



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

MAY/JUNE 2017

FORM TP

CARIBBEAN EXAMINATIONS COUNCIL
CARIBBEAN SECONDARY EDUCATION CERTIFICATE®
EXAMINATION

INTEGRATED SCIENCE

Paper 01 – General Proficiency

1 hour 15 minutes

31 MAY 2017 (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

Benzene dissolves stains caused by

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

Sample Answer

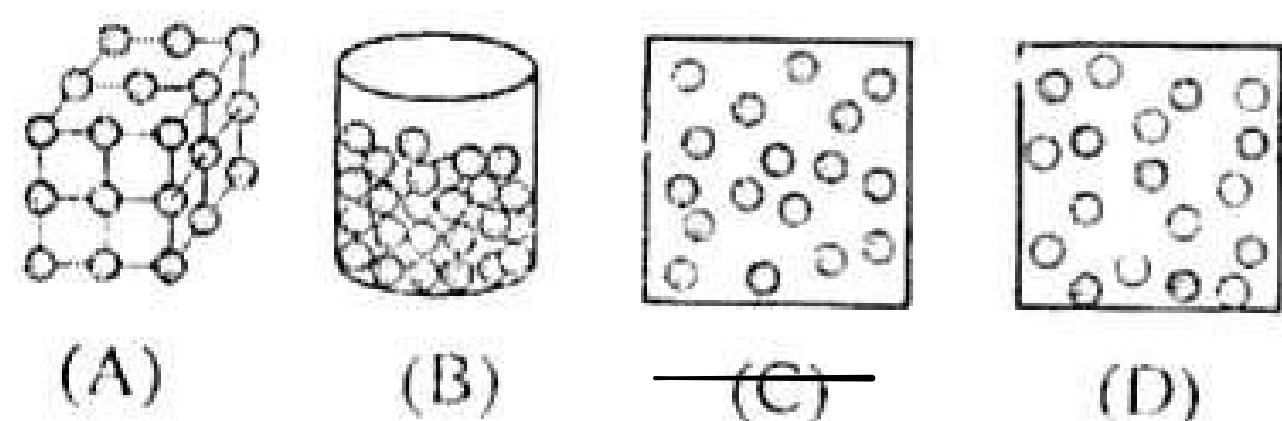


The best answer to this item is “tar”, so (A) has been shaded.

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.

Item 1 refers to the following diagram which shows the particles of four states of matter.



1. Which diagram represents a liquid?
 (A) (B) (C) (D)
2. Which of the following structures is responsible for energy production in an animal?
 (A) Nucleus
 (B) Cell wall
 (C) Mitochondrion
 (D) Cell membrane

Items 3-4 refer to the following parts of a flower.

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

In answering Items 3-4, each option may be used once, more than once or not at all.

3. Which part of the flower forms the seed after fertilization?
 (A) (B) (C) (D)
4. Which part of the flower is the site where male gametes are produced?
 (A) (B) (C) (D)
5. Which of the following shapes describes molar teeth?
 (A) Pointed
 (B) Rounded
 (C) Flat-topped
 (D) Chisel-shaped

6. Which of the following processes is associated with the breakdown of food into simple, soluble molecules?
 (A) Egestion
 (B) Digestion
 (C) Absorption
 (D) Assimilation
7. Which of the following is an example of prenatal care?
 (A) Nursing a newborn baby
 (B) Immunization of the baby
 (C) Providing clothing for the baby
 (D) Ultrasound scan for the mother
8. The release of an egg from the ovary is called
 (A) ovulation
 (B) fertilization
 (C) implantation
 (D) gestation
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.

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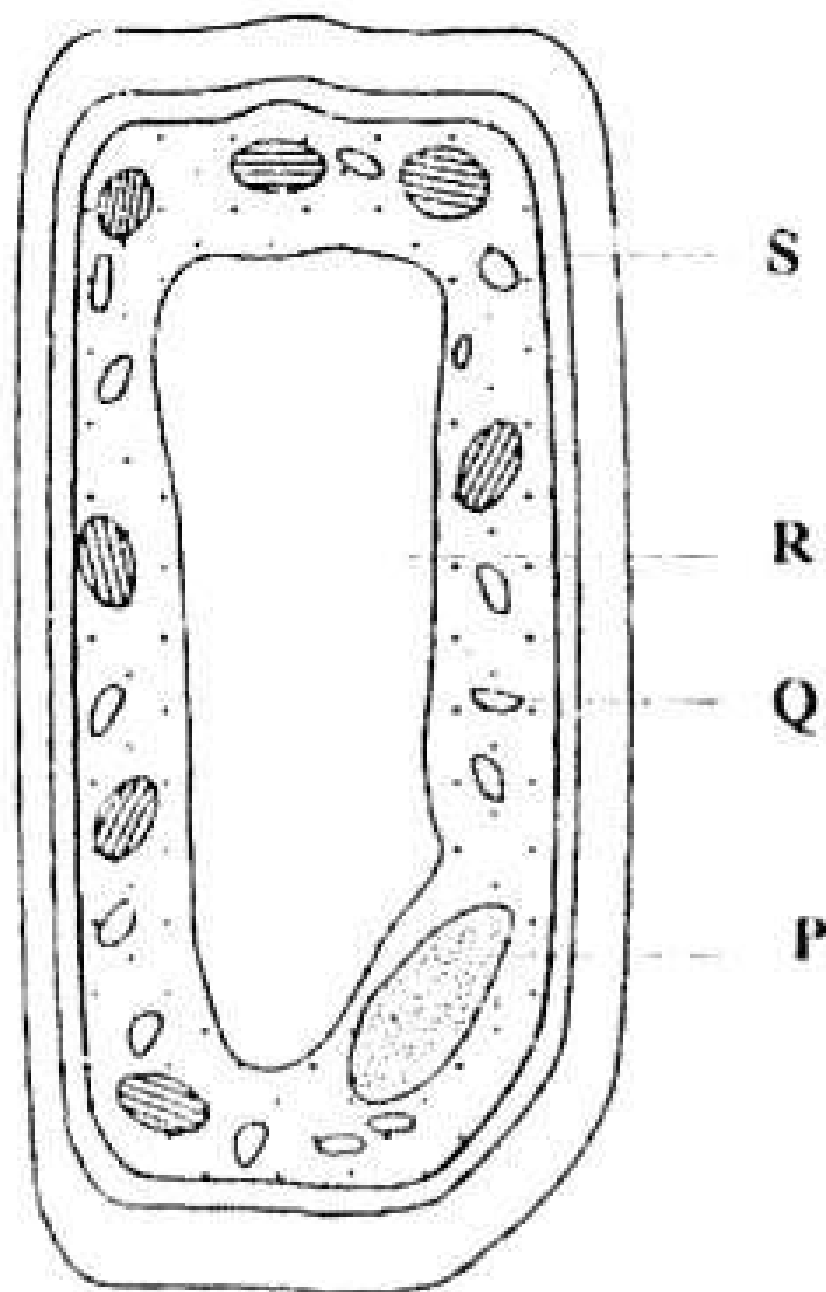
10. Condoms and diaphragm caps are examples of the method of birth control known as

- ~~(A)~~ barrier
- (B) natural
- (C) hormonal
- (D) sterilization

11. 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

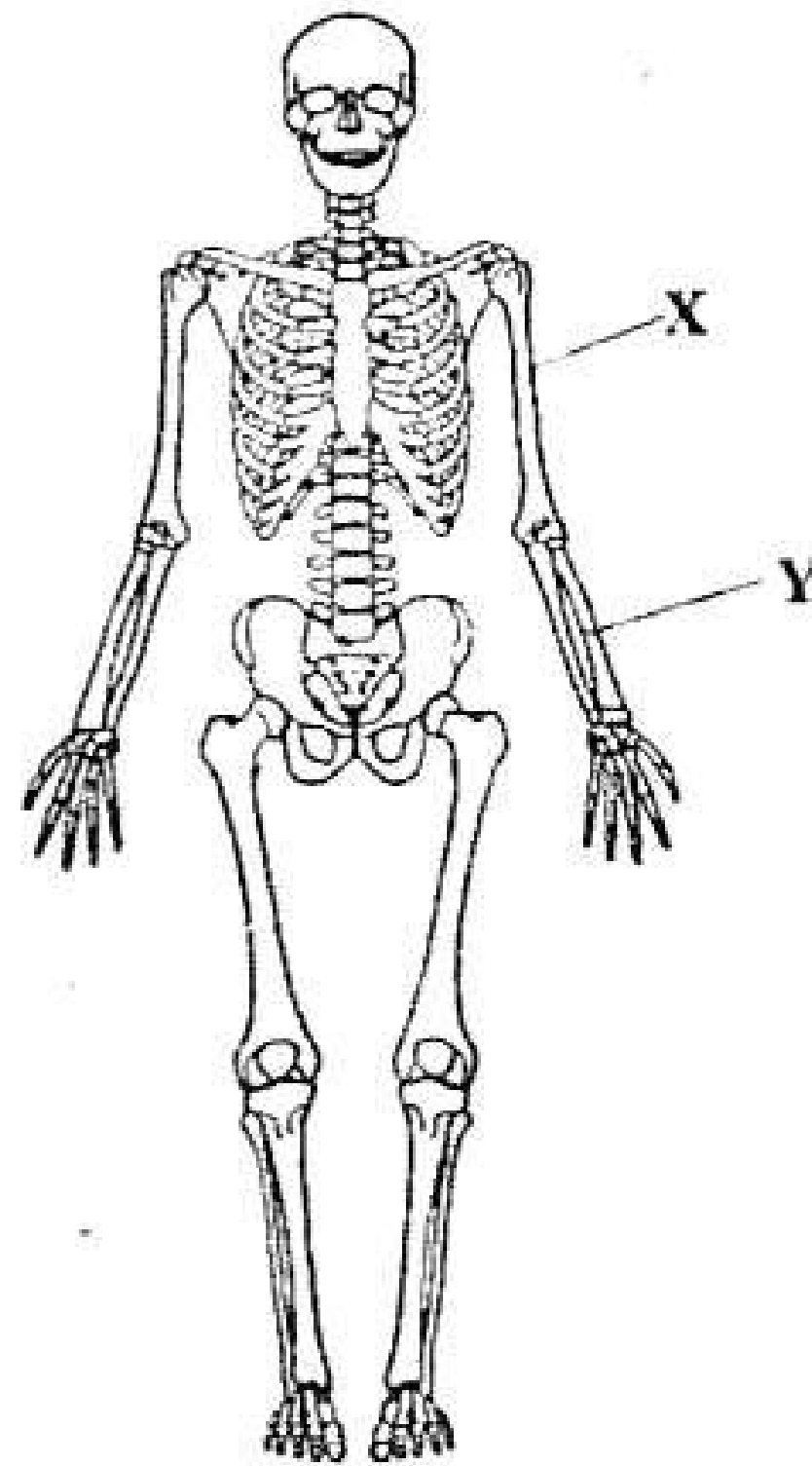
Item 12 refers to the following diagram of a plant cell.



12. Which labelled part contains a green pigment called chlorophyll?

- ~~(A)~~ P
- (B) Q
- (C) R
- (D) S

Items 13–14 refer to the following diagram of the skeletal system.



13. The bone labelled X is the

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

14. The bone labelled Y is the

- (A) femur
- (B) fibular
- (C) scapula
- ~~(D)~~ clavicle

15. Which of the following blood groups does NOT have any antigens?

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

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

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

17. Which of the following are common features of respiratory surfaces?

- I. Moist
- II. Small surface area
- III. Well supplied with blood vessels

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

18. 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

19. 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

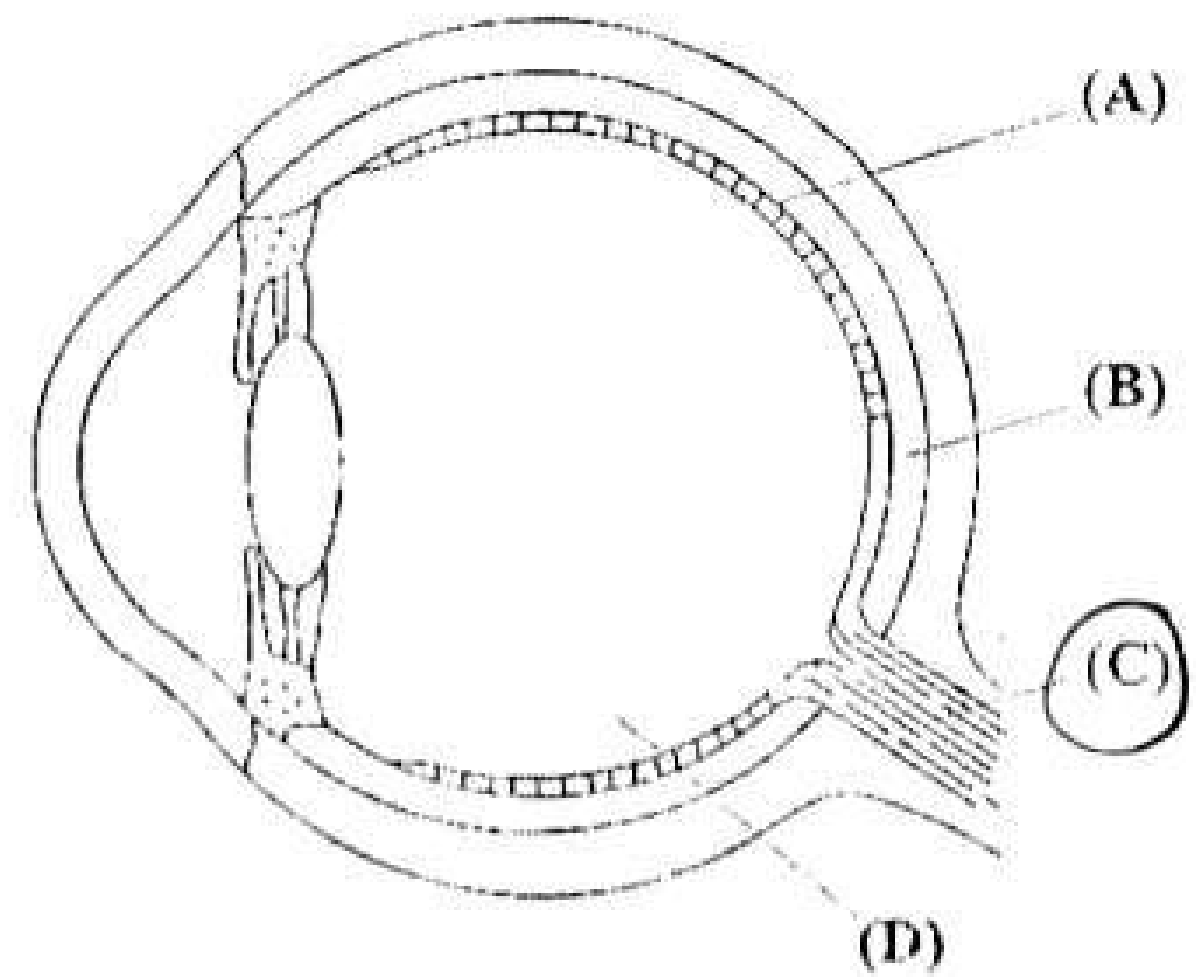
20. Which hormone is responsible for secondary sexual characteristics in males?

- (A) Insulin
- (B) Thyroxine
- (C) Progesterone
- ~~(D)~~ Testosterone

21. The three small bones found in the middle ear of a human being are called the

- (A) drums
- ~~(B)~~ ossicles
- (C) cochlea
- (D) follicles

22. By which of the labelled structures in the following diagram are impulses carried to the brain?



23. Which of the following sequences correctly represents the order of the processes involved in the reproduction and growth of plants?

- (A) Fertilization, germination, pollination
- ~~(B)~~ Germination, fertilization, pollination
- (C) Pollination, fertilization, germination
- (D) Pollination, germination, fertilization

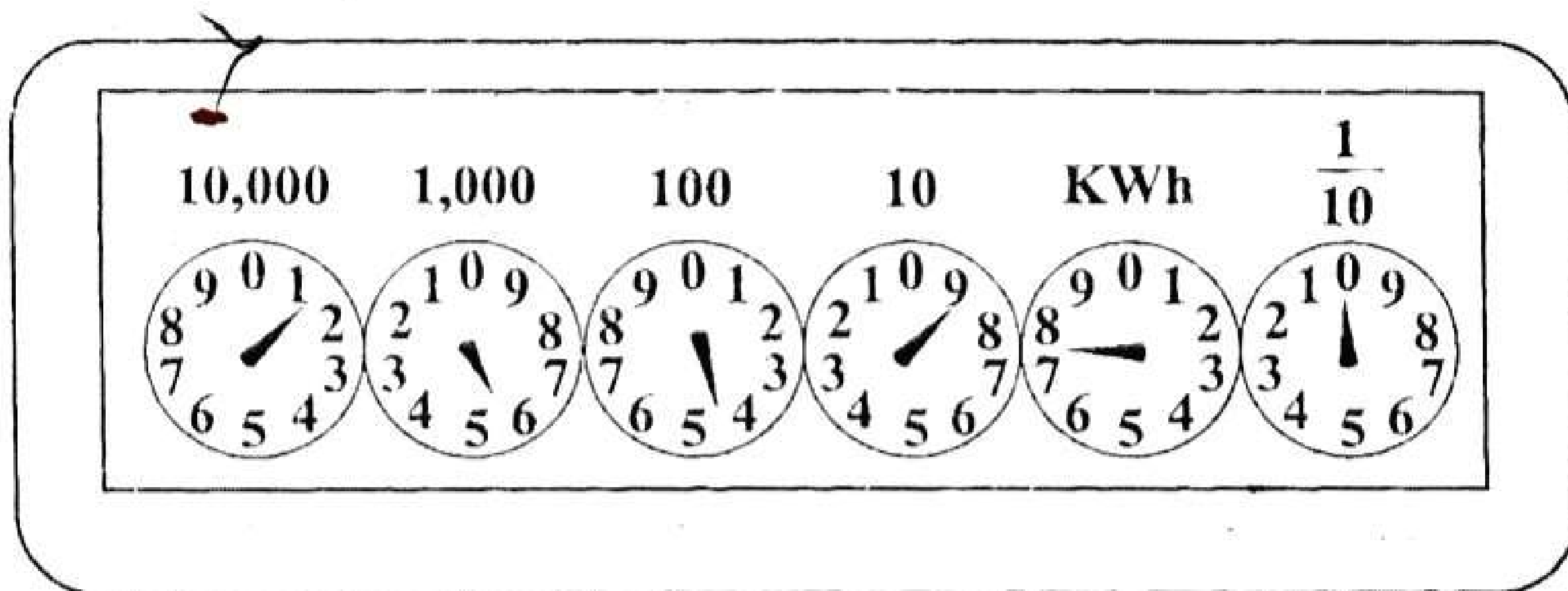
24. Which of the following types of compounds are found in common household chemicals?

- I. Acids
 - II. Bases
 - III. Salts
- (A) I and II only
 - (B) I and III only
 - (C) II and III only
 - ~~(D)~~ I, II and III

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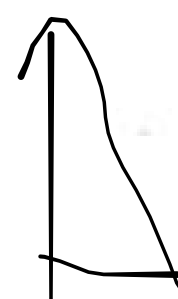
25. Bacteria in the mouth produce acid. Toothpaste that would neutralize the acid should have a pH of
- (A) 1
 - (B) 6
 - ~~(C) 7~~
 - (D) 8
26. Which method of waste treatment is LEAST harmful to the environment?
- (A) Burning
 - (B) Burying
 - ~~(C) Recycling~~
 - (D) Landfill
27. In weather systems, which kind of front is formed when there is no replacement of air?
- (A) Cold
 - (B) Warm
 - ~~(C) Stationary~~
 - (D) Occluded
28. Wet clothes are MOST likely to dry quickly under conditions of
- (A) high temperature and high humidity
 - ~~(B) high temperature and low humidity~~
 - (C) low temperature and low humidity
 - (D) low temperature and high humidity
29. When a car has a momentum of 0, it means that the car
- ~~(A) has stopped~~
 - (B) has a mass of zero kilograms
 - (C) is travelling at a constant velocity
 - (D) has a velocity of -1.0 metres per second
30. Which of the following energy conversions takes place during the process of photosynthesis?
- (A) Heat to light
 - (B) Light to kinetic
 - (C) Chemical to heat
 - ~~(D) Light to chemical~~

Item 31 refers to the following diagram which represents an analogue meter used to measure the amount of electricity used.

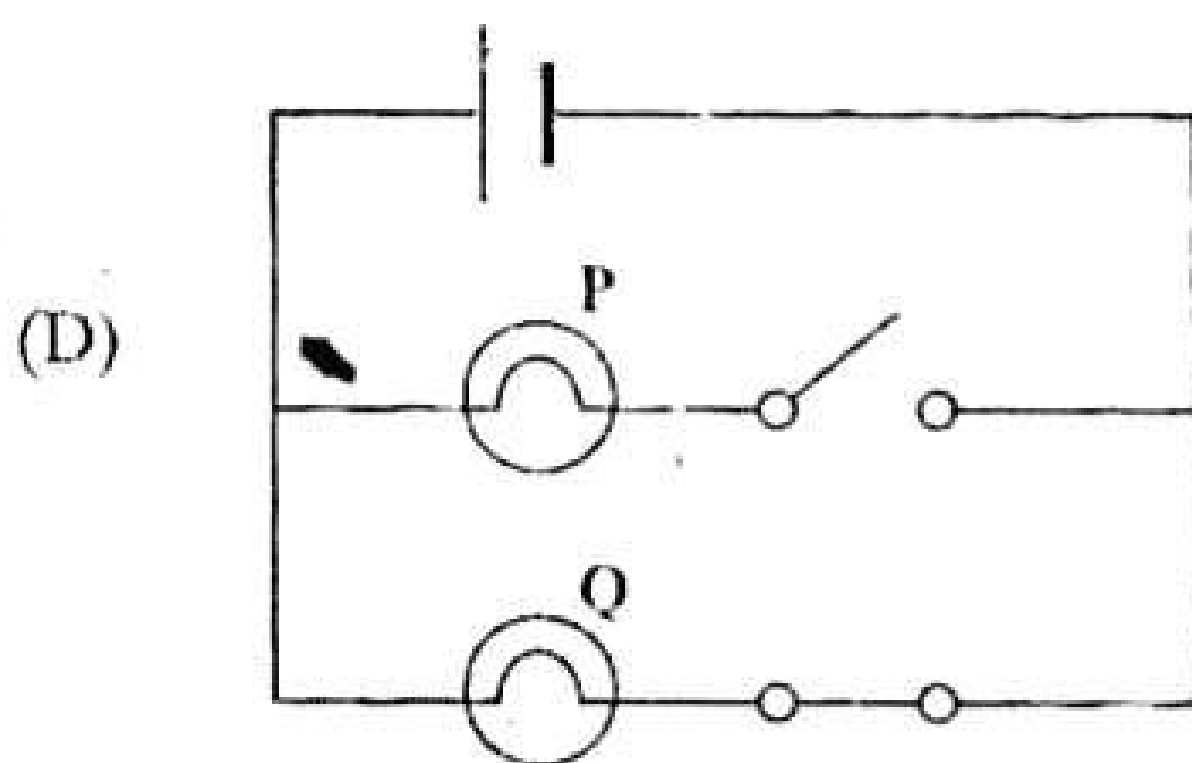
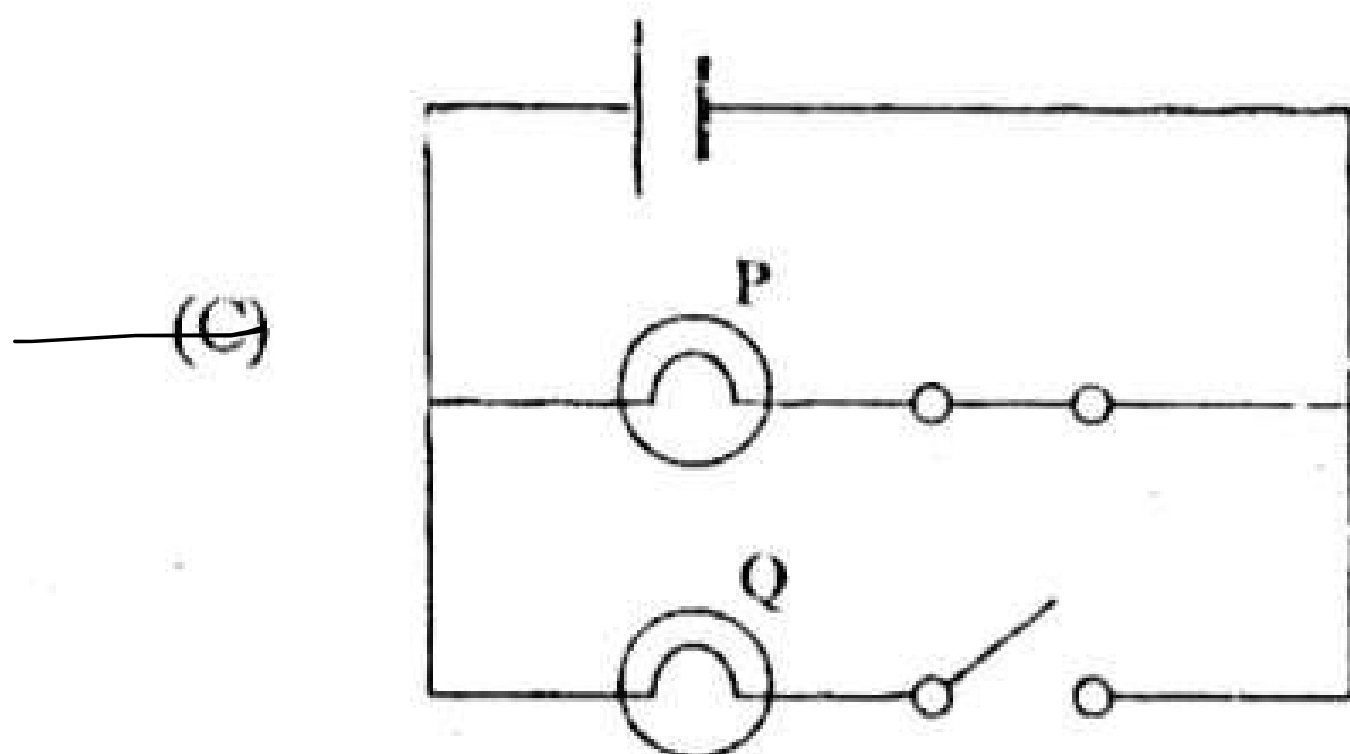
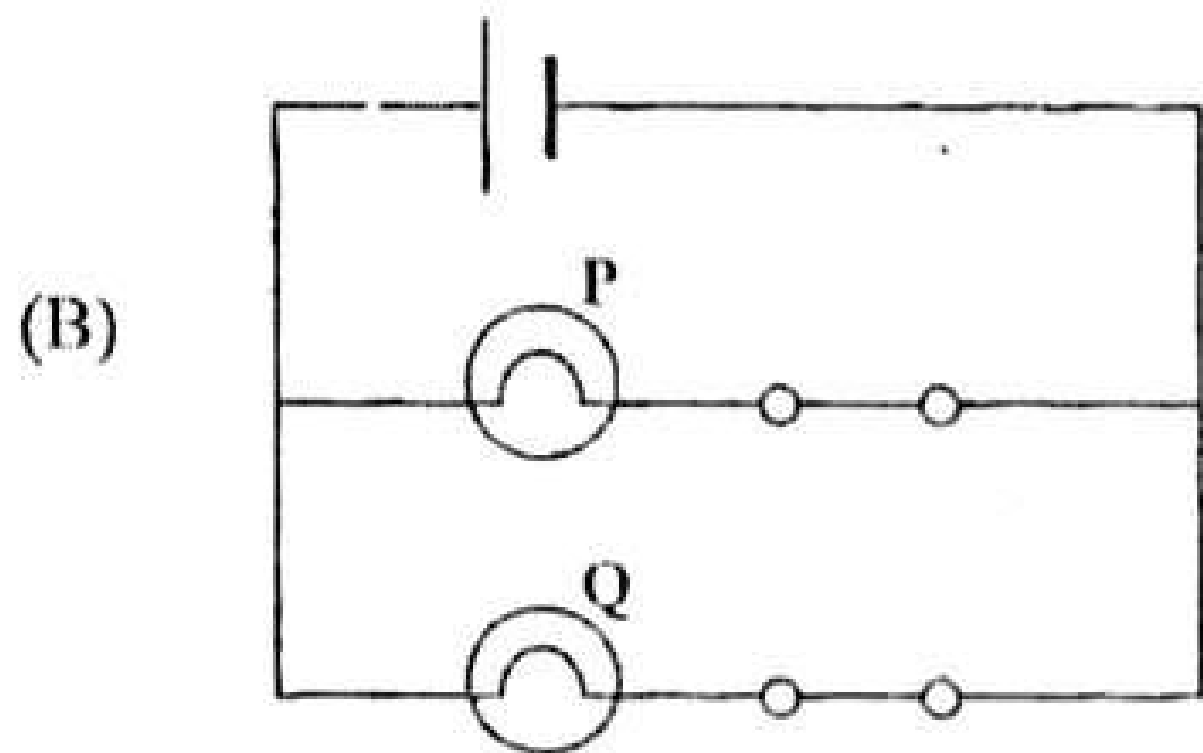
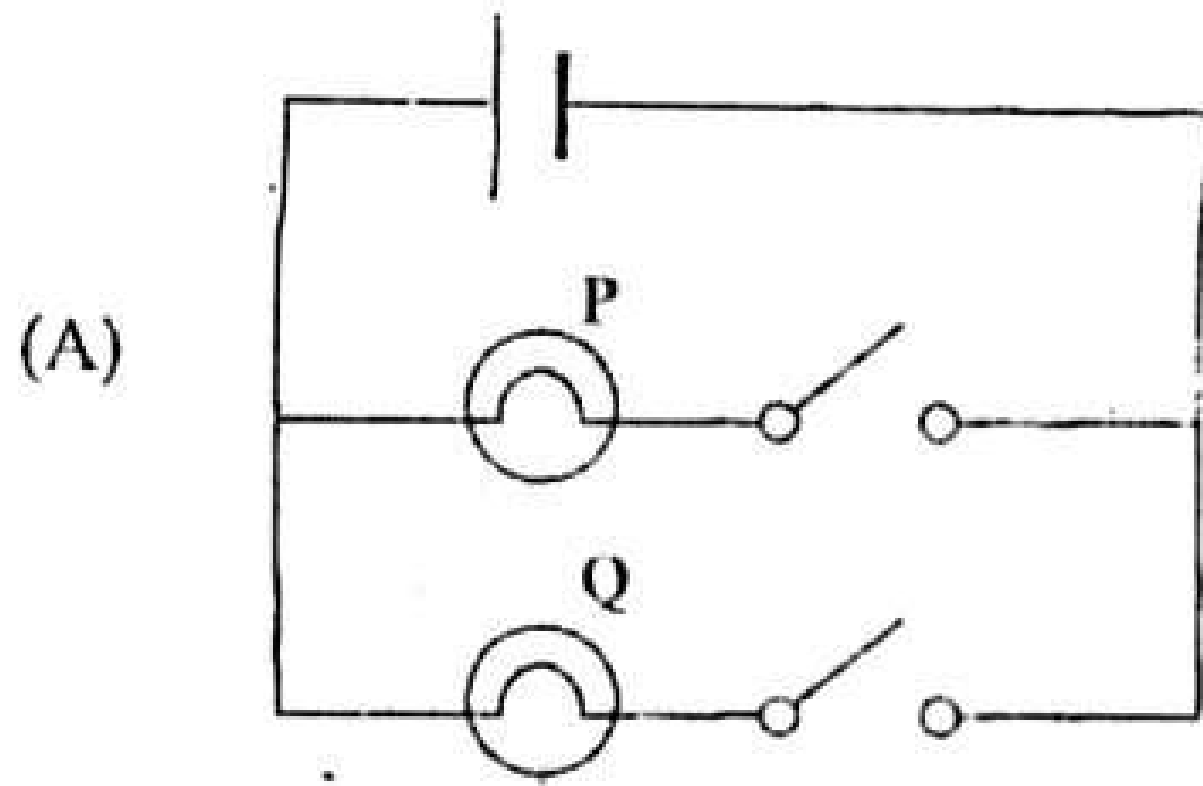


31. What is the reading on the meter?

- (A) 15 487 kWh
- (B) 16 597 kWh
- (C) 25 487 kWh
- ~~(D) 26 597 kWh~~



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



33. Which of the following will MOST likely reduce energy consumption in the home?

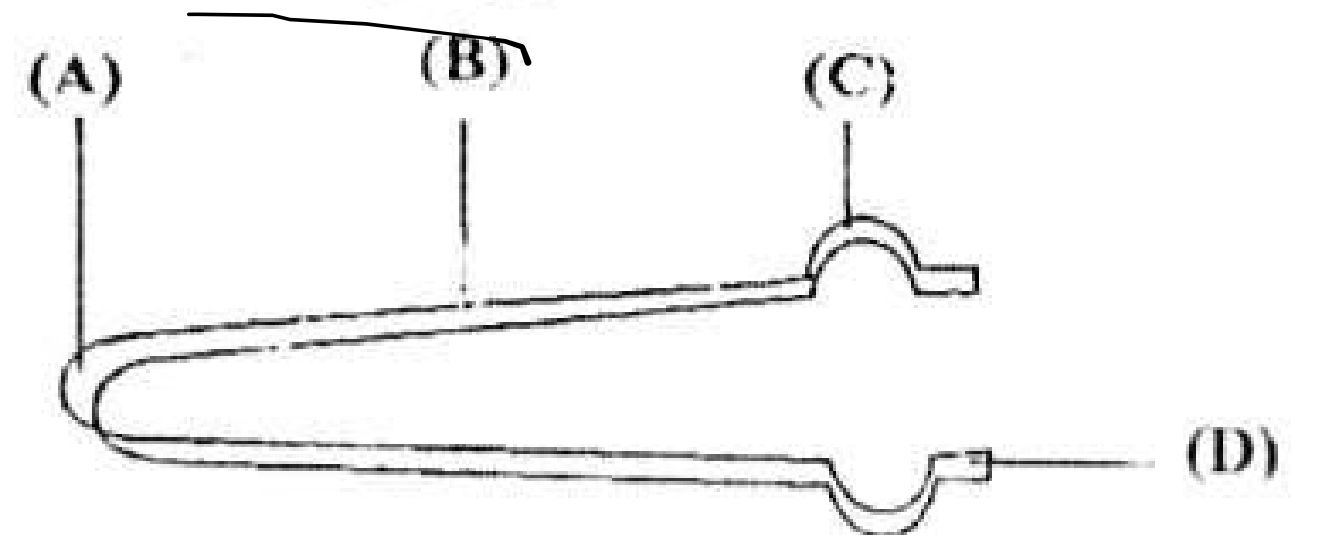
- ~~(A)~~ Turn off lights when you leave a room.
- (B) Use filament lamps instead of fluorescent bulbs.
- (C) Open the oven door regularly when baking a chicken.
- (D) Wash small loads of clothes in the washing machine.

34. The function of a fuse in a circuit is to

- ~~(A)~~ reduce the current in the circuit
- (B) store current in the circuit for later use
- (C) monitor the amount of kWh being used by the device
- (D) protect the components in the circuit if the current gets too large

35. The following diagram shows a pair of tongs with labels (A), (B), (C) and (D).

In which of the labelled positions is the effort usually applied?



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

- (A) $MA = \text{Effort} \times \text{Load}$
- (B) $MA = \text{Effort} - \text{Load}$
- (C) $MA = \frac{\text{Effort}}{\text{Load}}$
- ~~(D)~~ $MA = \frac{\text{Load}}{\text{Effort}}$

37. Electrical wires are usually coated with plastic or rubber so that they

- ~~(A)~~ can be easily installed
- (B) are properly insulated
- (C) can be easily packaged
- (D) are protected from breakage

38. Which of the following substances MUST be present for rusting to occur?

- I. Oxygen
- II. Water
- III. Oil

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

Item 39 refers to the following properties of substances.

- I. Insulates against both heat and electricity
- II. Low boiling point
- III. High melting point

39. Which of the above are characteristics of MOST non-metals?

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

40. Brass is a mixture of

- (A) zinc and tin
- (B) copper and tin
- ~~(C)~~ copper and zinc
- (D) silver and copper

41. Which of the following forms a suspension in water?

- (A) Salt
- (B) Clay
- (C) Sugar
- ~~(D)~~ Flour

42. Which solvent would be BEST suited to remove nail polish from fingernails?

- ~~(A)~~ Acetone
- (B) Alcohol
- (C) Turpentine
- (D) Methylated spirit

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

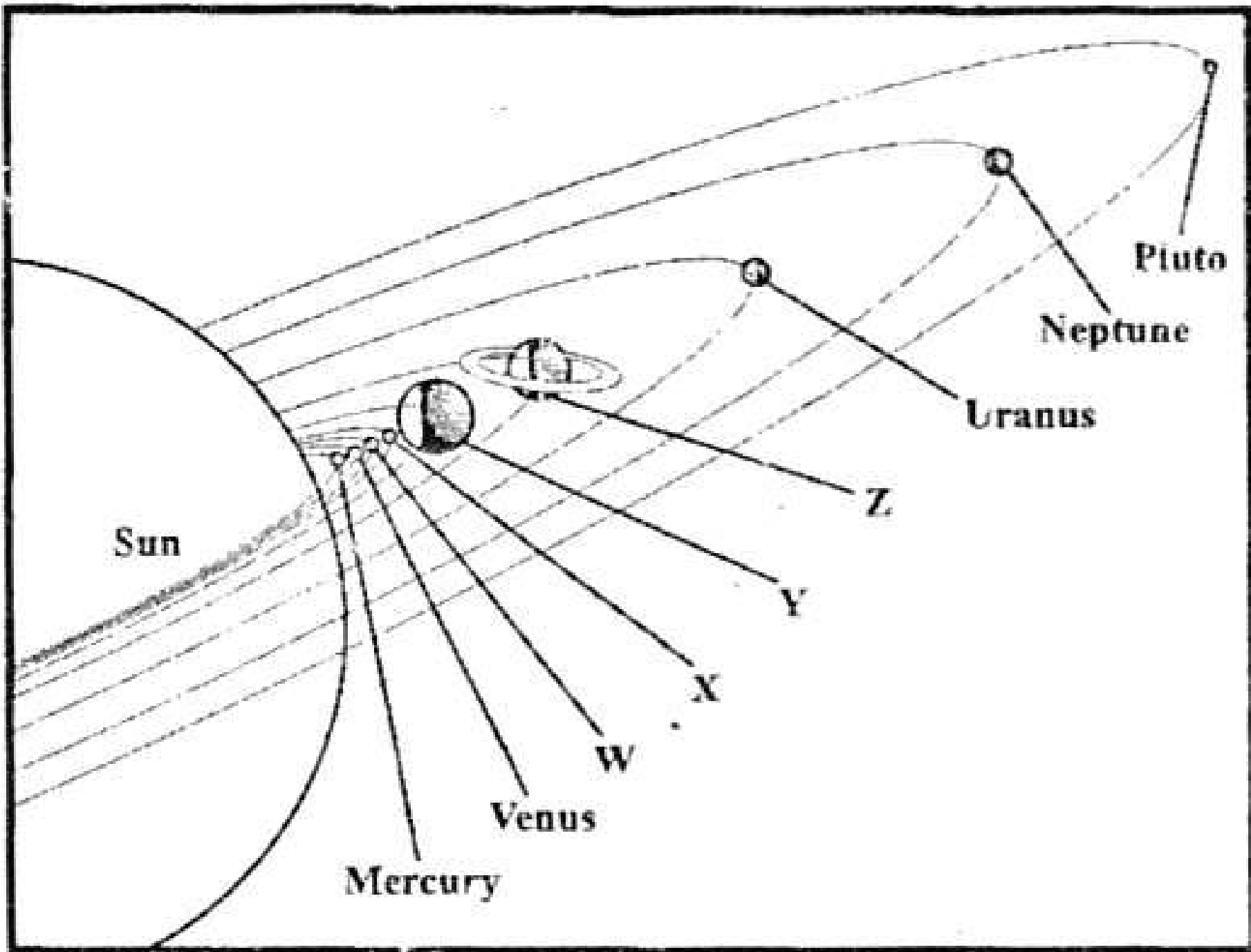
- (A) a salt
- (B) a base
- ~~(C)~~ an acid
- (D) an alkali

44. Hard water is water that

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

GO ON TO THE NEXT PAGE

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

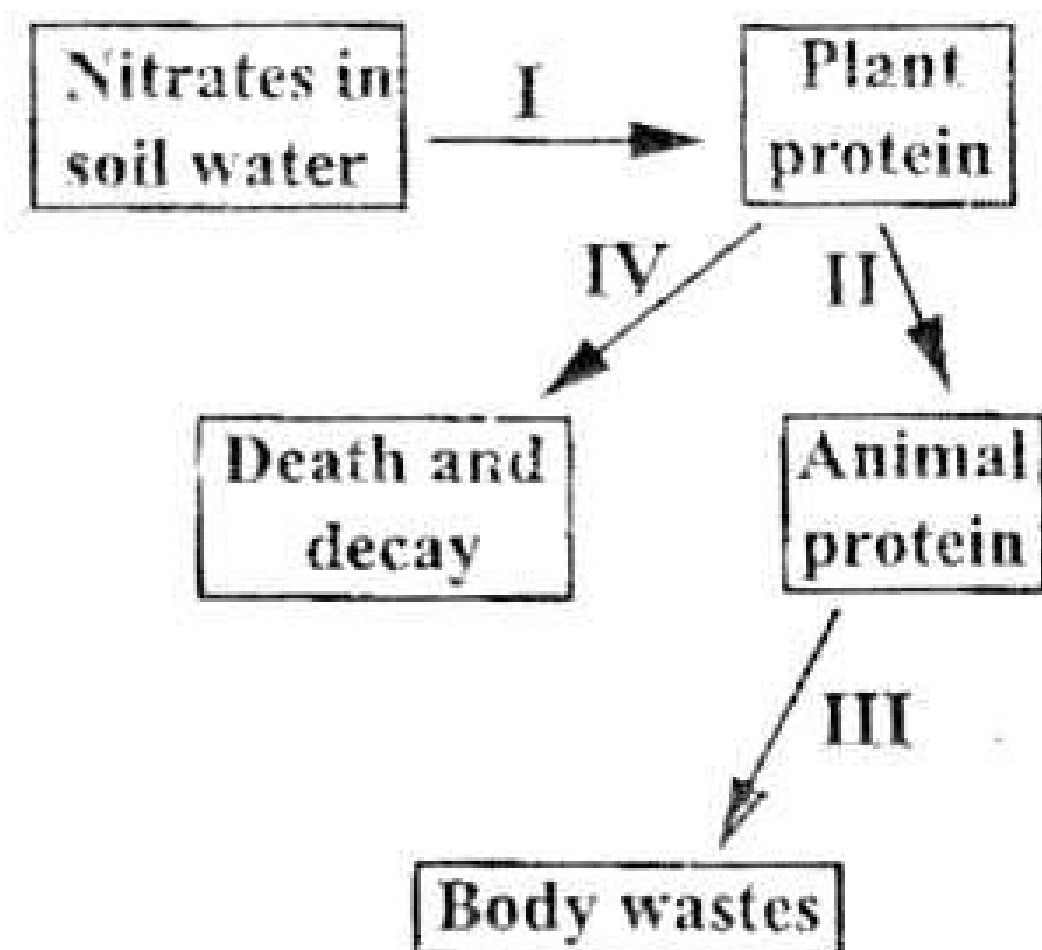
47. Earthworms found living in a compost heap are correctly classified as

- (A) carnivores
- (B) consumers
- (C) herbivores
- ~~(D)~~ decomposers

48. Hurricanes are characterized by

- (A) dry rising air
- (B) windy centres
- (C) strong winds
- ~~(D)~~ high pressures

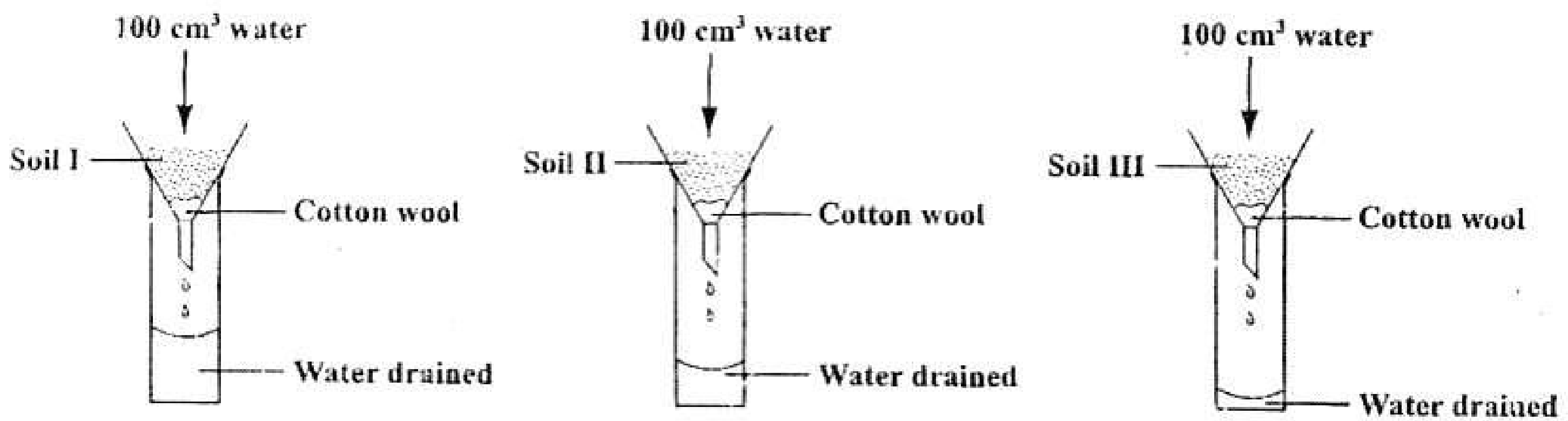
Item 49 refers to the following diagram which shows part of a nitrogen cycle.



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

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

Item 50 refers to the following diagrams which show an experiment to measure the water drainage of clay, loam and sand.



50. Which of the following statements is MOST likely to be true?

- (A) Soil I is loam.
- (B) Soil II is sandy.
- (C) Soil III is sandy.
- (D) Soil III is clay.

51. Decayed organic matter in soil is called

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

Items 53–54 refer to the following methods of water purification.

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

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

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

In answering Items 53–54, each option may be used once, more than once or not at all.

53. Which method involves the settling of heavy suspended material? (D)

54. Which method involves the boiling and condensing of water? (A)

GO ON TO THE NEXT PAGE

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

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

56. Which of the following is true about sources of energy?

- ~~(A) Wind energy is a clean source of energy.~~
- (B) The cost of harnessing solar energy is low.
- (C) Wind turbines are quiet and aesthetically pleasing.
- (D) Solar power stations produce more energy than fossil fuel power stations.

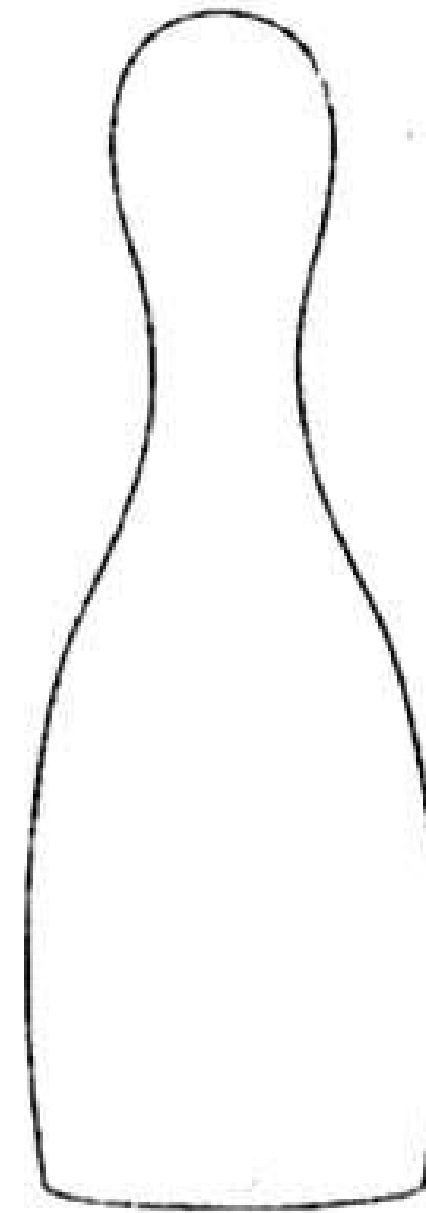
57. Which of the following is NOT a fossil fuel?

- (A) Coal
- (B) Biomass
- ~~(C) Crude oil~~
- (D) Natural gas

58. Caribbean countries which use renewable energy sources MOST likely will utilize energy directly from

- (A) coal
- (B) crude oil
- (C) natural gas
- ~~(D) the sun~~

Item 59 refers to the following diagram.



59. Which of the following types of equilibrium is shown in the diagram?

- ~~(A) Stable~~
- (B) Neutral
- (C) Unstable
- (D) Chemical

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.