# Meteorology Practice Test Answer Key

1. Fronts
2. Cold
3. Warm
4. Stationary Front
5. Stationary Front
6. Occluded Front
7. Warm Front
8. Cold Front
9. Cold or Cold-type
10. Warm or Warm-type
11. Dry Line or Dew Point Front
12. False
13. Troposphere
14. Mesosphere
15. Stratosphere
16. Thermosphere
17. Stratosphere, Thermosphere (order doesn't matter)
18. Troposphere, Mesosphere (order doesn't matter)
19. Tropopause
20. Mesopause
21. Stratopause
22. Mesosphere
23. Stratosphere
24. Troposphere
25. False
26. Polar High
27. Polar Easterlies
28. Subpolar Low
29. Westerlies
30. Subtropical High
31. Northeast Trade Winds
32. Intertropical Convergence Zone
33. Southeast Trade Winds
34. Subtropical High
35. Westerlies
36. Subpolar Low
37. Polar Easterlies
38. Polar High
39. Urban Heat Island Effect
40. False
41. Little Ice Age
42. False
43. Medieval Warm Period or Medieval Climate Optimum or Medieval Climatic Anomaly
44. Dendrochronology
45. False
46. False
47. Density
48. Sunspots, Colder, Increased
49. 22.1, 24.5 (order doesn't matter)
50. 26,000
51. Csc: Dry-summer maritime subalpine
52. Rain Shadow
53. Orographic Lift
54. 1
55. Autumn
56. Summer
57. 4
58. True
59. Decreasing
60. Higher (or warmer, etc.)
61. Higher (or warmer, etc.), Less
62. False
63. False
64. A
65. Yes
66. No
67. Water Vapor
68. A
69. True
70. TB#1: Answers may vary: Aerosols can scatter and absorb incoming solar radiation. The scattering of insolation causes cooling, while the absorption of insolation causes warming. Aerosols can also serve as cloud condensation nuclei. The increased incidence of clouds will result in a less extreme diurnal temperature range.
71. TB#2: Intergovernmental Panel on Climate Change

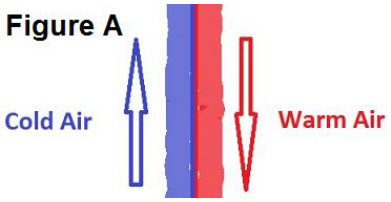
# Meteorology Practice Test

1. Transition zones between two air masses of different densities are called what?

   **Fronts**

2. A __**cold**__front occurs when a cold air mass replaces a warmer one.

3. A __**warm**__ front occurs when a warm air mass replaces a colder one.




4. What type of front is pictured in Figure A?

   **Stationary front**

5. What type of front does Figure B represent on a weather map?

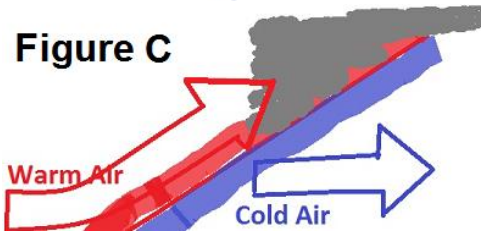
   **Stationary front**


6. What type of front is symbolized on a weather map as a solid purple line with alternating triangles and semicircles pointing the same direction?

   **Occluded front**

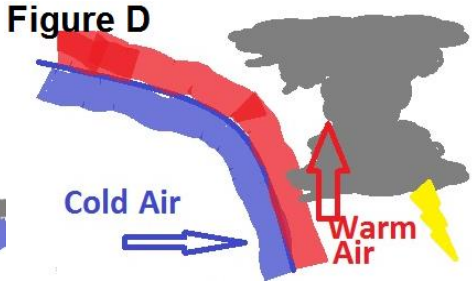
7. What type of front is pictured in Figure C?

   **Warm front**



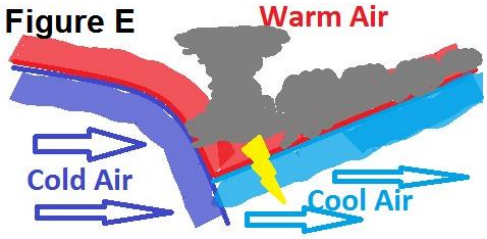

8. What type of front is pictured in Figure D?

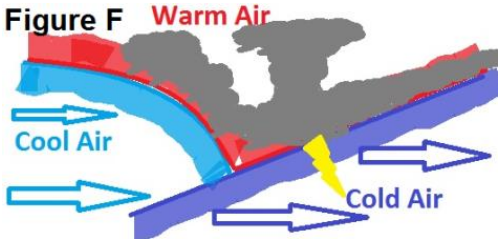
   **Cold front**




9. Figure E pictures a __**cold** or **cold-type**__ occlusion.

10. Figure F pictures a __**warm** or **warm-type**__ occlusion.




11. What is a boundary that separates a moist air mass from a dry air mass called?

    **Dry Line** or **Dew Point Front**

12. True or false: warm fronts generally are faster moving than cold fronts.

    **False** (cold fronts move faster than warm fronts)

13. The layer of the atmosphere closest to the surface of the Earth is the _**troposphere**_.

14. The layer of the atmosphere third closest to the Earth's surface is the _**mesosphere**_.

15. The layer of the atmosphere second closest to the Earth's surface is the _**stratosphere**_.

16. The layer of the atmosphere fourth closest to the Earth's surface is the _**thermosphere**_.

17. Temperature increases with altitude in the _ **stratosphere** _ and _ **thermosphere** _. (order doesn't matter)
18. Temperature decreases with altitude in the _ **troposphere** _ and _ **mesosphere** _. (order doesn't matter)
19. The __**tropopause**__ separates the troposphere and stratosphere.

20. The __**mesopause**__ separates the mesosphere and thermosphere.

21. The __**stratopause**__ separates the stratosphere and mesosphere.

22. Meteors disintegrate in which layer of the atmosphere?

    **Mesosphere**

23. Most of the ozone layer is located in which layer of the atmosphere?

    **Stratosphere**

24. Almost all weather occurs in which layer of the atmosphere?

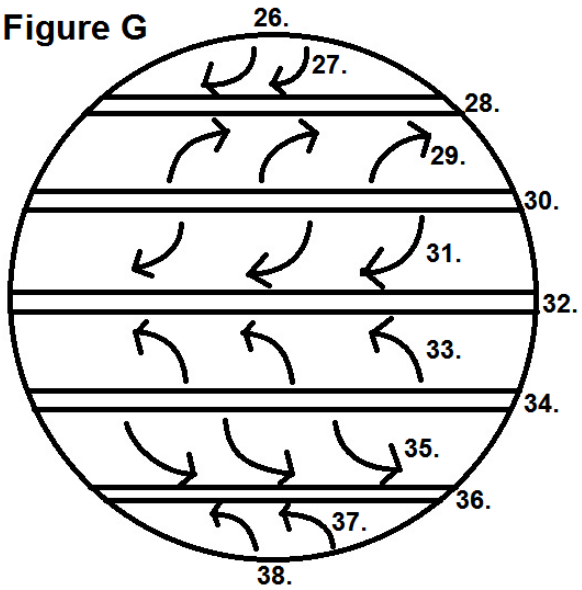
    **Troposphere**

25. True or false: the tropopause varies in altitude with latitude; 17 kilometers high at the poles and 9 kilometers high at the equator.

    **False** (9 km at the poles and 17 km at the equator)

# For questions 26-38, refer to Figure G

Figure G




26. Name the pressure belt. **Polar High**

27. Name the prevailing wind pattern. **Polar Easterlies**

28. Name the pressure belt. **Subpolar Low**

29. Name the prevailing wind pattern. **Westerlies**

30. Name the pressure belt. **Subtropical High**

31. Name the prevailing wind pattern. **Northeast Trade Winds**

32. Name the pressure belt. **Intertropical Convergence Zone**

33. Name the prevailing wind pattern. **Southeast Trade Winds**

34. Name the pressure belt. **Subtropical High**

35. Name the prevailing wind pattern. **Westerlies**

36. Name the pressure belt. **Subpolar Low**

37. Name the prevailing wind pattern. **Polar Easterlies**

38. Name the pressure belt. **Polar High**

# Climate

39. The average temperature of a large city is about 2 degrees Fahrenheit warmer than the surrounding outstate area at similar latitude and elevation. What term describes this phenomenon best?
    **Urban Heat Island Effect**

40. True or false: Weather near a large body of water tends to be warmer in the summer and colder in the winter than the surrounding land area.
    **False** (it would be cooler in the summer and warmer in the winter)
41. The Maunder Minimum occurred at the same time as the middle of what climatological event?
    **Little Ice Age**
42. True or false: the Dalton Minimum lasted approximately from 1730 to 1890 C.E.
    **False** (it lasted approximately from 1790 to 1830 C.E.)
43. The Little Ice Age was a period of cooling that occurred after what climatological event?
    **Medieval Warm Period** or **Medieval Climate Optimum** or **Medieval Climatic Anomaly**
44. What is the scientific method of dating based on the analysis of patterns of tree growth rings called?
    **Dendrochronology**
45. True or false: water vapor is not a greenhouse gas.
    **False** (water vapor is a very important greenhouse gas)
46. True or false: the urban heat island effect is most noticeable during the day.
    **False** (the urban heat island effect is most noticeable during the night)
47. Thermohaline circulation refers to the global, _**density**_-driven motion of the Earth's oceans

48. What are dark spots on the photosphere of the sun called? Are they warmer or cooler than the rest of the photosphere? Are they associated with increased or decreased energy output from the sun?
    **Sunspots, Colder, Increased**
49. With respect to the plane of Earth's orbit, Earth's axial tilt varies between __**22.1**__ and __**24.5**__ degrees (please give answers to the nearest tenth of a degree). (order doesn't matter)
50. Earth's axial precession has a period of roughly __**26,000**__ years.

51. Name the class on the Köppen climate classification: temperate, dry summers, less than three months with mean temperatures above 10 °C.
    **Csc: Dry-summer maritime subalpine**

52. Figure H depicts the

**_rain_ _shadow_** effect.

53. What is the method of lift shown in Figure H?

**Orographic Lift**

Figure H

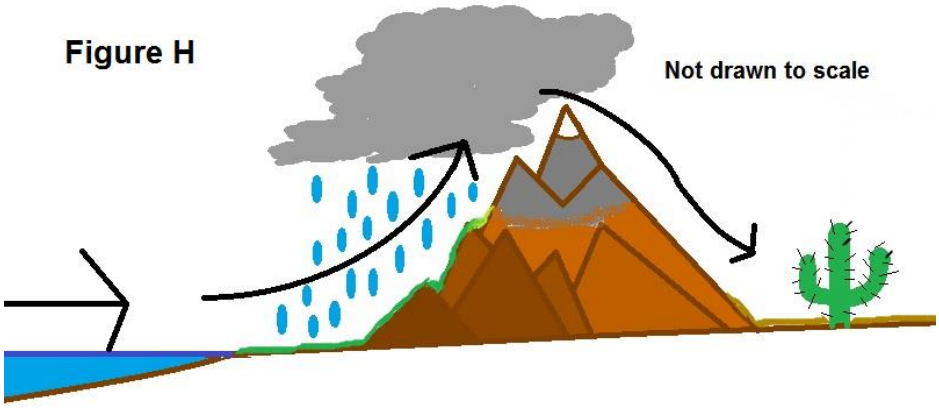
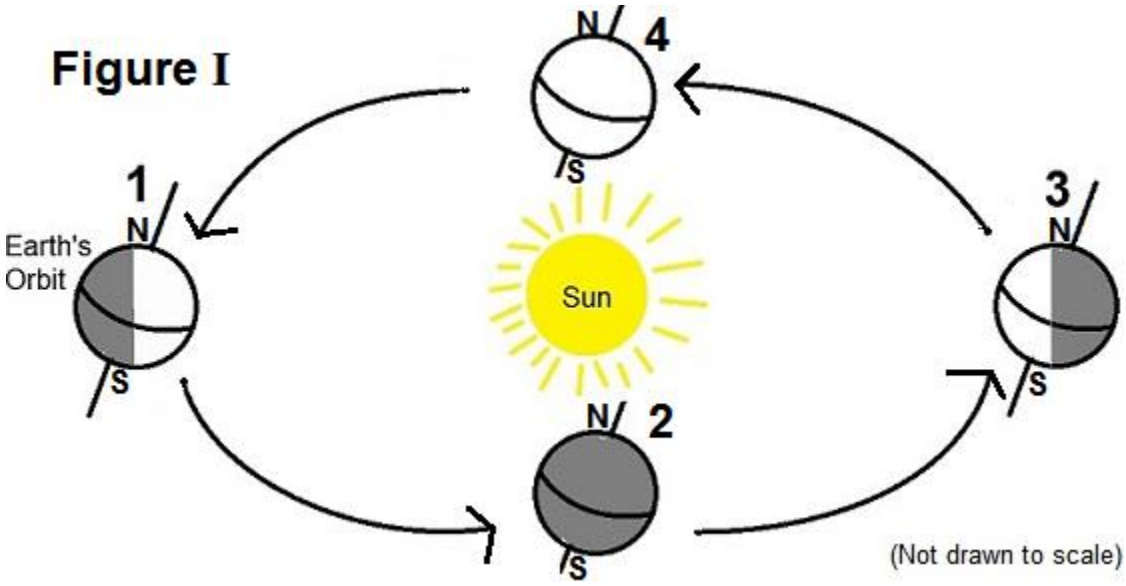



Figure I




54. In Figure I, which number refers to the position of the Earth during the June solstice?

**1**

55. In Figure I, which season occurs between positions 4 and 1 in the Southern Hemisphere?

**Autumn**

56. In Figure I, position 1 marks the start of which season in the Northern Hemisphere?

**Summer**

57. In Figure I, which number refers to the position of the Earth during the Northern Hemisphere's vernal equinox?

**4**

58. True or false: the Earth reaches perihelion in early January and aphelion in early July.

**True**

59. Is the Earth's axial tilt currently increasing or decreasing?

**Decreasing**

60. Under El Niño conditions, temperatures in British Columbia during its winter are generally __**higher** (or warmer, etc.)__ than usual.

61. Under El Niño conditions, Madagascar tends to have __**higher** (or warmer, etc.)__ temperatures and __**less**__ precipitation than usual during its summer.

62. True or false: Under El Niño conditions, from December to January, Florida tends to experience warmer and wetter conditions.

    **False** (Florida would tend to experience cooler and wetter conditions)

63. True or false: Under La Niña conditions, from December to January, Florida tends to experience cooler and drier conditions.

    **False** (Florida would tend to experience warmer and drier conditions)

64. __**A**__ What is another word for axial tilt?
    a) **Obliquity**
    b) Precession
    c) Insolation
    d) Eccentricity

65. Do ocean currents influence climate? **Yes**

66. Do fronts influence climate? **No**

67. What is the most significant variable gas by volume in the planetary boundary layer?

    **Water Vapor**

68. __**A**__ Which of the following generally has the highest albedo?
    a) **Fresh snow**
    b) Water
    c) Grass
    d) Blacktop

69. True or false: water's albedo can vary depending on the angle of the incoming solar radiation striking the surface of the water.

    **True**

70. Tiebreaker #1: how can particulate matter affect atmospheric temperatures on earth?

    **Answers may vary**: Aerosols can scatter and absorb incoming solar radiation. The scattering of insolation causes cooling, while the absorption of insolation causes warming. Aerosols can also serve as cloud condensation nuclei. The increased incidence of clouds will result in a less extreme diurnal temperature range.

71. Tiebreaker #2: IPCC is an abbreviation for what?

    **Intergovernmental Panel on Climate Change**