康　柏　中　学
COMPASSVALE SECONDARY SCHOOL
END-OF-YEAR EXAMINATION 2022
GEOGRAPHY
Secondary One Express

Name   : _____   Duration: 1 h 15 min

Index No   : _____   Date: 7 October 2022

Class   : _____   Marks: _____ / 40

READ THESE INSTRUCTIONS FIRST

Write your name, index number and class on the work you hand in.
Write in dark blue or black pen.

This paper consists of **two** sections:
Section A: Short Answer Questions   (6 marks)
Section B: Structured Questions   (34 marks)

Answer **all** the questions in Sections A and B.
Write all answers in the spaces provided.

The number of marks is given in brackets [   ] at the end of each question or part question.

This document consists of **10** printed pages including this page.

SECTION A: SHORT ANSWER QUESTIONS [6 marks]

1   Study Fig. 1, which shows a topographical map of Maroni Town.
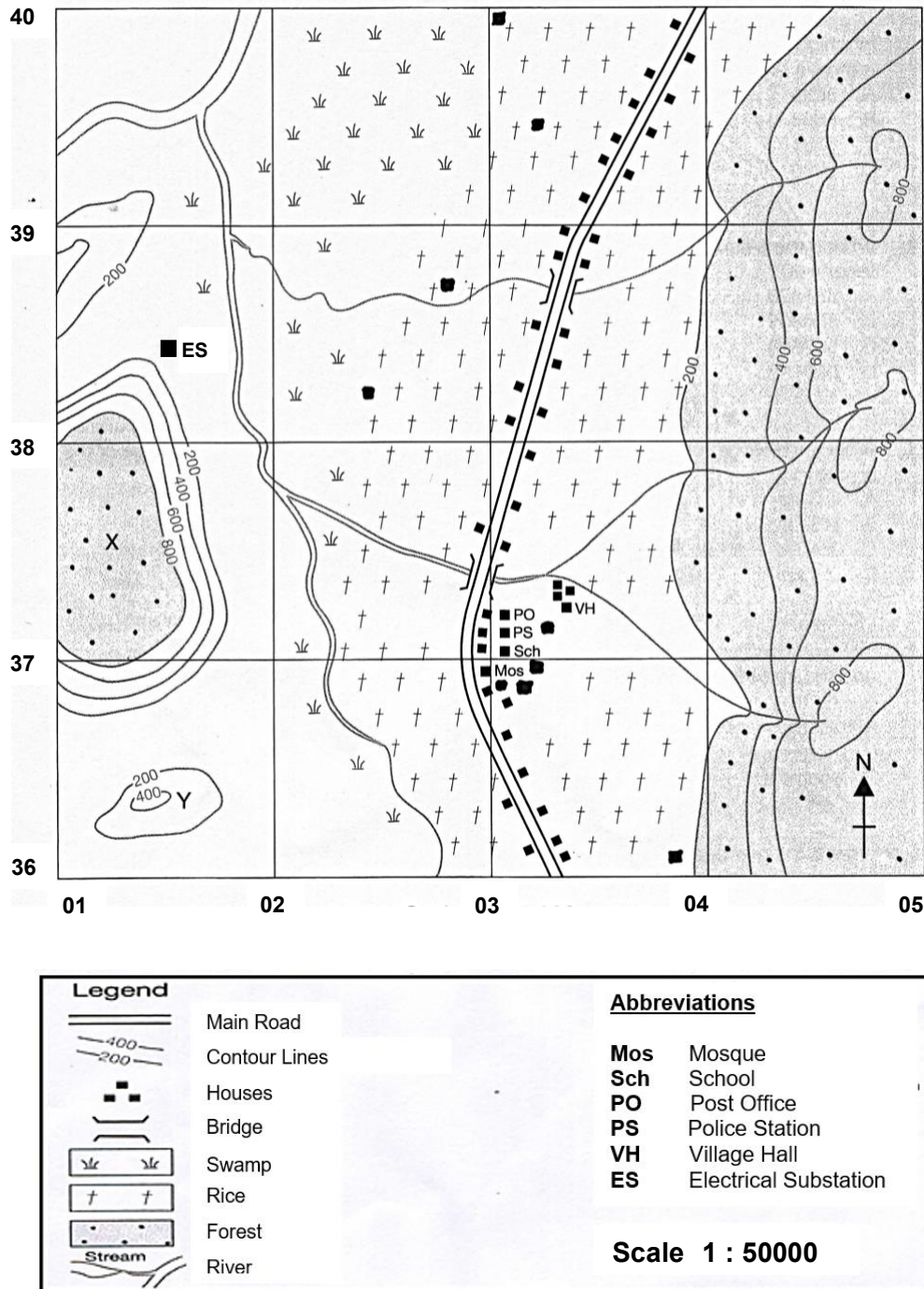
Topographical Map of Maroni Town

Fig. 1

(a)   State the six-figure grid reference of the Electrical Substation.

.... [1]

(b)   Identify the settlement pattern of the houses found at 0338.

.... [1]

(c)   Calculate the contour interval of the map.

.... [1]

(d)   Describe the gradient of Landform X.

.... [1]

(e)   State the compass direction of the Post Office from Point Y at 0136.

.... [1]

(f)   Calculate the straight line distance between the Post Office and the Electrical Substation. Give your answer in kilometres.

....

.... [1]

SECTION B: STRUCTURED QUESTIONS [34 marks]

2 (a) Outline the characteristics of the tropical climate.

....

....

....

....

....

....

.... [3]

(b) Study Fig. 2, which shows the global carbon emissions from 1990 to 2020.
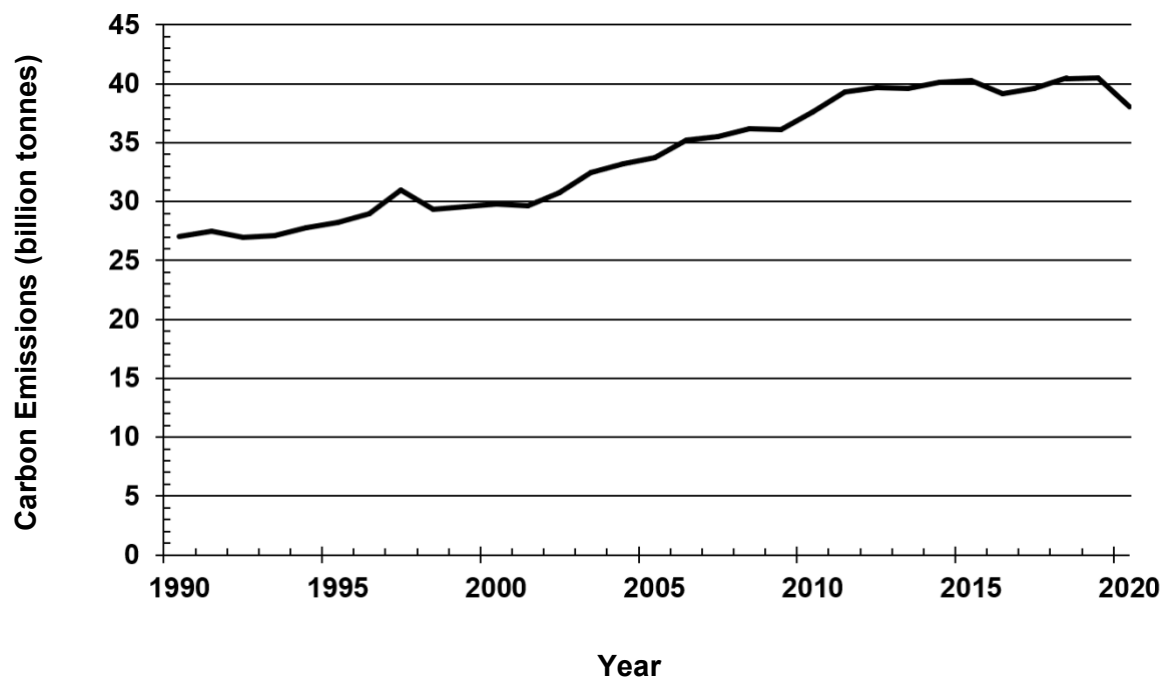
Global Carbon Emissions from 1990 to 2020

Fig. 2

Using Fig. 2, describe the changes in global carbon emissions from 1990 to 2020.

....

....

....

....

....

....

.... [3]

(c)   Explain how deforestation results in the enhanced greenhouse effect.

....

....

....

....

....

....

.... [3]

(d)   Describe how mangrove forests are suitable habitats for diverse animal life.

....

....

....

....

....

....

....

.... [4]

(e) Study Fig. 3, which shows the roots of trees in a mangrove forest.

Roots of trees in a mangrove forest

Fig. 3

With the help of Fig. 3, explain how the roots of mangrove trees have helped the plants adapt to the coastal environment.

....

....

....

....

....

....

....

....

.... [4]

3 (a) Study Fig. 4, which shows the distribution of water across water stores in the world.

Distribution of water across water stores in the world

Fig. 4

Using information from Fig. 4, describe the distribution of water across water stores in the world.

....

....

....

....

....

....
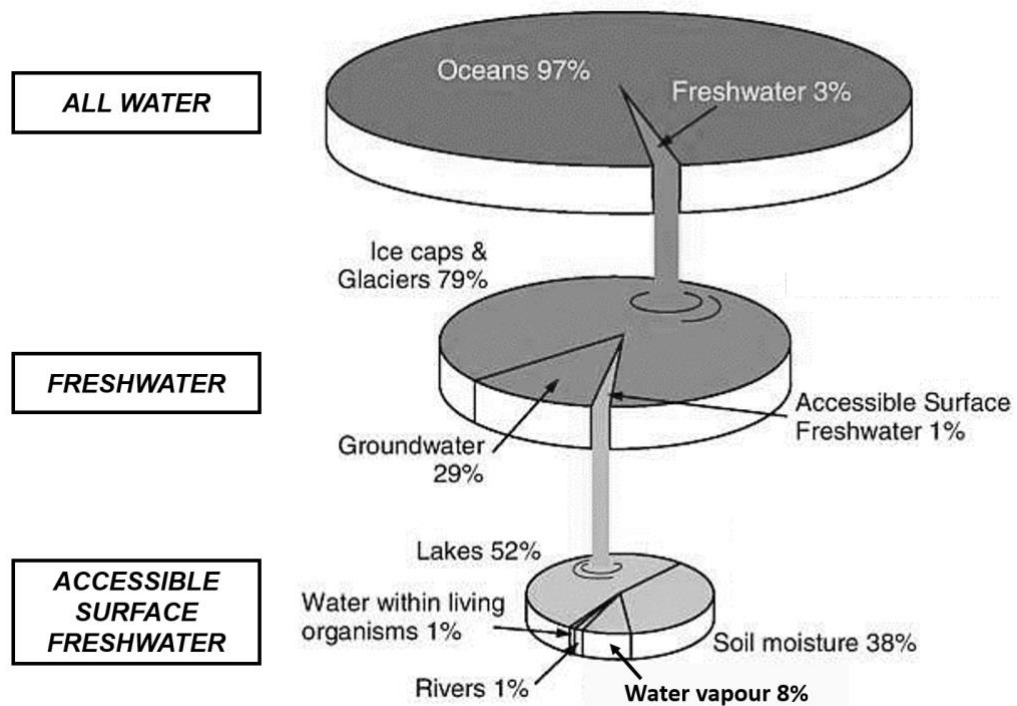
.... [3]

(b)   Describe how water could be used for agricultural and industrial activities.

....

....

....

....

....

....

.... [3]

(c)   Describe how variations in rainfall could cause a drought to occur.

....

....

....

....

....

....

.... [3]

(d)   Study Fig. 5, which shows the hydrological cycle.

Hydrological Cycle
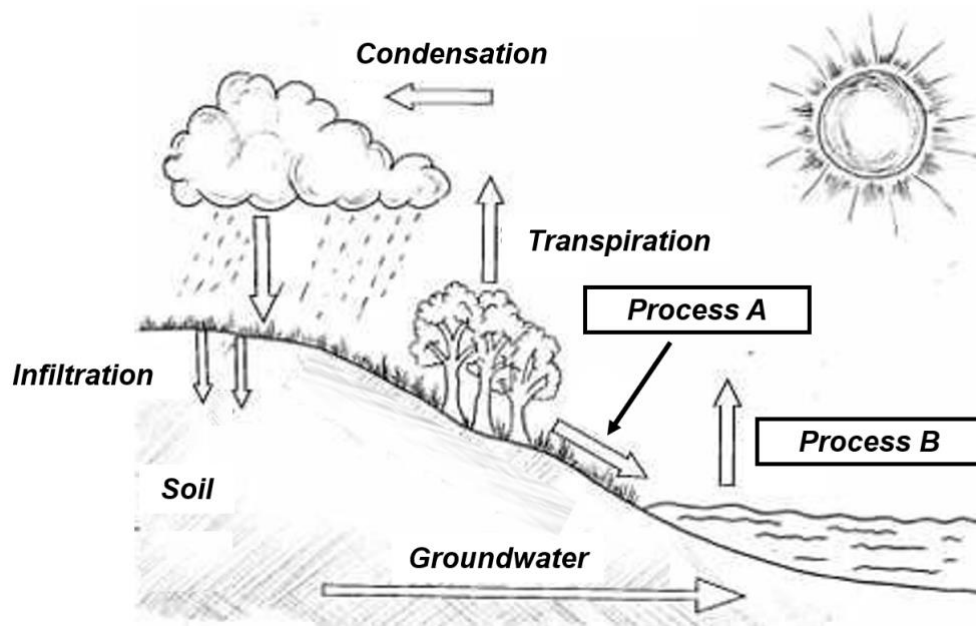
Fig. 5

With reference to Fig. 5, identify and describe Processes A and B.

....

....

....

....

....

....

....

....

.... [4]

(e)   With the use of an example, explain how technology is used by Singapore to produce and conserve water.

....

....

....

....

....

....

....

....

.... [4]

End-of-Paper

康　柏　中　学
COMPASSVALE SECONDARY SCHOOL
END-OF-YEAR EXAMINATION 2022
GEOGRAPHY
Secondary One Express

ANSWER KEY

Setter: Ms Lee Ja Sin

SECTION A: SHORT ANSWER QUESTIONS [6 marks]

1   Study Fig. 1, which shows a topographical map of Maroni Town.

Topographical Map of Maroni Town
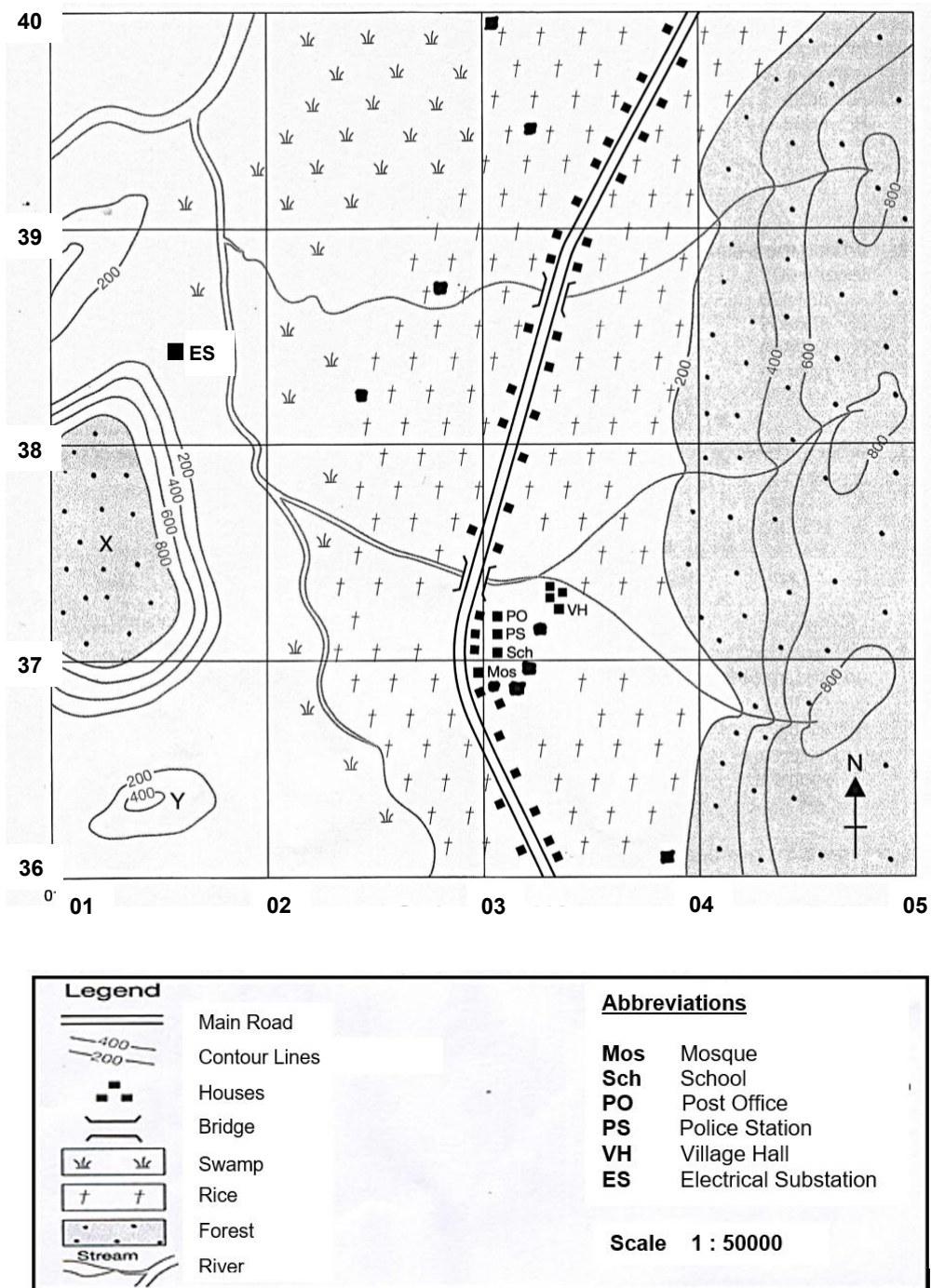
Fig. 1

1   (a)   State the six-figure grid reference of the Electrical Substation.
-   014384 or 015384   [1]

    (b)   Identify the settlement pattern of the houses found at 0338.
-   Linear   [1]

(c)   Calculate the contour interval of the map.
- 200 metres (Do not award if no units are given)   [1]

(d)   Describe the gradient of Landform X.
- It is steep.   [1]

(e)   State the compass direction of the Post Office from Point Y at 0136.
- Northeast   [1]

(f)   Calculate the straight line distance between of the Post Office and the
      Electrical Substation. Give your answer in kilometres.
- Distance measured on map   5.9 cm   [1]
  Scale: 1: 50 000
- 5.9x50000 = 295000cm = 2.95km
  (2.9km, 3km , 3.05 km)

SECTION B: STRUCTURED QUESTIONS [34 marks]

2 (a) Describe the characteristics of the tropical climate. [3]

- It is characterised by **high annual rainfall** of about 2000mm on average.
- There is **rainfall throughout the year**, with no month in which rainfall is absent or low
- Temperatures are **high throughout the year**, above 20ºC

Award 1m for each point

(b) Study Fig. 2, which shows the global carbon emissions from 1990 to 2020.

Global Carbon Emissions from 1990 to 2020
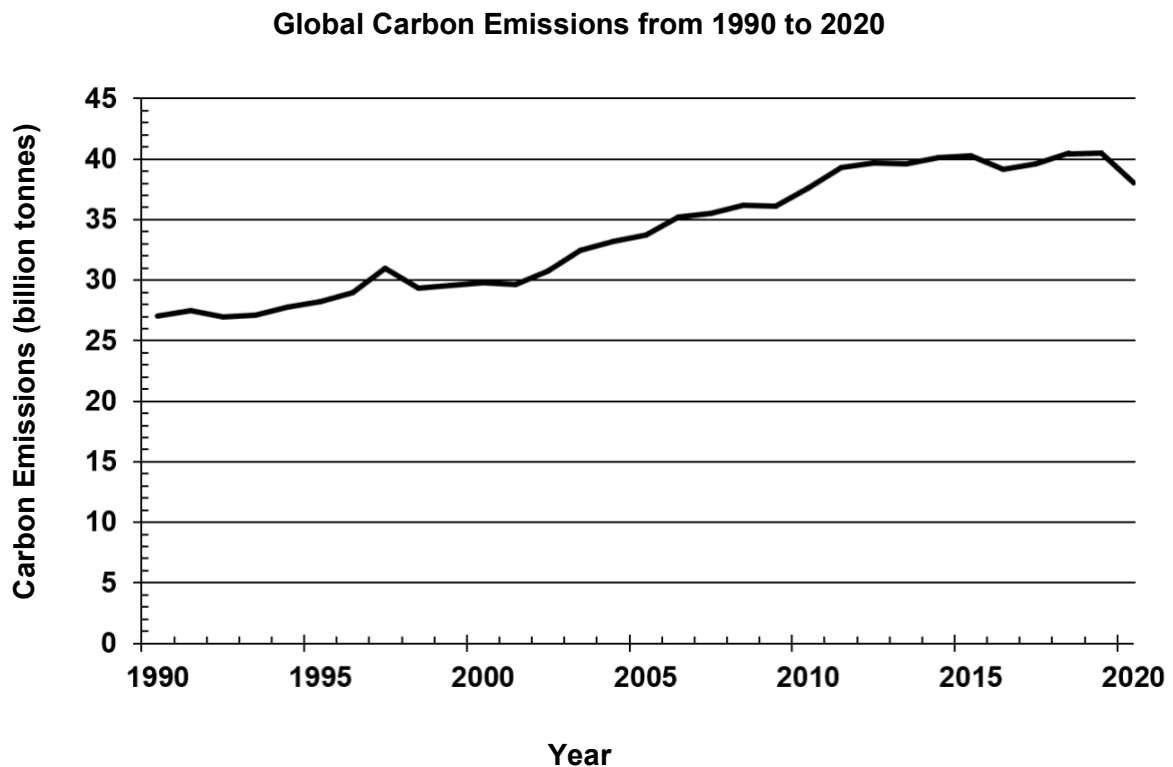
Fig. 2

Using Fig. 2, describe the changes in global carbon emissions from 1990 to 2020. [3]

- Generally, global carbon emissions have **increased** from 1990 to 2020 (1), from 27 billion tonnes in 1990 to 38 billion tonnes in 2020. (1)
- The amount of global carbon emissions was **relatively constant** from 1998 to 2001 (1) at 29 billion tonnes. (1)
- There was a **slight decrease** in global carbon emissions from 2019 to 2020 from 40 billion tonnes to 38 billion tonnes.

Award 1m for trend and 1m for supporting evidence.
Accept any other plausible answers.

(c) Explain how deforestation results in the enhanced greenhouse effect. [3]

- Deforestation is the **permanent removal of trees** in tropical forests.
- Removal of trees cause **carbon stored** in the plants and soil to be **released as carbon dioxide**.
- There will also be **fewer plants to absorb** the increased amount of carbon dioxide in the atmosphere.
- As carbon dioxide is a greenhouse gas, **more heat will be trapped** with increased amounts of carbon dioxide in the atmosphere, thus resulting in the enhanced greenhouse effect.

Award 1m for each point

(d) Describe how mangrove forests are suitable habitats for diverse animal life. [4]

- There is an abundance of water and food sources all year round.
- Dead leaves and branches from mangrove plants are broken down by bacteria into tiny particles.
- These are consumed as food for smaller animals such as fishes, shrimps and crabs.
- These smaller animals are in turn **food for larger predators** that such as otters, crocodiles and tigers.
- Mangroves are **breeding grounds** for young fishes
- Their **dense root networks provide shelter** for young fishes from their larger predators.
- Branches of mangroves are **nesting sites** for many species of birds such as pelicans, herons, egrets and spoonbills.

Award 1m for each point

Roots of trees in a mangrove forest

Fig. 3

Using Fig. 3, explain how the roots of mangrove trees have helped the plants adapt to the coastal environment.   [4]

- Mangrove trees have **<u>aerial roots</u>** such as prop roots, pencil roots and cone roots
- Soil found in the coastal environment is **<u>waterlogged and poor in oxygen</u>**.
- These roots help to **<u>absorb oxygen during low tide</u>**, which helps the plant to survive in the oxygen poor soil.
- Soil is also **<u>soft and unstable.</u>**
- Roots help to **<u>anchor the plants to the soft soil</u>**, preventing it from bring uprooted and washed away by strong waves.

Award 1m for each point.

3 (a) Study Fig. 4, which shows the distribution of water across water stores in the world.

Distribution of water across water stores in the world
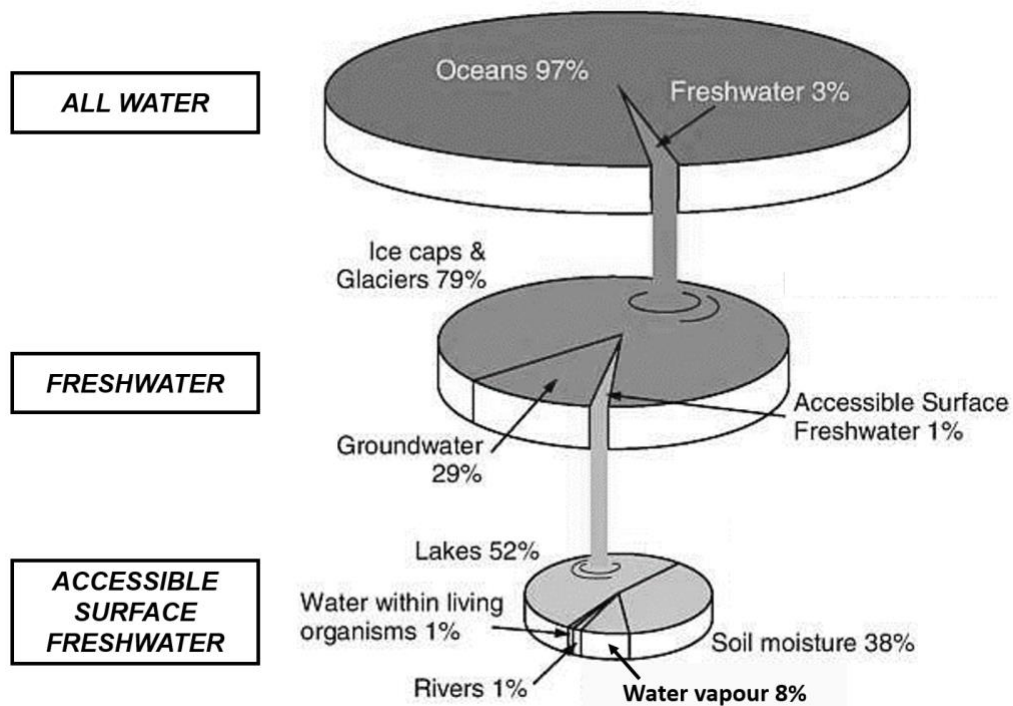
Fig. 4

Using information from Fig. 4, describe the distribution of water across water stores in the world. [3]

- Most of the water available is found in oceans (97%).
- Most of the freshwater available is found in ice caps and glaciers (79%)
- Most of the accessible surface freshwater is found in lakes (52%).

Award 1m for each point.

(b) Describe how water could be used for agricultural and industrial activities. [3]

Agriculture:
- Water is used to grow crops and rear animals for human consumption.
- Some animal and plant products such as beef and nuts require more water than the others.

Industrial
- Water could be used to cool equipment in factories and power plants
- It is also used to generate electricity when it passes through turbines installed in dams.
- Water is also used as a cleaning agent in wafer fabrication.

Award 1m for each point. Reserve 1m for each use of water.

(c) Describe how variations in rainfall could cause a drought to occur. [3]

- Droughts occur when there is a **long period of little or no rainfall.**
- It could last for months or even years, causing **areas to be drier than normal**.
- There may be **insufficient water to replenish the amount of water used** for human activities
- **Water stores** such as reservoirs and groundwater will start to **dry up**

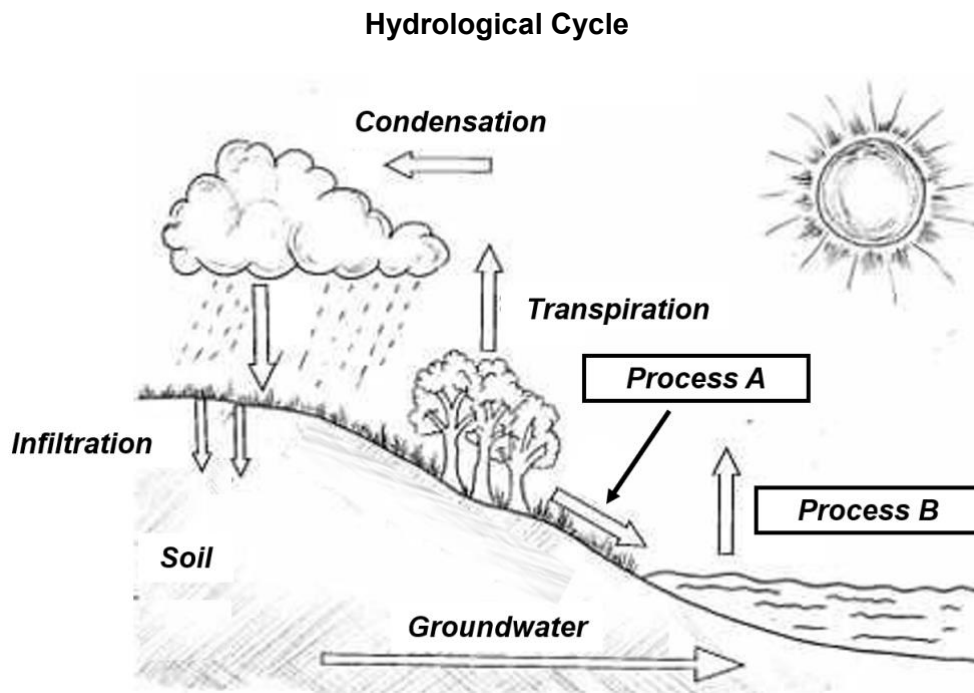*Award 1m for each point*

(d) Study Fig. 5, which shows the hydrological cycle.

Hydrological Cycle

Fig. 5

With reference to Fig. 5, identify and describe Processes A and B. [4]

Process A: Surface Runoff (1)
Description (1)
- Water **flows about the ground surface** to other water bodies such as streams and rivers

Process B: Evaporation (1)
Description (1)
- **Sun's heat** causes water to evaporate **OR**
- Water changes from **liquid state to gaseous state** (water vapour)

(e)   With the use of an example, explain how technology is used by Singapore
      to produce and conserve water.   [4]

- **<u>Desalination</u>** is used in Singapore as its supply its not dependent on
  weather conditions.
- Use of desalination is possible through years of innovation and continuous
  investment in research and technology.
- Through desalination, seawater is converted into drinking water using the
  <u>advanced membrane technology</u>.
- This **<u>reduces the amount of salt content</u>**, allowing water to be used for
  human activities.
- Example: As of 2020, Singapore has four desalination plants, with Keppel
  Marina East Desalination Plant built as the fourth plant.

Award 1m for each point, up to a maximum of 3m.
Reserve 1m for example.

End of Paper