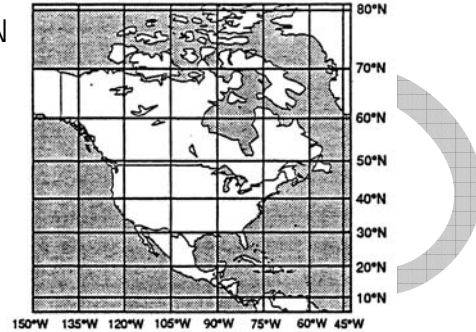


## WEATHER REVIEW 1

1. An air mass originating over the north Pacific Ocean would most likely be
- |                        |                     |
|------------------------|---------------------|
| 1 continental polar    | 3 maritime polar    |
| 2 continental tropical | 4 maritime tropical |

2. An air mass originates with its center located at 50°N and 145°W. Based on this map, this air mass would be classified as

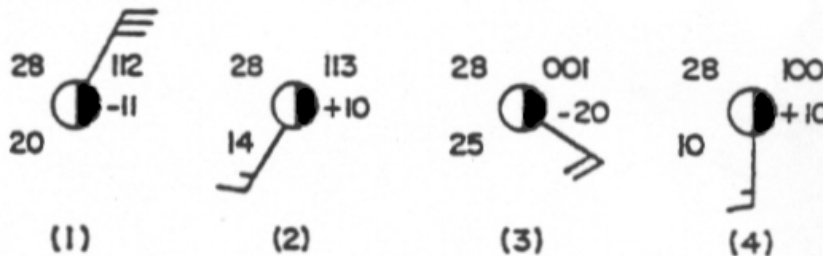
- |      |      |
|------|------|
| 1 cP | 3 cT |
| 2 mP | 4 mT |



3. Which type of air mass would most likely have low humidity and high air temperature?

- |      |      |
|------|------|
| 1 cT | 3 mT |
| 2 cP | 4 mP |

4. Which weather station model indicates the greatest probability of precipitation?



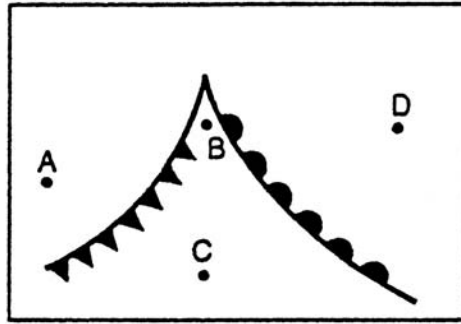
5. Hurricanes accounted for an average of 17 deaths per year from 1972 until 1991. However, the hurricane of 1938 was responsible for at least 600 deaths as it moved across Long Island into New England. What is the best explanation for the decrease in hurricane related deaths in recent years?

- 1 Hurricanes prior to 1970 were of greater intensity than all recent hurricanes.
- 2 Recent hurricanes have not struck populated areas.
- 3 Recent forecasts are more accurate due to the use of satellite data.
- 4 Recent forecasts are more accurate because fewer weather instruments are used.

6. In New York State, which is one indication of an approaching cold front?

- 1 light rain for 6 hours
- 2 increasing barometric pressure
- 3 stratus clouds moving in from the east
- 4 cumulonimbus clouds moving in from the west

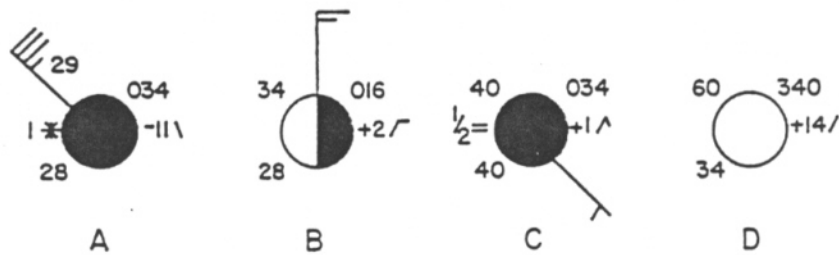
The map below represents a section of a surface weather map showing weather stations A through D.



7. At which weather station are the most unstable weather conditions occurring?

- |     |     |
|-----|-----|
| 1 A | 3 C |
| 2 B | 4 D |

Base your answers to **questions 8-12** on the *Earth Science Reference Tables* and the diagrams below of four weather station models. Weather data were recorded at four different locations at the same time.



8. Which station has an air temperature of 34°F?

- |     |     |
|-----|-----|
| 1 A | 3 C |
| 2 B | 4 D |

9. The wind direction at station C is from the

- |             |             |
|-------------|-------------|
| 1 northeast | 3 southwest |
| 2 northwest | 4 southeast |

10. What is the air pressure at station D?

- |            |             |
|------------|-------------|
| 1 340.0 mb | 3 1003.4 mb |
| 2 934.0 mb | 4 1034.0 mb |

11. Which station shows that the present air pressure reading is lower than it was 3 hours ago?

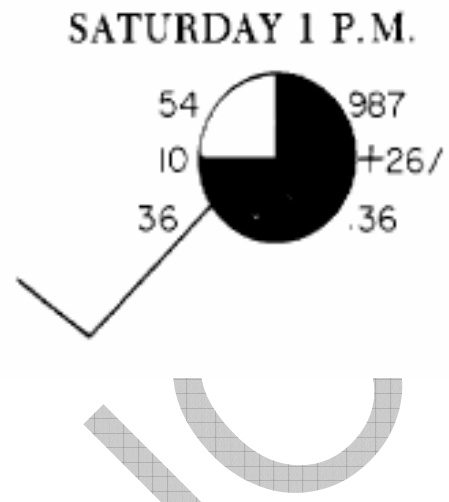
- |     |     |
|-----|-----|
| 1 A | 3 C |
| 2 B | 4 D |

12. At which station are there winds of 35 knots?

- |     |     |
|-----|-----|
| 1 A | 3 C |
| 2 B | 4 D |

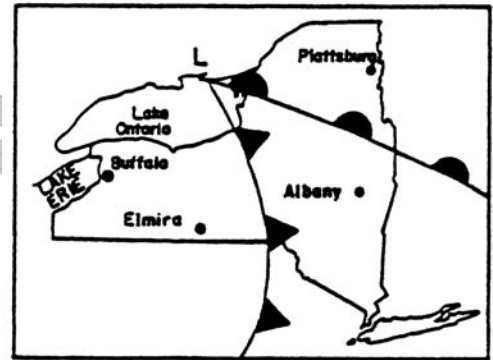
Base your answers to **questions 13-14** on the diagram to the right which represents a weather station model for a given location.

13. What was the barometric pressure in millibars at this station on Saturday at 10 a.m.?
- |            |              |
|------------|--------------|
| 1 984.4 mb | 3 1,001.3 mb |
| 2 996.1 mb | 4 1,013.0 mb |
14. What is the approximate humidity of the air mass at this station?
- |       |       |
|-------|-------|
| 1 16% | 3 50% |
| 2 18% | 4 67% |

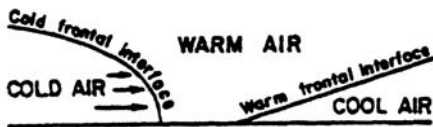


Base your answers to **questions 15-16** on the weather map shown to the right.

15. Which city is in the warmest air mass?
- |           |              |
|-----------|--------------|
| 1 Buffalo | 3 Albany     |
| 2 Elmira  | 4 Plattsburg |
16. Which city has most recently experienced a change in wind direction, brief heavy precipitation, and a rapid drop in air temperature?
- |              |          |
|--------------|----------|
| 1 Buffalo    | 3 Albany |
| 2 Plattsburg | 4 Elmira |



Answer **questions 17-18** based on the diagram below. The diagram below represents a cross-sectional view of air masses associated with a low-pressure system. The cold frontal interface is moving faster than the warm frontal interface.



17. The above diagram and the description provided best describes the first stages in the development of
- |                |                     |
|----------------|---------------------|
| 1 a warm front | 3 an occluded front |
| 2 a cold front | 4 a hurricane       |
18. What usually happens to the warm air that is between the two frontal surfaces?
- 1 The warm air is forced over both frontal surfaces.
  - 2 The warm air is forced under both frontal surfaces.
  - 3 The warm air is forced over the cold frontal surface but under the warm frontal surface.
  - 4 The warm air is forced under the cold frontal surface but over the warm frontal surface.

Base your answers to **questions 19-24** on your knowledge of Earth Science and the satellite photograph below. In the satellite photograph, a tropical storm which formed off the southeast coast of Florida is centered off the Atlantic Coast of the United States. An outline of the states, and the latitude-longitude system have been superimposed on the photograph.

19. The center or eye of the tropical storm shown on the satellite photo is closest to
- 1 45°N, 71°W
  - 2 71°N, 45°W
  - 3 36°N, 71°W
  - 4 71°N, 36°W

20. Which symbol identifies the type of air mass that makes up this tropical storm?

- |      |      |
|------|------|
| 1 cT | 3 mT |
| 2 cP | 4 mP |

21. What is the general direction of movement of the surface winds associated with this tropical storm center?

- 1 clockwise and toward the center
- 2 clockwise and outward from the center
- 3 counterclockwise and toward the center
- 4 counterclockwise and outward from the center

22. At the time that this photograph was taken, most of New York State was generally experiencing

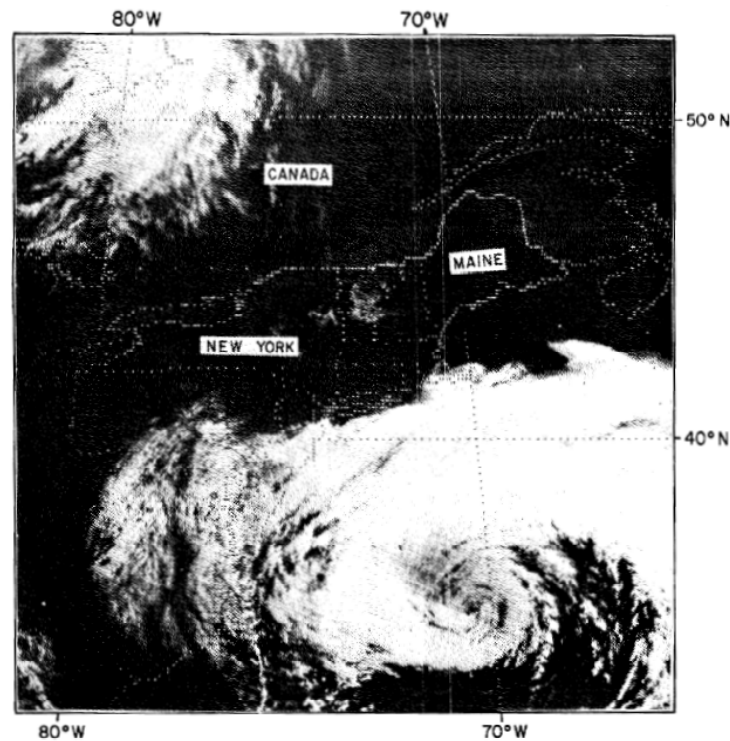
- 1 scattered showers from partially cloudy skies
- 2 clear skies with sunny weather
- 3 light overcast skies with no rain
- 4 heavy rains from heavily overcast skies.

23. As the center of this tropical storm approaches a location on the Earth's surface, the barometric pressure at that location would

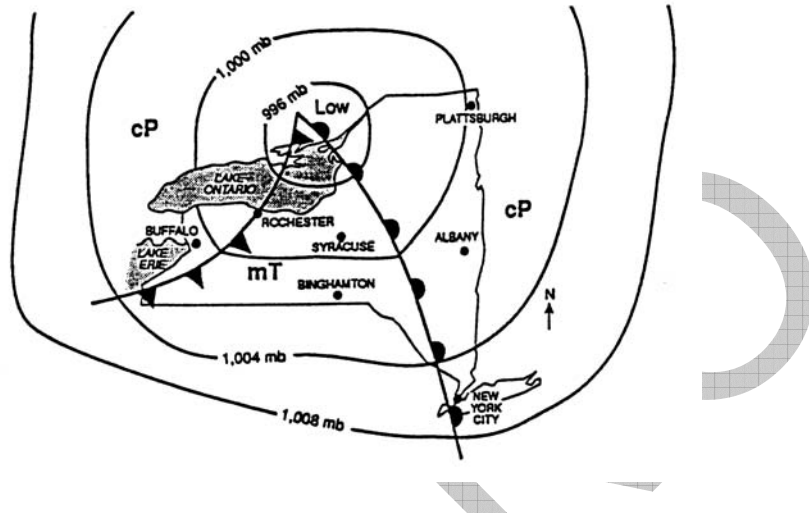
- |            |            |                   |
|------------|------------|-------------------|
| 1 decrease | 2 increase | 3 remain the same |
|------------|------------|-------------------|

24. What was the probable source of moisture for this hurricane?

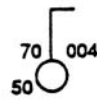
- 1 carbon dioxide from the atmosphere
- 2 winds from the coastal deserts
- 3 transpiration from tropical jungles
- 4 evaporation from the ocean



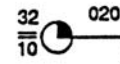
Base your answers to **questions 25-29** on the *Earth Science Reference Tables* your knowledge of Earth Science, and the map shown below. The map shows a low-pressure storm system located over New York State in midsummer.



25. Which weather station model best represents the weather conditions in Albany, where a slow, steady drizzle is occurring?



(1)



(3)



(2)



(4)

26. In which city is a thunderstorm most likely occurring?

- |              |                 |
|--------------|-----------------|
| 1 Rochester  | 3 Plattsburgh   |
| 2 Binghamton | 4 New York City |

27. Low pressure air masses over New York State usually appear on a series of satellite photographs as

- |                                 |  |
|---------------------------------|--|
| 1 counterclockwise cloud swirls | 3 straight lines of clouds                   |
| 2 totally clear areas           | 4 rings of clouds with a large, clear center |

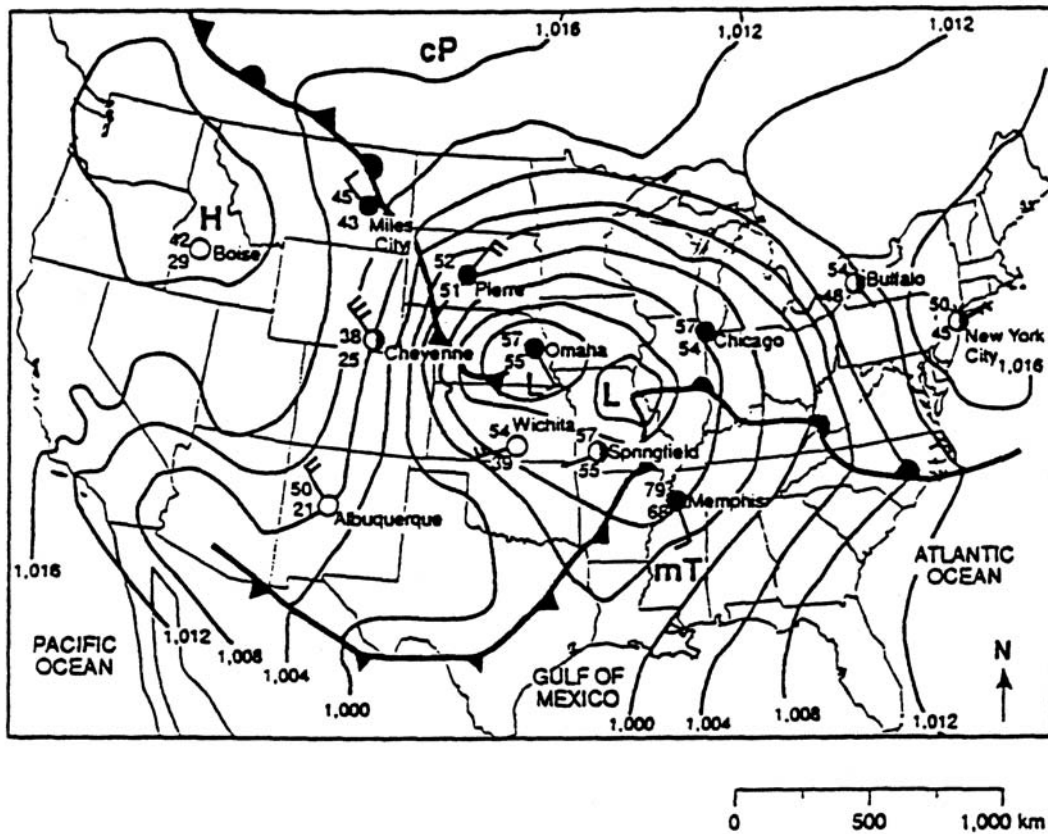
28. Which city has the highest air pressure?

- |             |                 |
|-------------|-----------------|
| 1 Rochester | 3 Plattsburgh   |
| 2 Syracuse  | 4 New York City |

29. Most weather systems move across New York State from

- |                  |                |
|------------------|----------------|
| 1 north to south | 3 west to east |
| 2 south to north | 4 east to west |

Base your answers to **questions 30-33** on the *Earth Science Reference Tables* your knowledge of Earth Science, and the map of the United States below.



30. Which kind of frontal system is located northwest of Miles City, Montana?
- |              |                    |
|--------------|--------------------|
| 1 cold front | 3 stationary front |
| 2 warm front | 4 occluded front   |
31. The weather front west of Memphis, Tennessee is moving at a speed of 50 km/hr. What is the most likely weather forecast for Memphis over the next 12 hours?
- 1 showers followed by clearing skies and cooler temperatures
  - 2 showers followed by warm, humid conditions
  - 3 clearing skies followed by warm, dry conditions
  - 4 a continuation of the present weather conditions
32. The air mass over Memphis, Tennessee most likely originated in
- |                     |                             |
|---------------------|-----------------------------|
| 1 the North Pacific | 3 the central United States |
| 2 central Canada    | 4 the Gulf of Mexico        |
33. According to the map, at which city is precipitation most likely occurring
- |                   |                           |
|-------------------|---------------------------|
| 1 Boise, Idaho    | 3 Albuquerque, New Mexico |
| 2 Omaha, Nebraska | 4 New York City, New York |

Base your answers to **questions 34-38** on the *Earth Science Reference Tables*, the diagram below, and your knowledge of Earth Science. The diagram represents a weather system over the central United States. Letters A, B, C, D, and E indicate weather stations on the map.

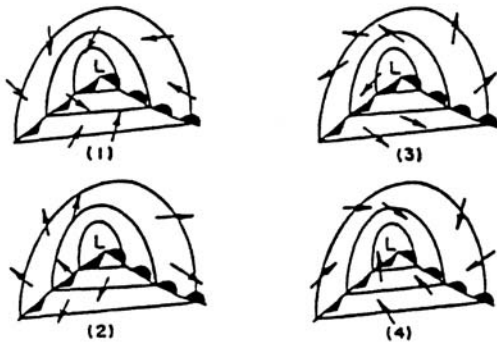
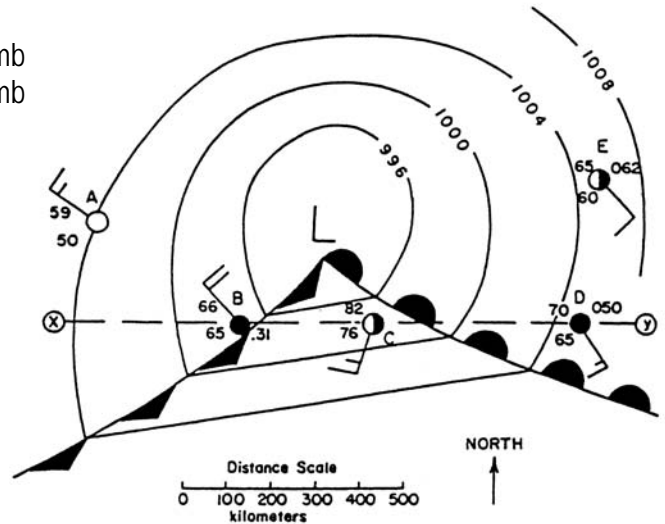
34. What is the air pressure at weather station A?

- |           |           |
|-----------|-----------|
| 1 1069 mb | 3 1004 mb |
| 2 1064 mb | 4 1000 mb |

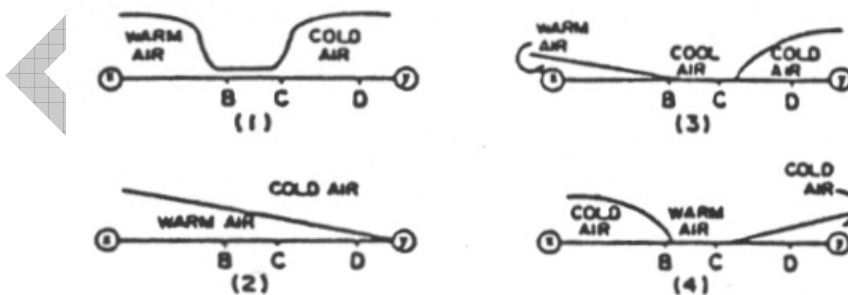
35. Which weather station is experiencing clouds, heavy precipitation, and rapidly decreasing air temperature?

- |     |     |
|-----|-----|
| 1 A | 3 E |
| 2 B | 4 D |

36. In which diagram do the arrows best represent the wind direction in the weather system?



37. Which diagram best represents a cross section of the Earth's atmosphere showing the fronts between air masses as they would appear along line x-y?



38. If the weather system follows a normal storm track at a speed of 50 km/hr, which best describes the atmospheric changes which will most likely occur at weather station C in about six hours?

- 1 air temperature increase, air pressure increase, and clearing sky
- 2 precipitation, air pressure increase, and air temperature decrease
- 3 air temperature increase, no change in air pressure, and clearing sky
- 4 little atmospheric change with a low probability of precipitation