

Section A: Multiple Choice. Select the BEST answer from the choices given and write the letter of your choice in the space provided. Value 42%.

- ___ 1. The two main components of weather and climate are:-
a) latitude and landforms
b) temperature and precipitation
c) temperature and air masses
d) precipitation and nearness to water
- ___ 2. The Earth is tilted on its axis at an angle of how many degrees ?
a) 66.5? b) 90? c) 23.5? d) 33?
- ___ 3. What percentage of the sun's energy is absorbed by the atmosphere that surrounds the Earth ?
a) 20% b) 10% c) 15% d) 25%
- ___ 4. An air mass noted for its very cold and dry conditions:-
a) maritime Polar b) continental Arctic
c) maritime Tropical d) continental Tropical
- ___ 5. Which air mass does not have any effect on the weather patterns found in Canada ?
a) maritime Polar b) continental Arctic
c) maritime Tropical d) continental Tropical
- ___ 6. Much of central Canada comes under the influence of which of the following air masses in winter ?
a) maritime Polar b) continental Arctic
c) maritime Tropical d) continental Tropical
- ___ 7. Which statement is not applicable to a Tropical air mass ?
a) the air is very heavy and dry
b) the air is very moist and light
c) the air rises easily and is very warm
d) the air is warm and moist
- ___ 8. Tornadoes occur most frequently in all of the following provinces with the exception of:-
a) Quebec b) Alberta
c) Saskatchewan d) Manitoba
- ___ 9. Which province in Canada would most likely be affected by **convectio**
rainfall ?
a) British Columbia b) Saskatchewan

c) Newfoundland

d) Quebec

___ 10. The type of rainfall that we receive here in Newfoundland is classified as:-

- a) orographic b) convectional
c) frontal d) relief

___ 11. The temperature at sea level is 10.7°C. What would be the temperature at the top of a 1700 m mountain if the air was **DRY** all the way up ?

- a) -4.3°C b) 0.5°C c) - 6.3°C d) 3.4°C

___ 12. The temperature at sea level is 19°C. What would be the temperature at the top of a 2500 m mountain if the air was **DRY** all the way up to 1800 m and then **WET** for the rest of the way ?

- a) -3.2°C b) 1.2°C c) - 6°C d) 4°C

___ 13. The temperature at sea level is 8°C. What would be the temperature at the top of a 900 m mountain if the air was **WET** all the way up ?

- a) -3.8°C b) 4.5°C c) - 1°C d) 2.6°C

___ 14. How many centimetres of snow are contained in 15.35 centimetres of rain ?

- a) 1535 cms b) 153.5 cms c) 15350 cms d) 15.35 cms

Section B: True or False. Place a "T" or "F" in the space provided to the LEFT.
Value 23%.

___ 1. The farther away that a place is from the Equator, the cooler will be the temperature of that place.

___ 2. The angle at which the sun's rays strike the Earth has no bearing on the amount of heat energy received by a location.

___ 3. When the sun's rays are concentrated over a greater surface area, heat energy is more intense and results in higher temperatures.

___ 4. Dense forests experience a greater loss of heat energy than do snow-covered fields.

___ 5. The air in the Earth's atmosphere is constantly on the move.

___ 6. When the Northern Hemisphere is tilted away from the sun, we get the season of Winter.

___ 7. In places where the **albedo** is high, most of the sun's energy is retained as heat.

___ 8. When solar energy is **reflected** it is given off as **heat**; when solar energy is

retained it is held as **light**.

___ 9. Places that experience a high albedo will have higher temperatures than places with a low albedo.

___ 10. Air in the Earth's atmosphere is constantly pumped between the hot equatorial regions and the frigid polar regions.

___ 11. Air masses that originate over the Gulf of Mexico are warm and moist.

___ 12. In winter, the southerly flow of the **Jet Stream** may allow frigid Arctic air deep into the southern United States.

___ 13. When air masses meet, a mass of warmer air is always forced to rise above a mass of colder air.

___ 14. Cold air does not hold moisture as well as warm air.

___ 15. Rising air cools and this causes moisture in the air to condense.

___ 16. If the air is saturated with water vapour, it is capable of retaining more heat energy.

___ 17. Once the air passes over the top of a mountain it becomes quite dry.

___ 18. During the summer, coastal regions remain cooler than inland regions because of the colder ocean waters.

___ 19. Coastal areas have milder winters and cooler summers than inland areas do.

___ 20. Most of the water vapour that condenses to form precipitation has evaporated from oceans and large lakes.

___ 21. Places close to large bodies of water tend to receive less precipitation than places located far away.

___ 22. In central Canada, summer hailstorms are quite common.

___ 23. Tornadoes are created when hot, moist air from the Gulf of Mexico clashes with a cold front from the North.

Section C: Students are to answer any **three** of the following questions on a separate sheet of paper. Value 12%.

1. List any **TWO** characteristic features of the **Jet Stream**.

- Describe the conditions under which **orographic** or **relief** rainfall occurs.
- List any **TWO** characteristic features of **hurricanes**.
- Explain how **hailstones** are formed in the atmosphere.

Section D: Analyzing Climate Graphs. Value 23%.

Using the information contained in the charts below, draw **climate graphs** for each of the following locations. Place **temperature** along the **LEFT** vertical axis, and place **precipitation** along the **RIGHT** vertical axis.

Station A:

	J	F	M	A	M	J	J	A	S	O	N	D
Temp.(?C)	-28	-26	-20	-10	-2	6	12	11	5	-2	-11	-22
Prec.(cm)	3	2	4	5	7	9	10	14	12	10	10	6

Station B:

	J	F	M	A	M	J	J	A	S	O	N	D
Temp. (?C)	-4	-5	-3	1	6	10	15	15	12	7	3	-2
Prec. (cm)	15	16	13	12	10	9	8	10	12	13	16	17

On a separate sheet of paper you are to answer the following questions using the climatic information contained in the charts above.

- What type of climate is found at **Station A** ? Why ? (3%)
- The **growing season** lasts for how many months at **Station B** ? (2%)
- What is the **total yearly precipitation** for **Station A** ? (2%)
Station B ?

4. How much **snow** fell in the Winter months for **Station A** ? (4%)
Station B ?

5. What is the **temperature range** for **Station A** ? (2%)
Station B ?