of dust in the air?

(A) Circulatory
(B) Respiratory
(C) Endocrine
(D) Digestive

Items 4–5 refer to the following parts of a flower.

(A) Ovule
(B) Ovary
(C) Anther
(D) Filament

4. Which part of the flower forms the seed after fertilization?

5. Which structure is the site where male gametes are produced?

6. Which of the following structures BEST completes the path to fertilization in plants?

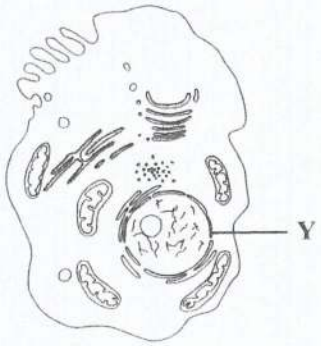
Pollen → _____ → Ovary

(A) Petal
(B) Stigma
(C) Stamen
(D) Receptacle

7. Which of the following methods of birth control is MOST likely to prevent the spread of sexually transmitted infections?

(A) Barrier
(B) Natural
(C) Surgical
(D) Hormonal

Item **8** refers to the following diagram of an animal cell.



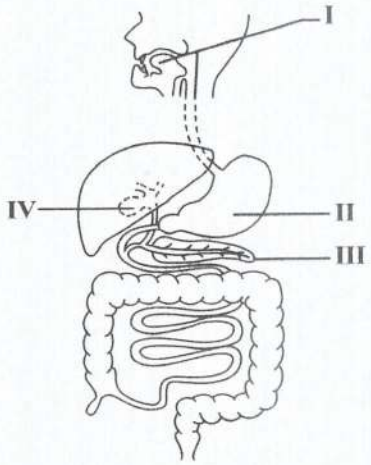
8. What is the name of the structure labelled Y?

(A) Nucleus
(B) Cytoplasm
(C) Mitochondria
(D) Chromosome

9. A food cupboard should always be kept well ventilated and cool, rather than closed up and warm. The BEST reason for this is that

(A) some bacteria need oxygen to reproduce
(B) bacteria grow more rapidly in the dark than in the light
(C) most bacteria need warm moist places in which to reproduce
(D) warm, humid air is more likely to cause disease than cool, dry air

Item **10** refers to the following diagram of the human digestive tract.



10. Hydrochloric acid is produced in

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

11. Which of the following structures functions as a digestive organ and also produces a hormone?

(A) Liver
(B) Pituitary
(C) Pancreas
(D) Gall bladder

12. By which of the following processes does water move from the soil into the root hairs of a plant?

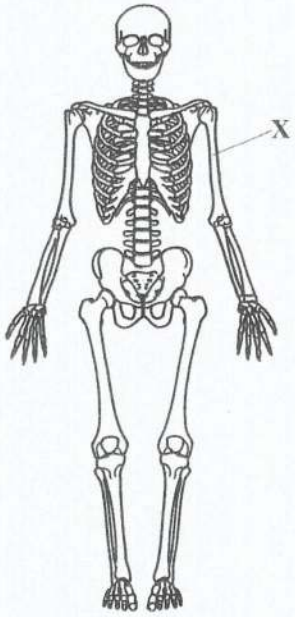
(A) Osmosis
(B) Diffusion
(C) Capillarity
(D) Transpiration

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13. Which of the following components of blood protects the body by engulfing bacteria?

(A) Plasma
(B) Platelet
(C) Red blood cell
(D) White blood cell

Item **14** refers to the following diagram of the skeletal system.



14. The bone labelled X is the

(A) femur
(B) radius
(C) humerus
(D) phalange

15. Photosynthesis occurs in the

(A) mitochondrion
(B) chloroplast
(C) cell wall
(D) nucleus

16. Which of the following toxic gases functions by binding to the haemoglobin in the red blood cells?

(A) Chlorine
(B) Ammonia
(C) Sulphur dioxide
(D) Carbon monoxide

17. The structure responsible for the transfer of characteristics from parents to offspring is the

(A) cell membrane
(B) chromosome
(C) cytoplasm
(D) vacuole

18. Which of the following statements about respiration is true?

(A) Anaerobic respiration produces more energy than aerobic respiration.
(B) Anaerobic respiration requires oxygen while aerobic respiration does not require oxygen.
(C) Aerobic respiration requires oxygen while anaerobic respiration does not require oxygen.
(D) Aerobic respiration produces oxygen while anaerobic respiration produces carbon dioxide.

19. Which of the following are significant sources of air pollution?

I. Oil spills
II. Volcanic eruptions
III. Extensive use of cars

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

20. The amount of water entering the tissues of the body is controlled by

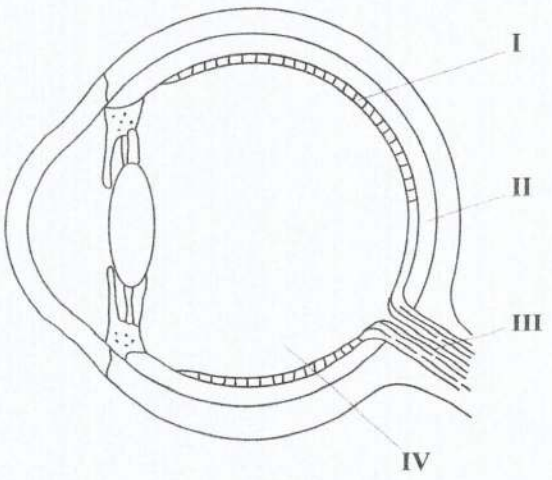
(A) egestion
(B) excretion
(C) nutrition
(D) osmoregulation

21. Which of the following processes are associated with excretion by the kidneys?

I. Filtration
II. Evaporation
III. Reabsorption

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

Item 22 refers to the following diagram of the eye.



22. Which structure transmits impulses to the brain?

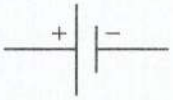
(A) I
(B) II
(C) III
(D) IV

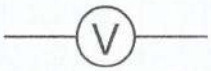
23. Which electrical component is designed to melt and break a circuit if too much current passes through it?

(A) Fuse
(B) Flex
(C) Plug
(D) Switch

24. Which of the following symbols represents a switch?

(A) 

(B) 

(C) 

(D) 

25. Which of the following organisms is a parasite?

(A) Rat
(B) Fly
(C) Tick
(D) Cockroach

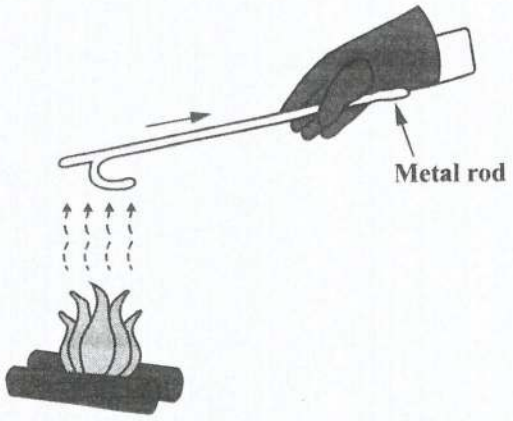
26. The type of pest control which involves the use of a predator is called

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

27. Solar energy is transferred through space by

(A) radiation
(B) convection
(C) conduction
(D) evaporation

Item **28** refers to the following diagram showing methods of heat transfer.



28. The method of heat transfer through the metal rod is

(A) evaporation
(B) conduction
(C) convection
(D) radiation

Item **29** refers to the following picture of an athlete jumping over a hurdle.



29. What type of energy is the athlete using to jump over the hurdle?

(A) Heat
(B) Sound
(C) Kinetic
(D) Potential

30. The formula for calculating current passing through fuses is

(A) voltage ÷ power
(B) power ÷ voltage
(C) power × voltage
(D) power × power

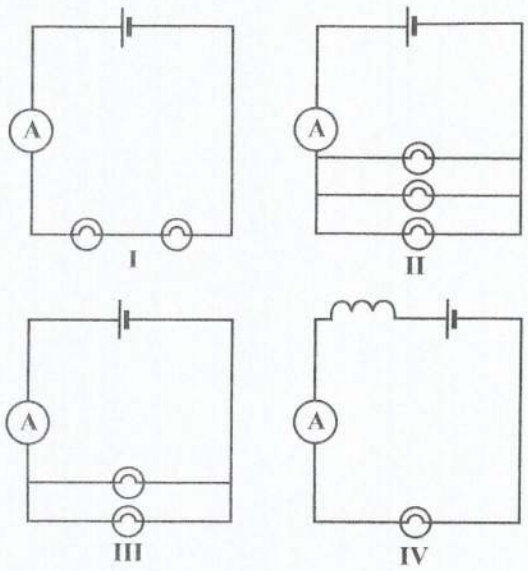
31. Which of the following is NOT a conductor of electricity?

(A) Carbon
(B) Copper
(C) Plastic
(D) Iron

32. The unit of current is the

(A) ohm
(B) volt
(C) watt
(D) ampere

Item 33 refers to the following diagrams of four circuits.



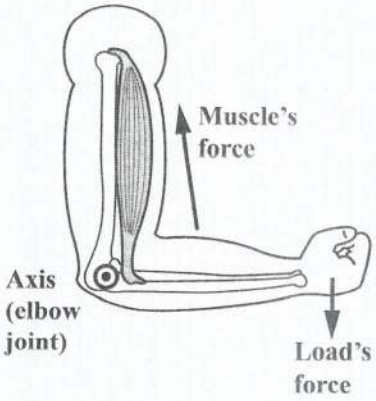
33. In which TWO circuits are the bulbs wired in parallel?

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

34. Which equipment protects a person from toxic fumes?

(A) Ear protector
(B) Goggles
(C) Safety clothing
(D) Respirator

Item 35 refers to the following diagram of a forearm.



35. The diagram is an example of

(A) a fixed pulley
(B) a simple lever
(C) an inclined plane
(D) a movable pulley

36. Which of following formulae is used to calculate the mechanical advantage (MA) of a machine?

(A) $MA = \frac{\text{Effort}}{\text{Load}}$

(B) $MA = \frac{\text{Load}}{\text{Effort}}$

(C) MA = Effort – Load

(D) MA = Effort × Load

37. Which of the following are properties of aluminium alloys that make them suitable for the manufacture of aircraft and boats?

I. Light
II. Strong
III. Expensive

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

38. Which of the following characteristics represent MOST non-metals?

I. Insulate against both heat and electricity
II. Low boiling points
III. High melting point

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

39. The rusting of iron is an example of

(A) reduction
(B) oxidation
(C) precipitation
(D) neutralization

40. Windows made from steel will rust quickly by the seaside. This is because the air by the seaside has a high concentration of

(A) oxygen
(B) iodine vapour
(C) carbon dioxide
(D) sodium chloride

Item **41** refers to the following safety symbols, I, II and III, found on three bottles of chemicals in a school laboratory.



I II III

41. Which chemicals must be handled with EXTREME care and preferably by the teacher?

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

42. A substance, X, has a pH of 2. This means that X is

(A) a salt
(B) a base
(C) an acid
(D) an alkali

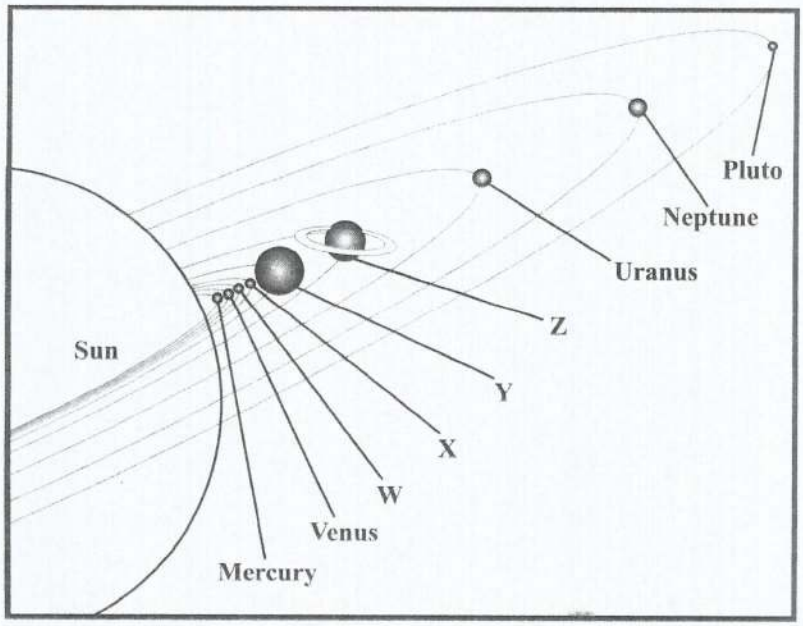
43. The following data were obtained in an experiment to investigate the best soil pH for different crops. Which crop grows best in neutral soil?

Crop	pH Values of Soil for Best Growth
(A)	4.0–6.0
(B)	6.0–8.0
(C)	8.0–10.0
(D)	10.0–12.0

44. Hard water is referred to as water that

(A) is frozen
(B) contains alcohol
(C) contains a lot of chemicals
(D) does not easily form lather with soap

Items **45–46** refer to the following diagram of the solar system.



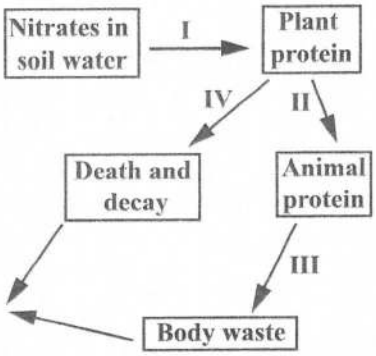
45. Earth is labelled

(A) W
(B) X
(C) Y
(D) Z

46. Saturn is labelled

(A) W
(B) X
(C) Y
(D) Z

Item **47** refers to the following diagram which shows part of a nitrogen cycle.



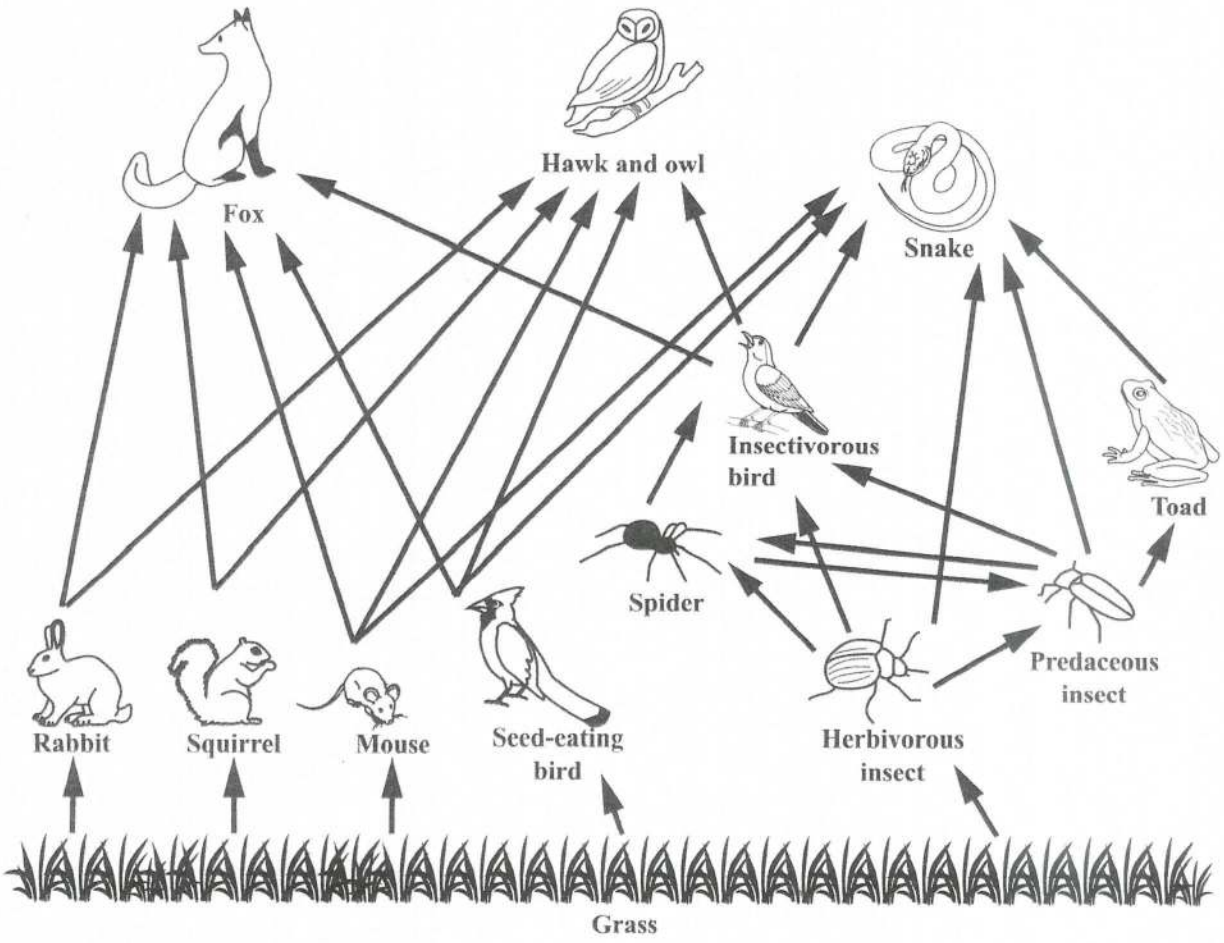
47. During which of the processes labelled I, II, III and IV is excretion occurring?

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

48. Decayed organic matter in soil is called

(A) sand
(B) humus
(C) sediment
(D) limestone

Item **49** refers to the following food levels.



49. Which of the following organisms is NOT eaten by snakes?

(A) Toad
(B) Squirrel
(C) Predaceous insect
(D) Herbivorous insect

50. A non-moving boundary between two air masses is called

(A) a cold front
(B) a warm front
(C) a stationary front
(D) an occluded front

51. The eye of a hurricane is the

(A) region with the lowest pressure
(B) path along which the hurricane is moving
(C) region in which the hurricane is located
(D) region where the winds reach maximum speed

52. Which of the following processes results in water moving from the ocean to the atmosphere?

(A) Respiration
(B) Precipitation
(C) Evaporation
(D) Condensation

53. Which of the following methods involves the settling of heavy suspended material?

(A) Filtration
(B) Distillation
(C) Chlorination
(D) Sedimentation

54. Which of the following fishing methods is LEAST efficient for commercial purposes?

(A) Drift nets
(B) Long lines
(C) Hand lines
(D) Trawl nets

55. The increased pressure encountered by divers at large depths below sea level can affect the

(A) ears
(B) eyes
(C) nose
(D) mouth

56. Which of the following is NOT a water safety device?

(A) Life raft
(B) Life jacket
(C) Inflatable tube
(D) Inflatable balloon

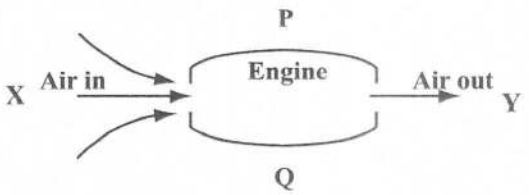
57. The type of energy contained in fossil fuels is

(A) solar
(B) kinetic
(C) chemical
(D) electrical

58. Which of the following is NOT associated with the use of fossil fuels?

(A) Erosion
(B) Acid rain
(C) Pollution
(D) Global warming

Item 59 refers to the following diagram which represents the passage of air through the engine of a jet plane.

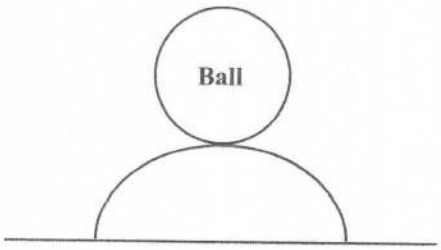


59. The direction in which the plane is moving is

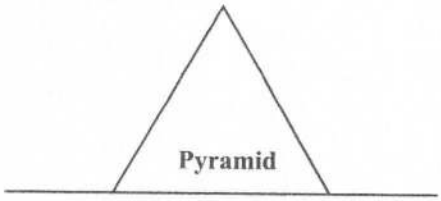
(A) X to Y
(B) Y to X
(C) P to Q
(D) Q to P

60. Which of the following diagrams represents an object in stable equilibrium?

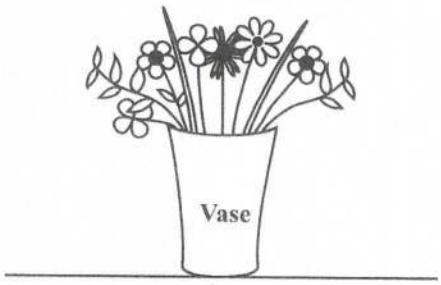
(A)



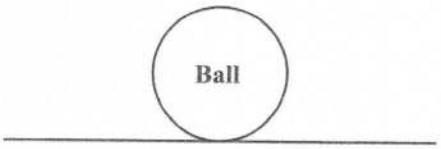
(B)



(C)



(D)



END OF TEST

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