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| INITIALS   | SURNAME       |
|            |               |

**MINISTRY OF EDUCATION  
BAHAMAS JUNIOR CERTIFICATE  
EXAMINATION**

**0047 GENERAL SCIENCE  
PAPER 1 MULTIPLE CHOICE QUESTIONS  
(40 Marks)**

Thursday **2 June 2016** 1:00 P.M.–2:00 P.M.

***INSTRUCTIONS TO CANDIDATES:***

**Do not open this booklet until you are told to do so.**

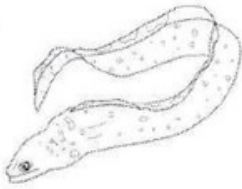
Write your school number, candidate number, surname and initials in the spaces provided at the top right hand side of this page.

For each question, there are **four** suggested answers **A, B, C and D**. When you have selected an answer to a question, **circle the letter by the answer which you have chosen**.

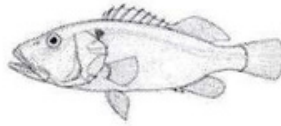
Answer **ALL** the questions in this booklet. Do any necessary rough work and calculations in your booklet.



1. Which organism is an invertebrate?



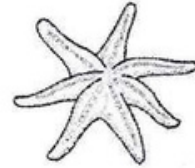
A



B

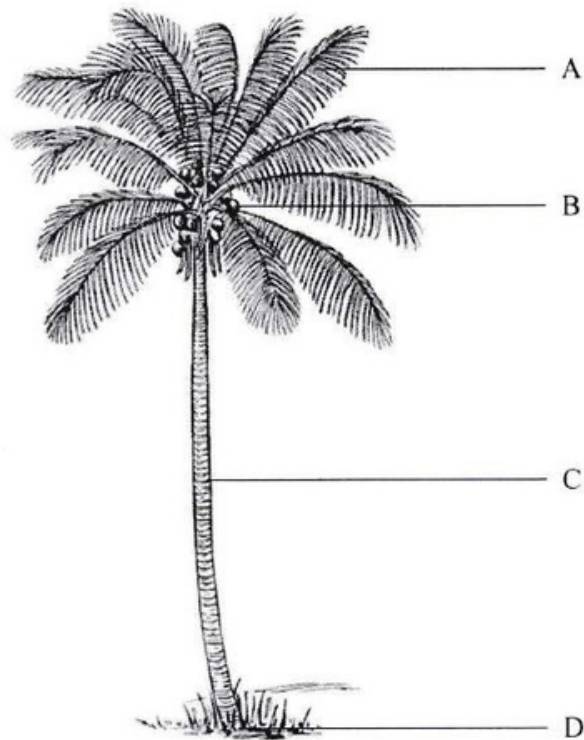


C



D

2. Which labelled part is the reproductive structure of this plant?



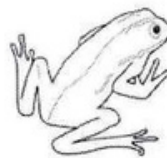
3. Which organism is an arthropod?



A



B



C



D

4. Which characteristic is **true** of metals?

- A they are dull
- B they are brittle
- C they cannot be made into wires
- D they can conduct electricity

5. What is the **chemical formula** for table salt?

- A  $\text{CO}_2$
- B  $\text{H}_2\text{O}$
- C  $\text{HCl}$
- D  $\text{NaCl}$

6. Which substance is an **alkali**?

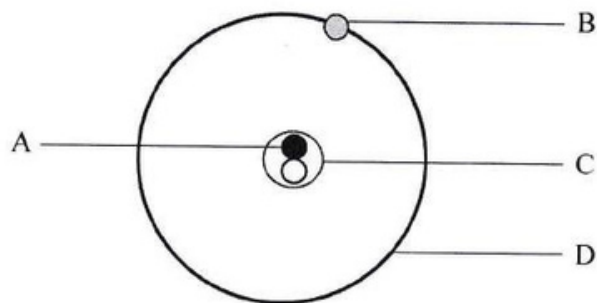
|   | substance    | pH |
|---|--------------|----|
| A | ammonia      | 14 |
| B | orange juice | 5  |
| C | pure water   | 7  |
| D | vinegar      | 4  |

7. Which substance is known as the universal solvent?

- A alcohol
- B bleach
- C turpentine
- D water

8. The diagram represents the atom.

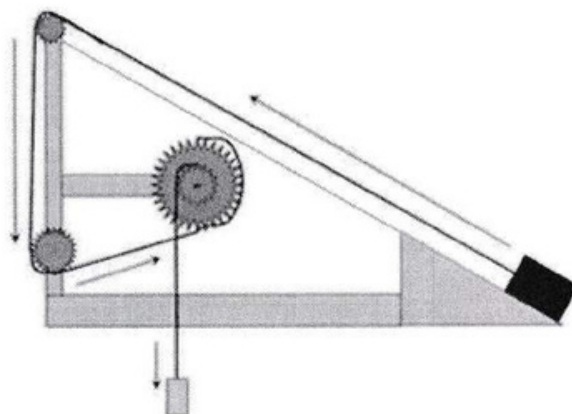
Which letter shows the nucleus?



9. Which natural source of water is the safest for drinking?

- A lakes
- B ponds
- C seas
- D wells

10. Which water pollutant comes from everyday household waste?
- A detergents
  - B fertilisers
  - C pathogens
  - D pesticides
11. Which product does **not** contain the element **carbon**?
- A aluminium foil wrap
  - B coal
  - C diamond
  - D graphite leads in pencils
12. A BJC science class investigating how to make work easier, designs an apparatus to lift a box. A drawing of the apparatus is shown.

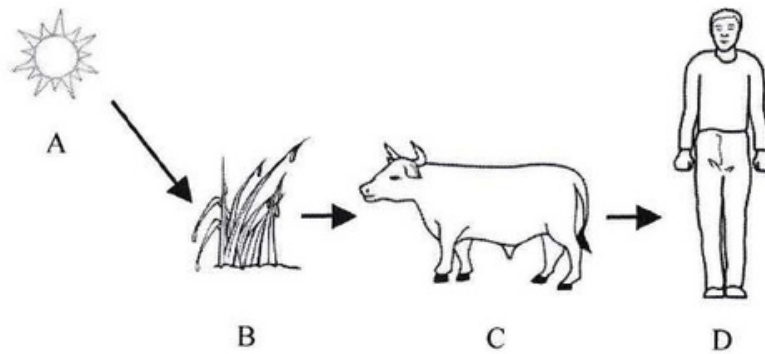


The class uses simple machines to lift the box.

Which two simple machines did they use?

- A inclined plane and pulley
  - B lever and inclined plane
  - C pulley and wedge
  - D wedge and screw
13. Which structure is the male reproductive part of a flower?
- A petal
  - B pistil
  - C sepal
  - D stamen
14. Which foods provide nutrients to build and repair cells in the human body?
- A breads, cakes and cereals
  - B fruits and vegetables
  - C rice and pastas
  - D meat, poultry and fish

15. Which labelled structure provides energy for photosynthesis?

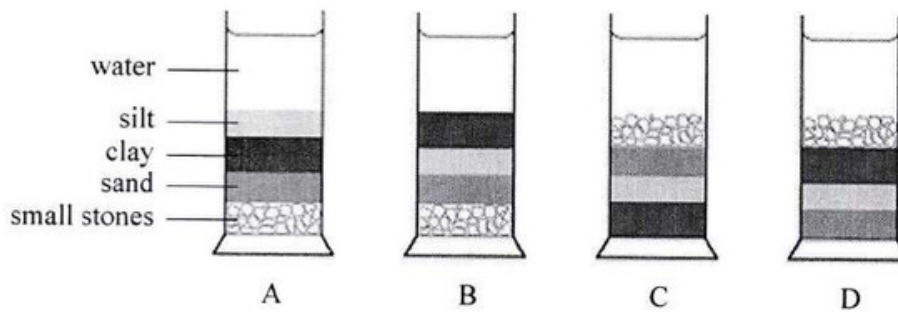


16. Which name is given to species that are not native to a specific ecosystem, spreads rapidly and causes environmental harm?

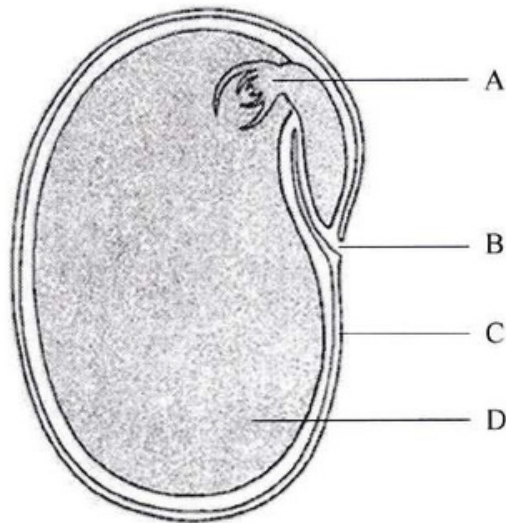
- A endangered species
- B extinct species
- C invasive species
- D protected species

17. Water is added to a sample of soil in a measuring cylinder. The sample is shaken vigorously and then allowed to stand for several minutes.

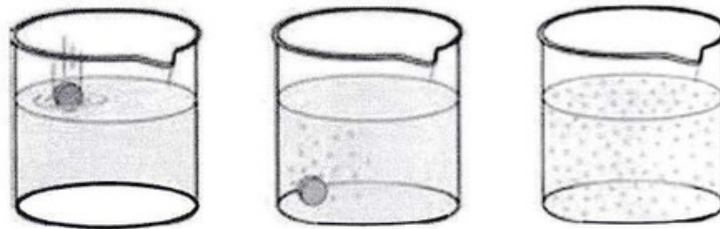
Which measuring cylinder shows the results?



18. Which structure provides the seedling with a source of food during its first stages of germination?



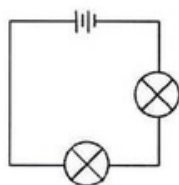
19. During a demonstration a science teacher places a large blue salt crystal into a beaker with water. The diagram shows what happens to the blue salt crystal after several minutes.



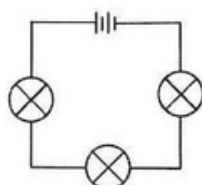
Which process is the teacher demonstrating?

- A diffusion
  - B evaporation
  - C osmosis
  - D melting
20. What is the equation used for calculating scientific work?
- A  $W = F + d$
  - B  $W = F - d$
  - C  $W = \frac{F}{d}$
  - D  $W = Fd$
21. Which type of magnet is naturally magnetised?
- A bar
  - B horseshoe
  - C lodestone
  - D ring

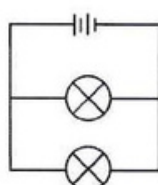
22. In which circuit, can the current follow two different paths?



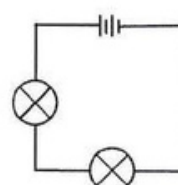
A



B



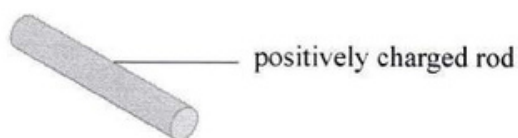
C



D

23. A positively charged rod is brought near four charged balls as shown.

Which ball will the positively charged rod attract?



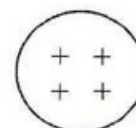
A



B



C

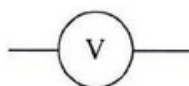


D

24. What is the SI unit of force?

- A Joule
- B kilogram
- C metre
- D Newton

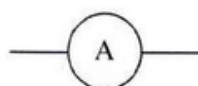
25. Which electrical symbol is a resistor?



A



B

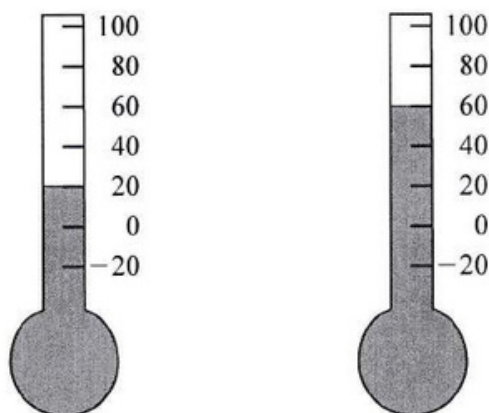


C



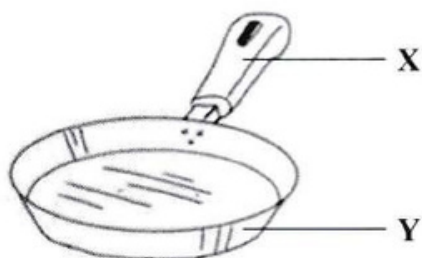
D

26. During an investigation, the temperature of a substance is taken before and after a reaction. The result is shown in the diagrams.



What is the difference in the temperature of the substance?

- A 30°  
 B 40°  
 C 60°  
 D 80°
27. Which process causes beads of water to form on the outside of a cold glass of limeade on a hot and humid summer's day?
- A condensation  
 B conduction  
 C convection  
 D evaporation
28. Why are pots, X made of metal and the handle, Y made of plastic or wood?



|   | X              | Y              |
|---|----------------|----------------|
| A | good conductor | good insulator |
| B | good insulator | good conductor |
| C | poor insulator | poor conductor |
| D | poor conductor | poor insulator |

29. Which process describes the protection and wise use of the Earth's natural resources?

- A conservation
- B exploitation
- C reservation
- D reforestation

30. Which natural resource is renewable?

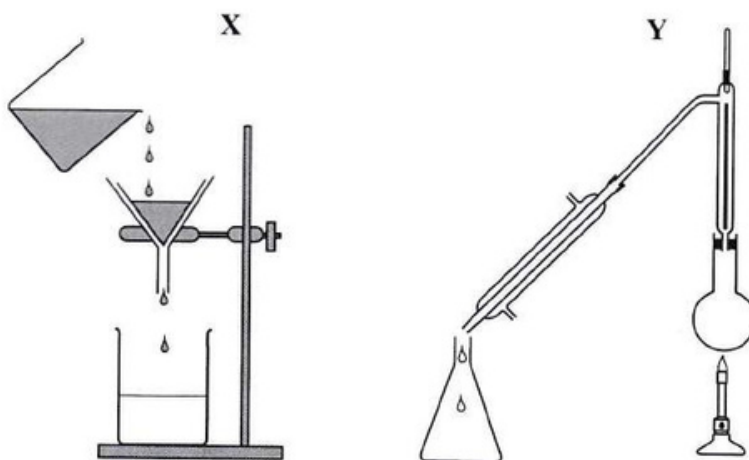
- A coal
- B gas
- C oil
- D water

31. What is the common name of the organism *Strombus gigas*?

- A black crab
- B green turtle
- C queen conch
- D Nassau grouper

32. Apparatus X and Y were used to separate a mixture. Each mixture is of seawater and sand.

What is the difference in the mixtures after separation using X and Y?

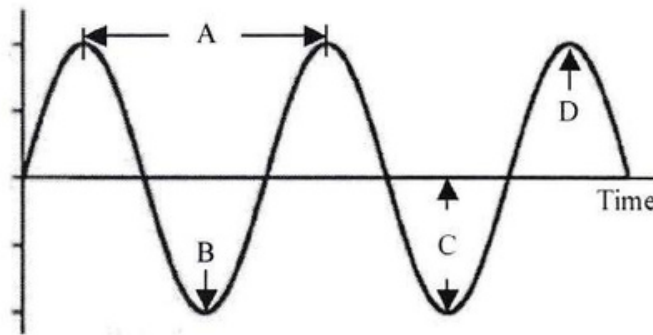


|   | X contains                 | Y contains                 |
|---|----------------------------|----------------------------|
| A | germs, salt, no sand       | no germs, no salt, no sand |
| B | no germs, no salt, no sand | germs, salt, no sand       |
| C | no germs and no sand       | germs and salt             |
| D | no salt and no sand        | salt and no sand           |

33. Which medium does **not** transmit sound waves?

- A air
- B liquid
- C solid
- D vacuum

34. Which labelled part of the wave is the wavelength?



35. Reproduction is the process by which new individual organisms are produced from their parents.

Which restriction protects organisms during this time allowing them to reproduce?

- A closed seasons
- B commercial fishing permits
- C size limitations
- D trapping permits

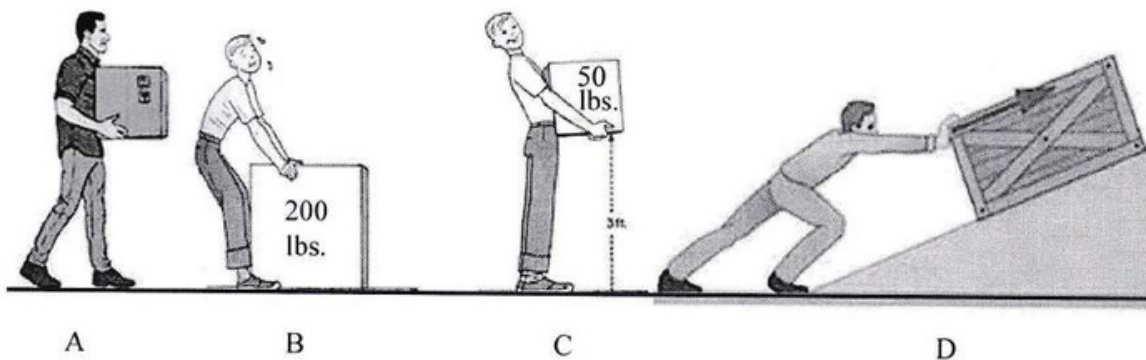
36. What is the stage in development when a young person starts to become sexually mature?

- A adulthood
- B childhood
- C infancy
- D puberty

37. Which term refers to the **variety** of life?

- A biodegradable
- B biodiversity
- C biology
- D botany

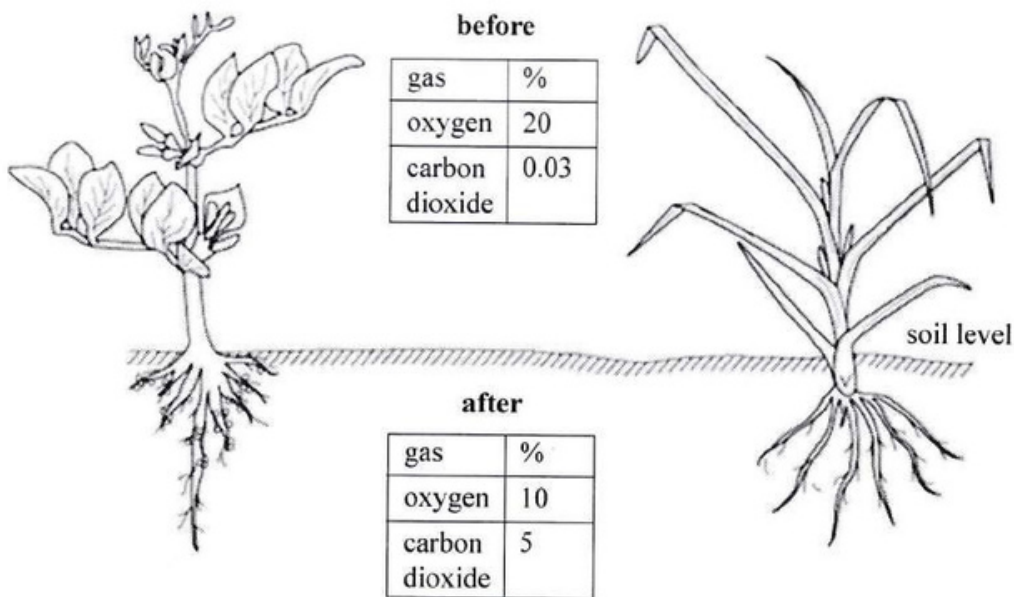
38. Which activity shows **no** scientific work being done?



39. Which characteristic is **common** to both birds and mammals?

- A body covered with hair
- B body covered with feathers
- C cold-blooded animals
- D warm-blooded animals

40. The diagram shows two flowering plants. The tables show the changes in the gases oxygen and carbon dioxide.



Which process causes the changes in the percentages of these gases?

- A respiration
- B germination
- C photosynthesis
- D transpiration

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| QUESTION                | MARK |
| 1                       |      |
| 2                       |      |
| 3                       |      |
| 4                       |      |
| 5                       |      |
| 6                       |      |
| TOTAL                   |      |

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|            |               |

**MINISTRY OF EDUCATION  
BAHAMAS JUNIOR CERTIFICATE  
EXAMINATION**

**0047 GENERAL SCIENCE  
PAPER 2 STRUCTURED QUESTIONS  
(60 Marks)**

Thursday **2 June 2016** 2:15 P.M.–3:15 P.M.

***INSTRUCTIONS TO CANDIDATES***

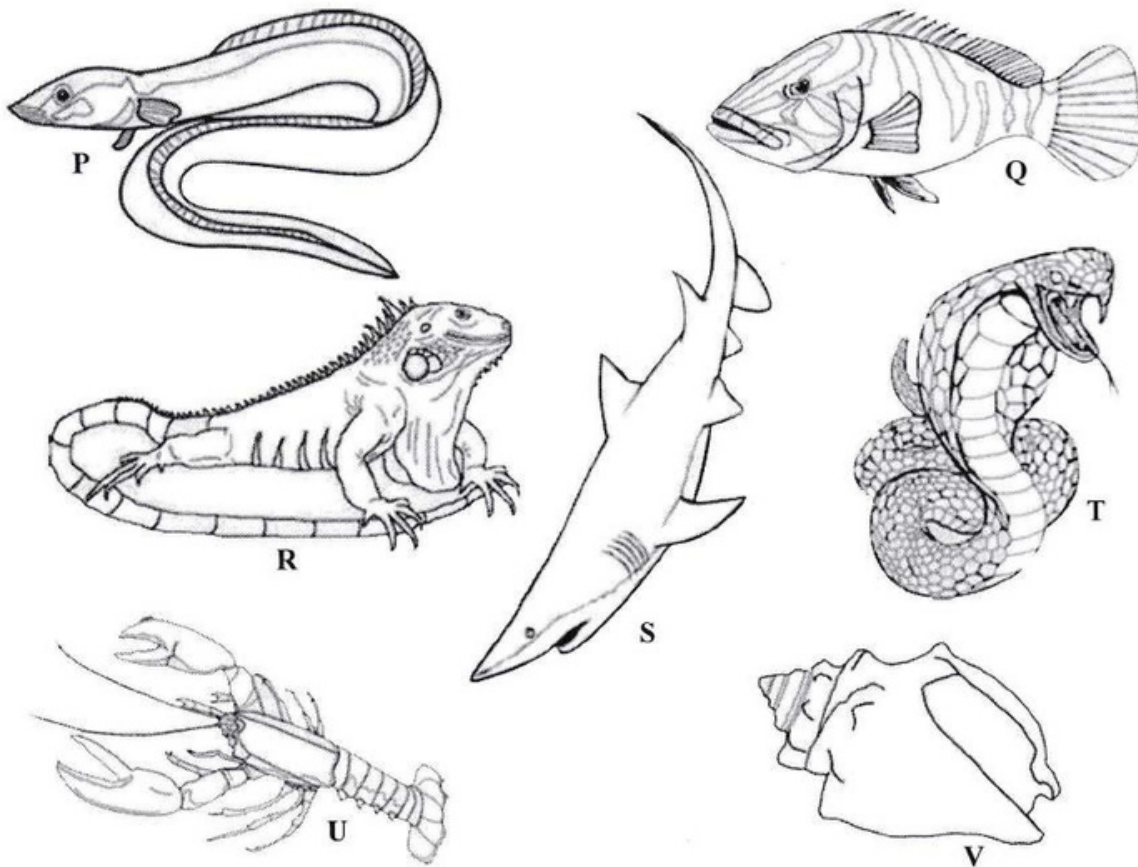
**Do not open this booklet until you are told to do so.**

Write your school number, candidate number, surname and initials in the spaces provided at the top right hand side of this page.

Answer **ALL** questions in the spaces provided.



1. The living world around us is very biodiverse. Each organism, even within species, is distinct in its own way so that it can adapt to its environment.



(a) The diagram shows several different animals.

- (i) Identify **ONE** fish and **ONE** reptile from the diagram.

fish \_\_\_\_\_ [1]

reptile \_\_\_\_\_ [1]

- (ii) Briefly describe the body covering of organisms **Q** and **V**.

**Q** \_\_\_\_\_ [1]

**V** \_\_\_\_\_ [1]

- (iii) Organisms are found in many different habitats on land or in water.

Give the name of an organism shown whose habitat is on land.

\_\_\_\_\_ [1]

- (b) (i) Name **TWO** of the organisms shown which are protected by a closed season.

1. \_\_\_\_\_

2. \_\_\_\_\_ [2]

- (ii) Name **ONE** of the organisms shown which is protected by a size restriction.

\_\_\_\_\_ [1]

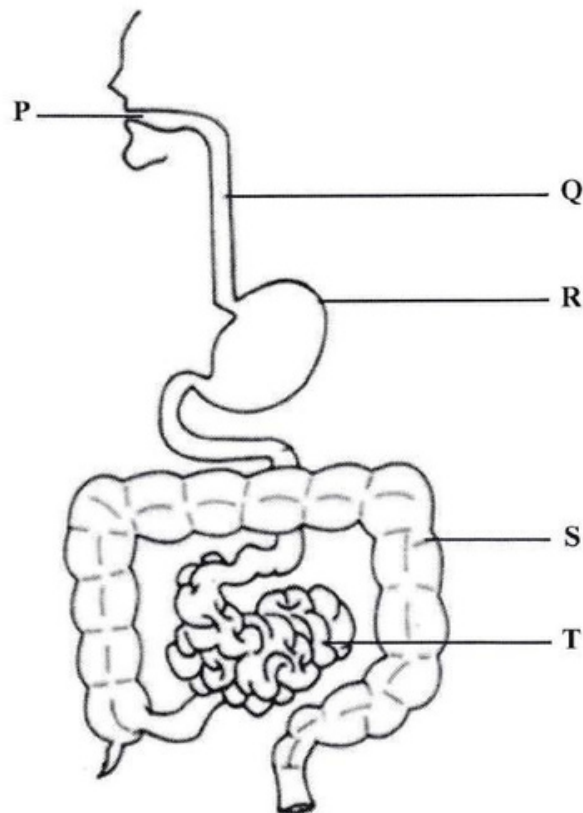
- (c) Give the names of **TWO** endangered **bird** species in The Bahamas.

1. \_\_\_\_\_

2. \_\_\_\_\_ [2]

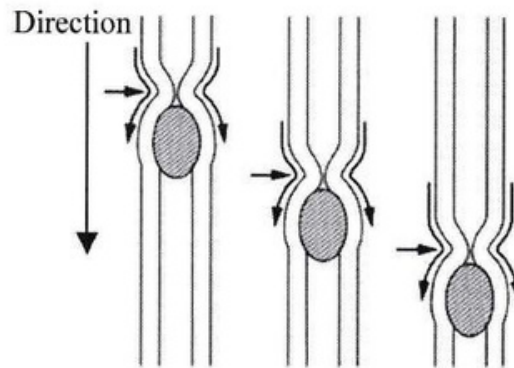
**TOTAL MARKS [10]**

2. The diagram shows the organs in a human body system.



- (a) (i) Name the human body system shown.  
\_\_\_\_\_ [1]
- (ii) Give the name of the structure labelled Q.  
\_\_\_\_\_ [1]
- (b) Identify the structure of this system where substances are
- (i) broken down into smaller pieces (chewed); \_\_\_\_\_
- (ii) churned and mixed with gastric juices; \_\_\_\_\_
- (iii) completely digested and nutrients absorbed. \_\_\_\_\_ [3]

- (c) The diagram shows the passage of substances through the system.



- (i) Name this process where muscles contract and relax to push substances through the system.  
\_\_\_\_\_ [1]
- (ii) Name the tiny finger-like projections which aid absorption of nutrients in the structure labelled T.  
\_\_\_\_\_ [1]
- (d) Name the substances which speed up chemical digestion.  
\_\_\_\_\_ [1]
- (e) Macy comes in with her lunch in a brown paper bag. The bag is covered with large grease marks.
- (i) Give the name of the likely food **nutrient** in the bag.  
\_\_\_\_\_ [1]
- (ii) A diet of fried foods is tasty but may contribute to a higher risk for certain health conditions.  
Name the health condition which may be caused by a diet of fried foods.  
\_\_\_\_\_ [1]

**TOTAL MARKS [10]**

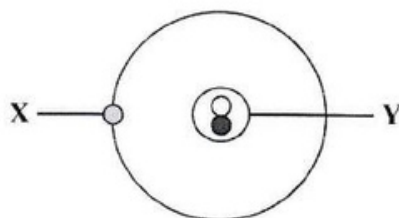
3. Matter is anything that has mass and volume (occupies space).

(a) List **THREE** kinds of matter.

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_ [3]

(b) Atoms are the basic building blocks of matter and are made up of three different kinds of particles.

The diagram represents an atom of **hydrogen**.



(i) Name **ONE** particle found in Y.

\_\_\_\_\_ [1]

Particles in an atom can have positive or negative charges or they can be neutral.

(ii) Give the kind of charge on particle X.

\_\_\_\_\_ [1]

(iii) Name the **neutral** particle found in an atom.

\_\_\_\_\_ [1]

(c) Hydrogen combines with oxygen to form water.

(i) Write the **chemical formula** for a molecule of water.

[1]

(ii) Draw a water molecule.

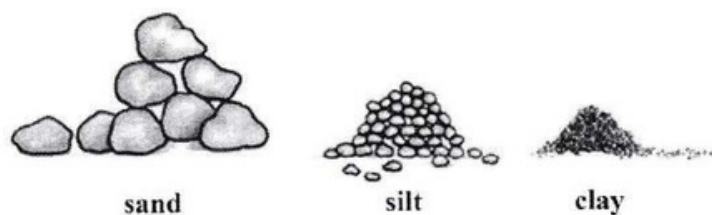
[1]

4. This question is about soil, fertilisers and a natural cycle.

- (a) Name the process by which soil is formed from bedrock.

\_\_\_\_\_ [1]

- (b) The diagram shows three different kinds of soil.



Identify the type of soil in which water drains

- (i) rapidly, poor water storage; \_\_\_\_\_

- (ii) slowly, good water storage. \_\_\_\_\_ [2]

- (c) A **fertiliser** is applied to soils to supply nutrients essential for the growth of plants.

- (i) Name the **TWO** kinds of fertilisers.

1. \_\_\_\_\_

2. \_\_\_\_\_ [2]

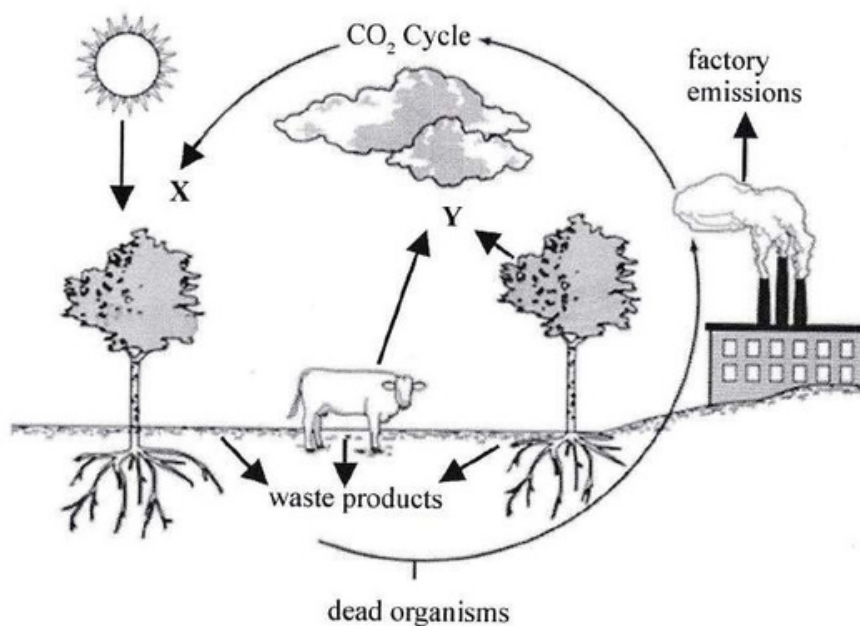
- (ii) Name the kind of fertiliser which can leach from the soil into rivers and lakes to cause water pollution.

\_\_\_\_\_ [1]

- (iii) State **ONE** harmful effect of water pollution on living organisms.

\_\_\_\_\_  
\_\_\_\_\_ [1]

- (d) The diagram shows how carbon dioxide is removed from the atmosphere and put back into the atmosphere.



Plants remove carbon dioxide from the atmosphere to perform the process at **X**.

Both plants and animals put carbon dioxide back into the atmosphere during the process which takes place at **Y**.

- (i) Name the processes taking place at **X** and **Y**.

**X** \_\_\_\_\_ [1]

**Y** \_\_\_\_\_ [1]

- (ii) The normal percentage of carbon dioxide in the air is about 0.04%, however this percentage is increasing.

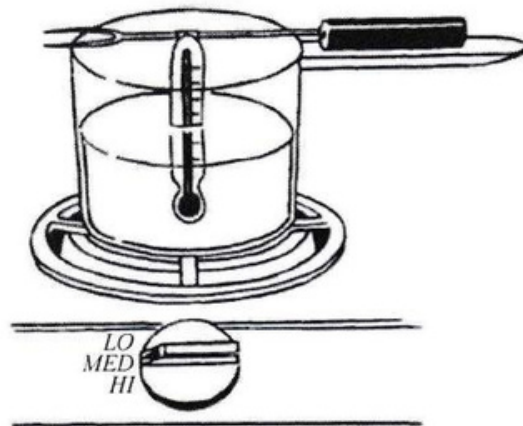
From the diagram, state **ONE** factor which accounts for this change.

\_\_\_\_\_ [1]

**TOTAL MARKS [10]**

5. This question is about heat and temperature.

The diagram shows a pot of **pure water** being heated to its boiling point.

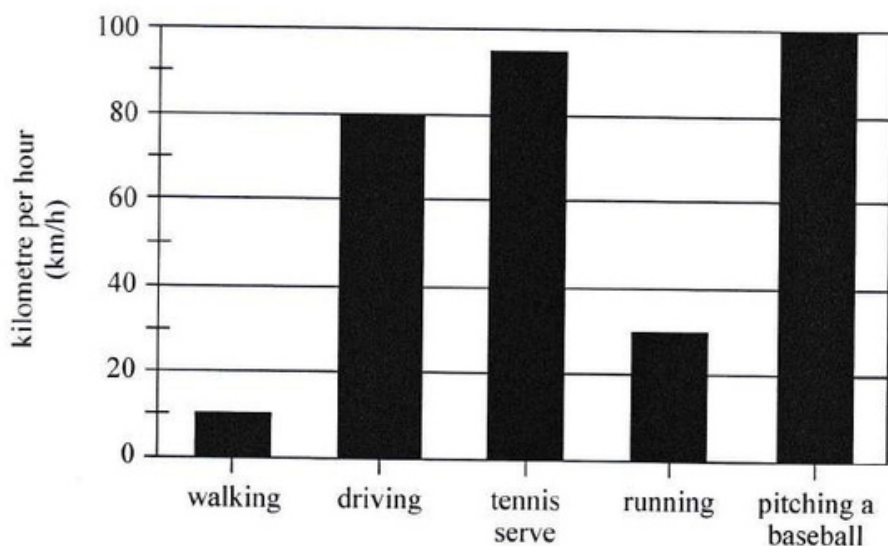


- (a) (i) State what happens to the **movement** of the water molecules when the water boils.
- \_\_\_\_\_ [1]
- (ii) Name the method of heat transfer from the stove to the
1. pot; \_\_\_\_\_
  2. water. \_\_\_\_\_ [2]
- (iii) Give the name of the **process** taking place when the vapours from the boiling water come in contact with the cooler air.
- \_\_\_\_\_ [1]
- (iv) State whether this process is a physical or chemical change.
- \_\_\_\_\_ [1]
- (b) The room temperature of the water is  $23^{\circ}\text{C}$  before it is heated to its boiling point.
- Suggest the possible reading on the thermometer.
- \_\_\_\_\_ [1]
- (c) (i) Define **temperature**.
- \_\_\_\_\_ [1]
- (ii) Name the instrument used to measure temperature.
- \_\_\_\_\_ [1]
- (iii) Name **TWO** temperature scales used to measure and record temperature.
1. \_\_\_\_\_
  2. \_\_\_\_\_ [2]

**TOTAL MARKS [10]**

6. This question is about speed, work and forces.

(a) The graph shows the speeds for 5 different activities.



Use the information from the graph to

- (i) Record the time for the **slowest** and **fastest** activities.
- slowest \_\_\_\_\_ [1]
- fastest \_\_\_\_\_ [1]
- (ii) Find the average speed for the walking, driving and running activities shown. (Show **ALL** working).
- [2]
- (b) (i) Calculate the work done by the pitcher after pitching a ball with a force of 30 N and a distance of 18.4 m. (Show **ALL** working).
- [3]
- (ii) Name the force which will cause a ball hit upwards into the air to fall to the Earth.
- \_\_\_\_\_ [1]
- (iii) Name the force which causes the soles on a runner's tennis shoes and car tyres to become smooth with repeated use.
- \_\_\_\_\_ [1]
- (iv) Name the force which makes it possible to walk, run and drive without drifting off into space.
- \_\_\_\_\_ [1]

**TOTAL MARKS [10]**