



Subject: Grade 10 Geography
Topic: Geography: Term 1 - Mini-Exam
Total: 42 Marks

1. C: Water Vapour

2 marks

Explanation:

Water vapour naturally exists in the air and traps a lot of heat. Its amount changes quickly **depending on temperature**.

Warmer air can hold more water vapour, which increases the greenhouse effect. This makes it an important part of Earth's climate system.

2. B: Angle of the Sun

4 marks

Explanation:

Insolation depends on how directly the Sun's rays hit the surface.

A **low angle spreads energy out**, reducing heating. A **high angle concentrates energy and causes stronger heating**.

This is why the equator is warm and the poles are cold.

3. false

2 marks

Explanation:

Warm air **expands, which makes it lighter**. This causes warm air to rise above cooler air.

Cold air is **more dense, so it sinks**. These movements create important weather patterns.

4. true

2 marks

Explanation:

The troposphere contains **most of the atmospheric water vapour, clouds and dust**, which are essential for weather processes.

Winds, storms and temperature changes mainly occur here because **the surface heats this layer directly**(initiated through evaporation).

No other layer has the same level of **moisture and instability**.

5. false

2 marks

Explanation:

The natural greenhouse effect **keeps Earth warm enough** for life. It **traps some of the heat** that the Earth releases after absorbing sunlight.

Without it, Earth would be too cold to support most living things. The problem is when human activities increase this effect too much.



6. B: Convection

4 marks

Explanation:

Convection happens **when warm air rises** because it is less dense.

As it rises, it cools and may form clouds.

This movement helps spread heat in the atmosphere. It is a **major cause of storms and wind systems**.

7. true

2 marks

Explanation:

The ozone layer in the stratosphere **absorbs ultraviolet radiation from the Sun**. This energy absorption causes the air to warm as altitude increases. This **creates a stable layering that prevents vertical mixing**.

8. B: Long-term global temperature trends

4 marks

Explanation:

Climate change must be **measured over decades**, not single events.

Long-term temperature data shows steady global warming. This information avoids confusion from natural short-term variations.

Trends provide **reliable scientific evidence**.

9. C: Orographic Uplift

4 marks

Explanation:

As moist air hits a mountain, it rises up the slope. Rising air cools, condenses, and forms clouds.

This creates **rainfall on the windward side**. The leeward side is much drier and forms a **rain shadow**.

10. true

2 marks

Explanation:

Ozone molecules (O₃) **capture ultraviolet rays** before they reach Earth's surface. Without this protection, living organisms would face severe DNA damage. The layer **acts as Earth's natural sunscreen**.

11. D: The air is sinking and warming

4 marks

Explanation:

Temperatures decrease further from the equator.

Cooler temperatures causes **sinking air** to **reduce cloud formation**. This creates dry conditions and clear skies.

Over time, these conditions form deserts.

12. C: 0°

4 marks

Explanation:

The equator gets **direct sunlight** throughout the year.

The Sun is **almost overhead daily**. This creates consistent heating. It supports tropical climates and strong convection.

13. false

2 marks

Explanation:

Air pressure decreases with height because there is less air above pushing down. Most air particles are concentrated close to the surface where gravity pulls them down. As altitude rises, the number of particles decreases.

14. true

2 marks

Explanation:

The ionosphere is a region of **charged particles created by solar radiation**.

It lies mainly within the thermosphere.

This zone allows **radio signals to bounce across long distances**.

15. true

2 marks

Explanation:

The **land and oceans** efficiently **absorb solar radiation**. This heats the lower atmosphere from below.

Another portion is reflected or absorbed by clouds and gases. The surface plays a major role in the planet's heat budget.

Total: 42 Marks