FORM TP 2023094

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 2023

CARIBBEAN EXAMINATIONS COUNCIL

CARIBBEAN SECONDARY EDUCATION CERTIFICATE® EXAMINATION

INTEGRATED SCIENCE

Paper 01 – General Proficiency

1 hour 15 minutes

02 JUNE 2023 (p.m.)

933

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.

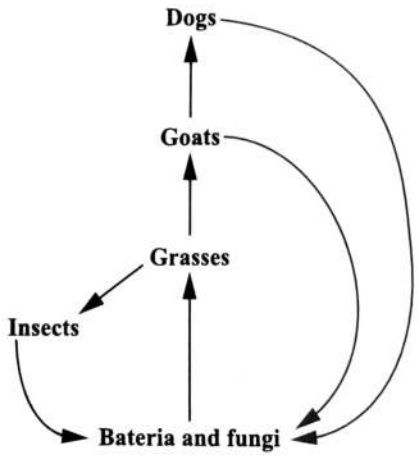
5. If you want to change your answer, erase it completely before you fill in your new choice.

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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Item 1 refers to the following diagram.



1. The decomposers are

(A) dogs
(B) insects
(C) goats and grasses
(D) bacteria and fungi

2. Which of the following blood groups has NO antigen?

(A) A
(B) B
(C) O
(D) AB

3. Which of the following living organisms are always at the beginning of a food chain?

(A) Producers
(B) Carnivores
(C) Consumers
(D) Decomposers

4. Which of the following structures is found ONLY in plant cells?

(A) Nucleus
(B) Cell wall
(C) Mitochondrion
(D) Cell membrane

5. The testes of the human male correspond to the anthers of flowers because they both

(A) are separate organs
(B) have similar shapes
(C) produce male sex cells
(D) have tubes leading from them

6. The structure in cells responsible for the transfer of characteristics from parents to offspring is the

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

7. Which of the following methods of birth control is MOST likely to require an accurate prediction of the ovulation period?

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

8. Which of the following is an example of prenatal care?

(A) Ultrasound of the baby
(B) Nursing a newborn baby
(C) Immunization of the baby
(D) Providing clothing for the baby

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9. Which of the following statements concerning respiration is true?

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

10. Which of the following types of energy conversion takes place in the chloroplast during photosynthesis?

(A) Light energy to heat energy
(B) Chemical energy to light energy
(C) Light energy to chemical energy
(D) Heat energy to chemical energy

11. Which of the following is NOT a cardiovascular disease?

(A) Stroke
(B) Diabetes
(C) Hypertension
(D) Atherosclerosis

12. Which of the following processes requires muscular contractions of the uterus?

(A) Birth
(B) Gestation
(C) Fertilization
(D) Menstruation

13. The MOST effective method used in controlling pests is the

(A) use of traps
(B) use of chemicals
(C) use of another organism
(D) eradication of their breeding places

14. The elimination of faeces from the body is called

(A) egestion
(B) excretion
(C) metabolism
(D) assimilation

15. Which of the following is a function of white blood cells?

(A) Transporting carbon dioxide
(B) Transporting oxygen
(C) Producing antibodies
(D) Forming clots

16. The hard outer layer which protects the teeth is called

(A) tartar
(B) enamel
(C) dentine
(D) pulp cavity

17. Blood boosting increases the number of red cells in the blood. An athlete whose blood has been boosted can perform better in a race because he/she

(A) is stronger
(B) can breathe faster
(C) can absorb more oxygen
(D) is more immune to disease

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18. When the human eye is exposed to bright light, the immediate reaction is for the

(A) iris to get larger
(B) pupil to get smaller
(C) lens to diffuse the image
(D) tear glands to become active

19. The heart is protected from damage by the

(A) rib cage
(B) cranium
(C) diaphragm
(D) thoracic vertebrae

20. Which of the following groups comprises ONLY the primary colours of light?

(A) Red, blue, cyan
(B) Red, green, blue
(C) Red, blue, orange
(D) Red, green, purple

21. Which of the following are characteristics of sense organs?

I. Receive stimuli.
II. Contain specialized receptor cells.
III. Detect changes in the environment.

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

22. Carbon monoxide has an affinity for the haemoglobin in the

(A) plasma
(B) platelets
(C) red blood cells
(D) white blood cells

23. Which of the following parts of the ear is/ are concerned with the control of balance?

(A) Semi-circular canals
(B) Tympanic membrane
(C) External auditory canal
(D) Bones of the middle ear

24. Which of the following endocrine glands secretes insulin?

(A) Pituitary gland
(B) Adrenal gland
(C) Pancreas
(D) Ovary

25. Which of the following examples of domestic waste do NOT easily undergo weathering or breakdown by bacteria?

(A) Tin cans
(B) Paper bags
(C) Cotton rags
(D) Plastic bags

26. Which of the following factors will NOT affect the rate at which clothes hanging on a line are dried?

(A) Wind
(B) Pressure
(C) Humidity
(D) Temperature

27. Plastic is usually used in electrical plugs because it

(A) is fairly strong
(B) has a low density
(C) is a poor conductor of heat energy
(D) is a poor conductor of electricity

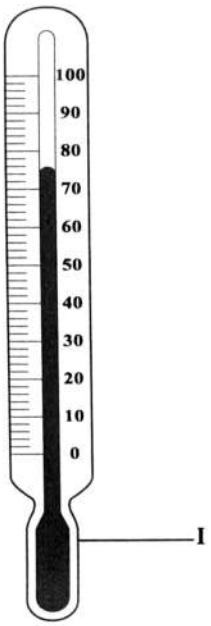
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28. Which of the following is the method of heat transfer that occurs in fluids?

(A) Radiation
(B) Convection
(C) Conduction
(D) Evaporation

Item **29** refers to the following diagram of a thermometer.



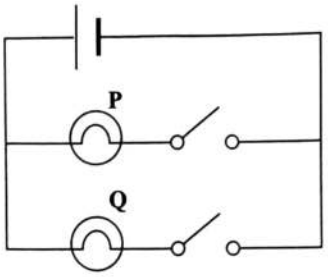
29. The part labelled I is the

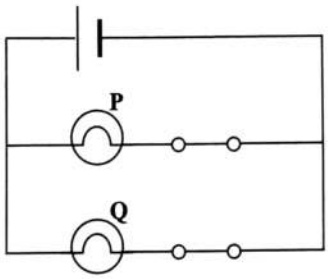
(A) stem
(B) bore
(C) bulb
(D) glass

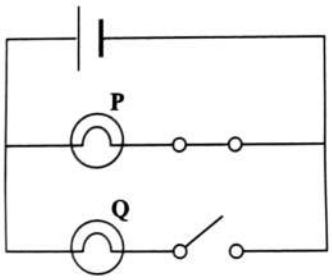
30. The gas from a chemical fire extinguisher is effective in putting out a fire MAINLY by

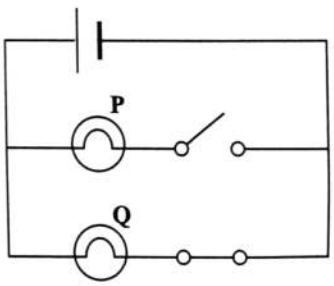
(A) combining with oxygen
(B) excluding oxygen from the fire
(C) reducing the temperature of the fire
(D) removing the combustible material

31. In which of the following circuits will ONLY Bulb Q light up?

(A)


(B)


(C)


(D)


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32. The formula used to calculate the momentum of an object is

(A) $\frac{\text{Mass}}{\text{Velocity}}$

(B) $\frac{\text{Velocity}}{\text{Mass}}$

(C) Mass × Velocity

(D) Mass + Velocity

33. Wood is used for the handle of a pot spoon because wood

(A) is an insulator
(B) is fairly strong
(C) has a low density
(D) has a high tensile strength

34. Which of the following alloys consists of tin and lead?

(A) Steel
(B) Brass
(C) Solder
(D) Bronze

35. Which unit of electricity is a measure of resistance?

(A) Ampere
(B) Ohm
(C) Volt
(D) Watt

36. Steel cans for canning food are coated with tin MAINLY because tin

(A) keeps its shine longer than steel
(B) does not react with air on heating
(C) withstands higher temperatures than steel
(D) reacts with acids and water more slowly than steel

Item **37** refers to the following list which identifies three forms of energy.

I. Heat
II. Kinetic
III. Electrical

37. When the water boils in an electric kettle, the lid bobs up and down. Which of the following indicates the correct sequence of energy changes taking place?

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

38. A corrosive substance is one which

(A) is toxic
(B) is explosive
(C) catches fire easily
(D) burns some materials

39. When a car has a momentum of 0, it means that the car

(A) is no longer moving
(B) has a mass of zero kilograms
(C) is travelling at a constant velocity
(D) has a velocity of –1.0 metres per second

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40. A small reading room would be MOST suitably illuminated by using a

(A) 25-watt filament lamp
(B) 40-watt fluorescent lamp
(C) 60-watt fluorescent lamp
(D) 75-watt filament lamp

41. Which of the following descriptions correctly match the corresponding classes of levers?

I. Effort in the middle — class I
II. Load in the middle — class II
III. Fulcrum at the end — class III

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

42. The point at which a lever turns is called the

(A) effort
(B) fulcrum
(C) load arm
(D) lever arm

43. Which of the following is an alloy?

(A) Tin
(B) Iron
(C) Zinc
(D) Brass

44. The MAIN use of an antiseptic is to

(A) decrease the possibility of infections
(B) kill all bacteria on the skin
(C) promote fast healing
(D) treat sunburns

45. Which of the following is a base?

(A) Sodium nitrate
(B) Sodium chloride
(C) Sodium sulphate
(D) Sodium hydroxide

46. The force which acts on all bodies in water, causing them to appear to have less weight is called

(A) upthrust
(B) gravity
(C) thrust
(D) lift

47. The boundary formed by the meeting of two air masses is called a

(A) zone
(B) front
(C) cloud mass
(D) storm surge

Item **48** refers to the following information.

A type of soil possesses the following characteristics.

- Very small air spaces between particles
- Poor drainage of water
- Waterlogging after rains

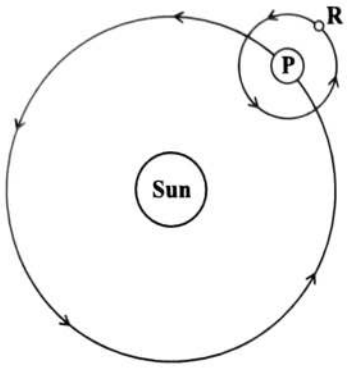
48. The soil described is MOST likely

(A) clay
(B) sand
(C) loam
(D) gravel

49. Sea water can be made fit for drinking by the process of

(A) filtration
(B) distillation
(C) evaporation
(D) neutralization

Items **50** and **51** refer to the following diagram which illustrates a body, P, that revolves around the sun, and another body, R, that revolves around P.



50. Which of the following terms BEST describes P?

(A) Asteroid
(B) Satellite
(C) Galaxy
(D) Planet

51. Which of the following terms BEST describes R?

(A) Asteroid
(B) Satellite
(C) Galaxy
(D) Planet

52. There are limits to the height and mass of materials which can be transported by a vehicle. The reason for this is to ensure that the

(A) road is not damaged by the weight
(B) vehicle is able to move fast enough
(C) vehicle is more able to carry the load
(D) vehicle's centre of gravity is not raised beyond safe limits

53. Which of the following gases, when dissolved in a diver's blood, can give rise to the 'bends'?

(A) Oxygen
(B) Nitrogen
(C) Water vapour
(D) Carbon dioxide

54. Which of the following is LEAST related to the occurrence of a tsunami?

(A) Rain
(B) Flooding
(C) Tidal wave
(D) Movement of sea floor

55. Which of the following is NOT an alternative source of energy?

(A) The ocean
(B) The sun
(C) Wind
(D) Coal

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56. Which of the following methods of fishing would MOST likely result in over-fishing?

(A) Spear fishing
(B) Fishing rods
(C) Fish traps
(D) Fish nets

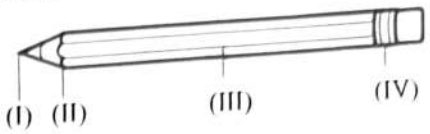
57. Which of the following processes does NOT occur in the carbon cycle?

(A) Respiration
(B) Combustion
(C) Precipitation
(D) Photosynthesis

58. Which unique property of water allows small insects and spiders to be able to walk or glide across its surface?

(A) High density
(B) High surface tension
(C) Boiling point of 100 °C
(D) High specific heat capacity

Item 59 refers to the following diagram of a pencil.



59. Which of the labelled points on the pencil is closest to its centre of gravity?

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

60. In which of the following situations is friction a useful force?

(A) Slowing down a bicycle
(B) Children playing on a slide
(C) A wheel turning on an axle
(D) An aircraft moving through the air

END OF TEST

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