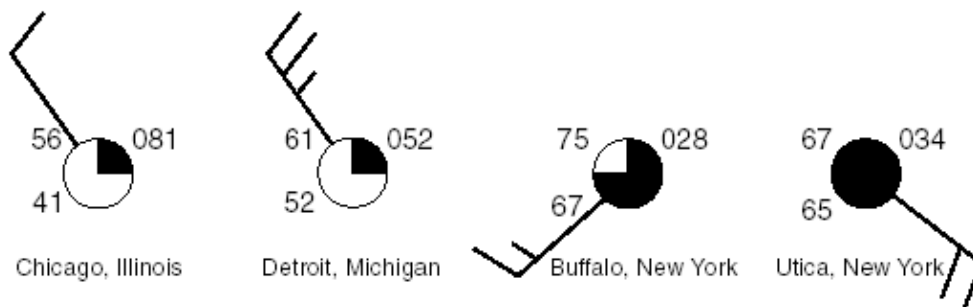# METEOROLOGY REVIEW

Base your answers to **questions 1 through 3** on the station models below, which show various weather conditions recorded at the same time on the same day at four different cities.

Chicago, Illinois   Detroit, Michigan   Buffalo, New York   Utica, New York

1. Which wind speed was recorded at Detroit?
    (1) 15 knots   (3) 35 knots
    (2) 25 knots   (4) 45 knots

2. Which city had the lowest relative humidity?
    (1) Chicago   (3) Buffalo
    (2) Detroit   (4) Utica

3. Which weather symbol best represents the type of precipitation that was most likely occurring in Utica?


    (1)   (2)   (3)   (4)
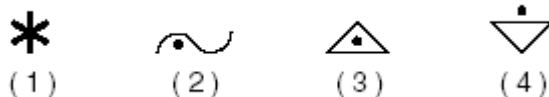
4. On which station model would the present weather symbol * most likely be found?


    (1)   (2)   (3)   (4)
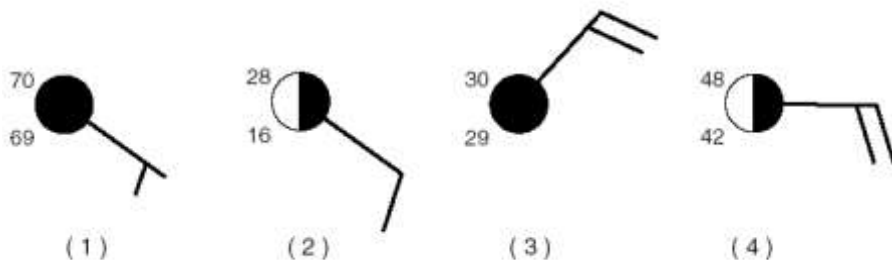
5. Air masses are identified on the basis of temperature and
    (1) type of precipitation   (3) moisture content
    (2) wind velocity   (4) atmospheric transparency

Base your answers to questions 6 through 8 on the weather map, which shows a low-pressure system over the eastern United States. Letters A through D represent weather stations.
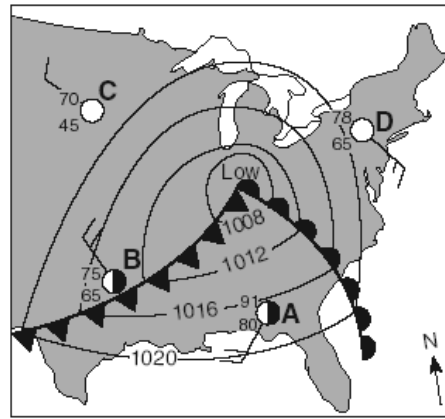
6. Which station model correctly represents the barometric pressure at station A?

(1)   (2)   (3)   (4)
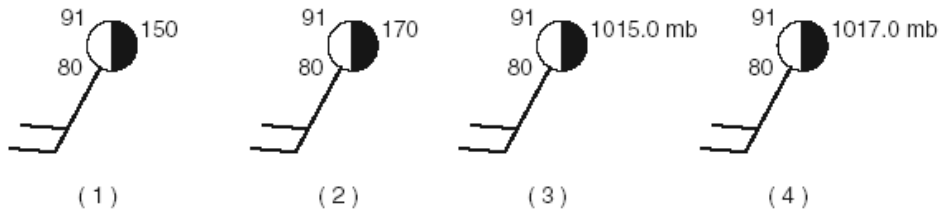
7. Which weather instrument was used to measure wind speed at station D?
   (1) barometer   (3) psychrometer
   (2) thermometer   (4) anemometer

8. Surface winds within this low-pressure system most likely are flowing
   (1) toward the center in a clockwise pattern
   (2) toward the center in a counterclockwise pattern
   (3) away from the center in a clockwise pattern
   (4) away from the center in a counterclockwise pattern

9. The map shows a weather variable recorded at noon on a certain day. Isolines show values from 20 to 70.

   Which atmospheric variable is most likely represented by the isolines on this map?
   (1) snowfall in inches
   (2) wind speed in knots
   (3) barometric pressure in millibars
   (4) air temperature in degrees Fahrenheit
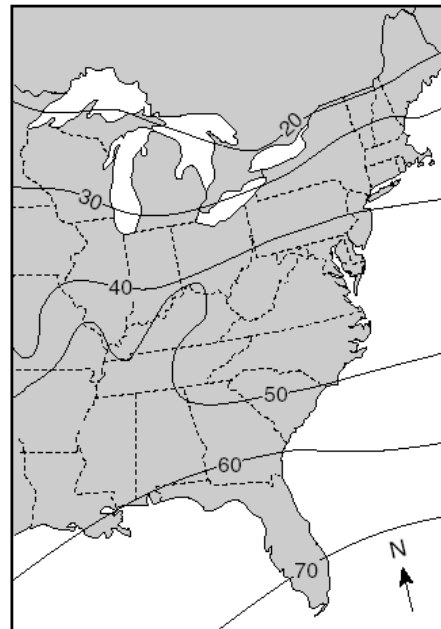
10. A weather station model is shown below. What is the barometric pressure indicated by this station model?
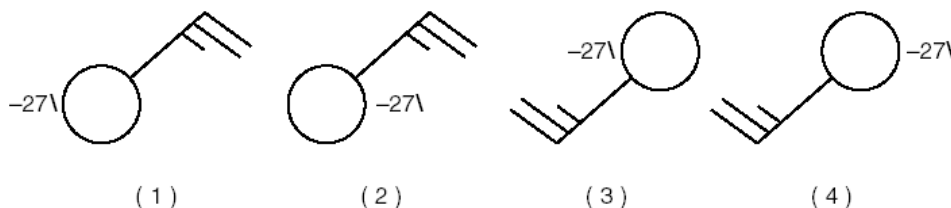(1) 0.029 mb
(3) 1002.9 mb
(2) 902.9 mb
(4) 1029.0 mb
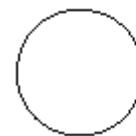
11. Which type of air mass is associated with warm, dry atmospheric conditions?
(1) cP
(3) mP
(2) cT
(4) mT

12. Which station model correctly represents the weather conditions in an area that is experiencing winds from the northeast at 25 knots and has had a steady drop in barometric pressure of 2.7 millibars during the last three hours?

(1)   (2)   (3)   (4)

Base your answers to questions 13 and 14 on the graph below, which shows air temperature, dewpoint, and present weather conditions for a 23-hour period at Dallas, Texas.
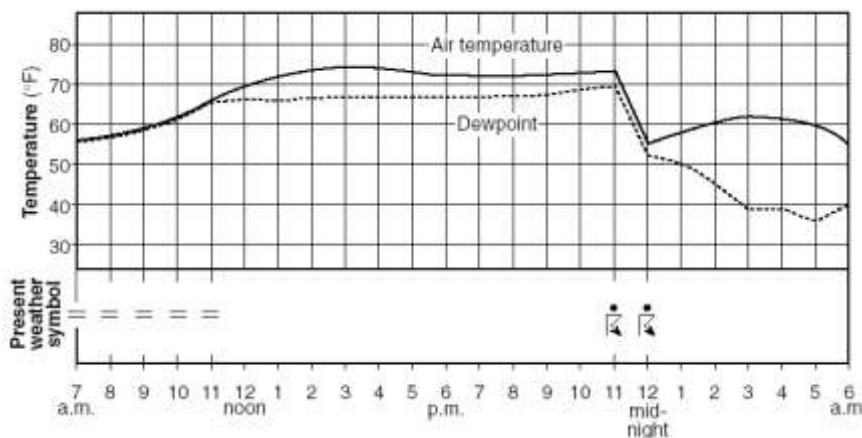
13. The thunderstorm that occurred between 11 p.m. and 12 midnight was most likely the result of
(1) the arrival of a warm front
(2) the arrival of a cold front
(3) an increase in the difference between air temperature and dewpoint
(4) an increase in both air temperature and dewpoint

14. Which weather condition was reported at Dallas when the air temperature was equal To the dewpoint?
(1) fog
(3) thunderstorm
(2) rain
(4) drizzle

Base your answers to questions 15 through 17 on the weather map below, which shows a high-pressure center (**H**) and a low-pressure center (**L**), with two fronts extending from the low-pressure center. Points *X* and *Y* are locations on the map connected by a reference line.
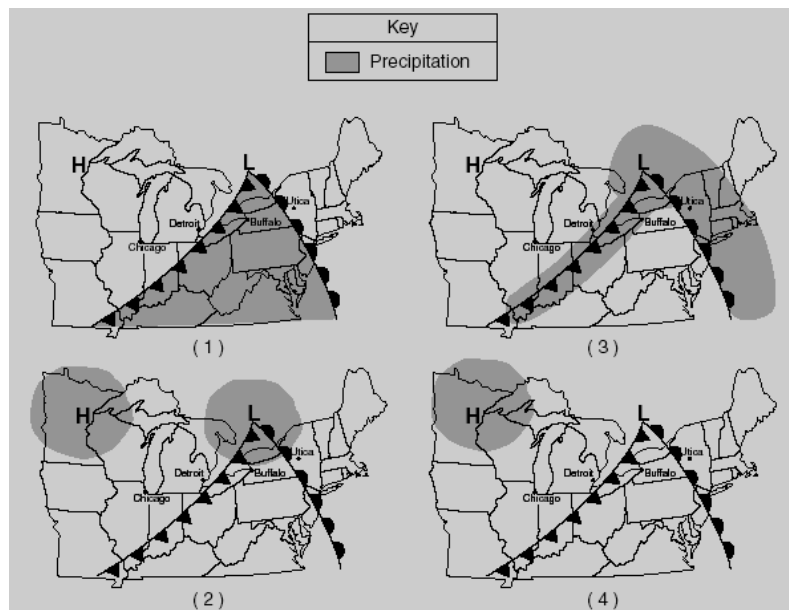
15. Which type of front is located between Buffalo and Detroit?
    (1) stationary
    (2) warm
    (3) occluded
    (4) cold
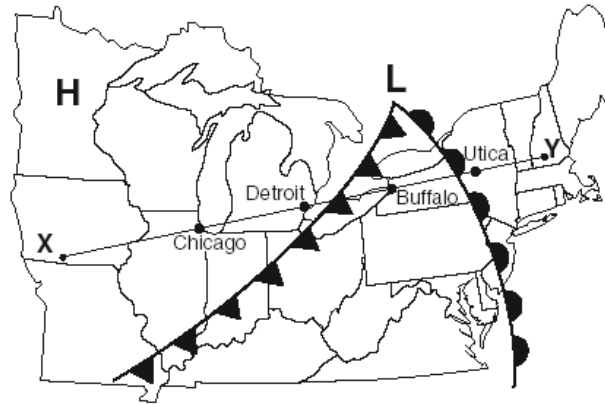
16. Which cross section best represents the fronts and air movements in the lower atmosphere along line *XY*?
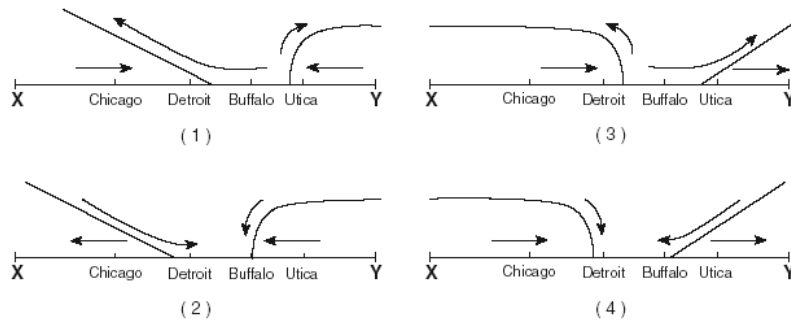

17. Which map best shows the most probable areas of precipitation associated with these weather systems?

18. In the United States, most tornadoes are classified as intense
    (1) low-pressure funnel clouds that spin clockwise
    (2) low-pressure funnel clouds that spin counter-clockwise
    (3) high-pressure funnel clouds that spin clockwise
   (4) high-pressure funnel clouds that spin counterclockwise

19. Which station model shows the correct form for indicating a northwest wind at 25 knots and an air pressure of 1023.7 mb?
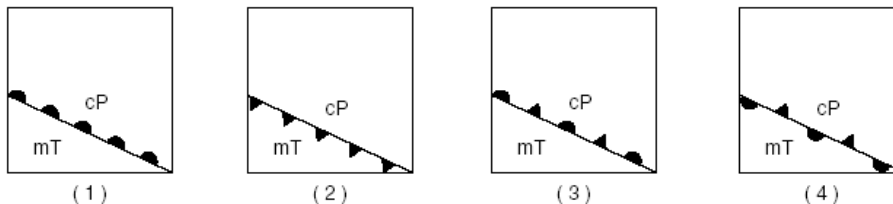
    (1)   (2)   (3)   (4)
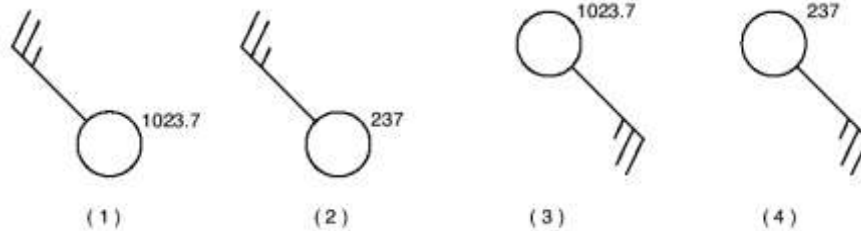
20. Which weather map symbol represents air masses that normally form just south of the United States over the Caribbean Sea?
    (1) cP   (3) mP
    (2) cT   (4) mT

21. The map below shows the boundary between two air masses. The arrows show the direction in which the boundary is moving.
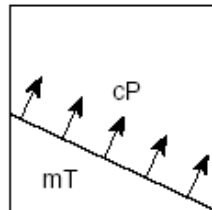
   Which weather map uses the correct weather front symbol to illustrate this information?

    (1)   (2)   (3)   (4)

22. Which geographic area is a common source region for cP air masses that move into New York State?
    (1) southwestern United States   (3) the north Pacific Ocean
    (2) central Canada   (4) the Gulf of Mexico
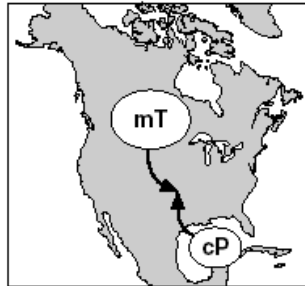
23. The properties of an air mass are mostly determined by the
    (1) rate of Earth's rotation
    (2) direction of Earth's surface winds
    (3) source region where the air mass formed
    (4) path the air mass follows along a land surface
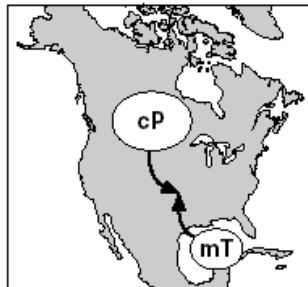
24. Which map shows the two correctly labeled air masses that frequently converge in the central plains to cause tornadoes?
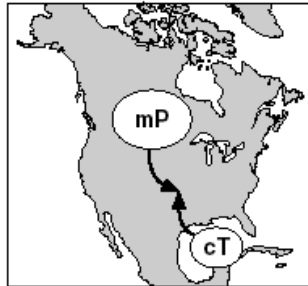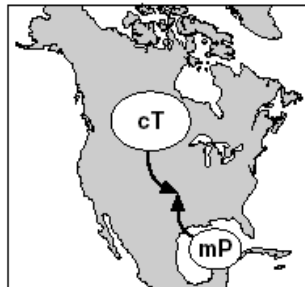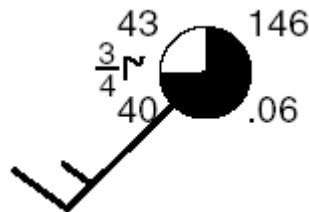

25. Various weather conditions at LaGuardia Airport in New York City are shown on the station model below.

What were the barometric pressure and weather conditions at the airport at the time of the observation?
(1) 914.6 mb of pressure and smog
(2) 914.6 mb of pressure and a clear sky
(3) 1014.6 mb of pressure and smog
(4) 1014.6 mb of pressure and a clear sky

26. The surface winds in a typical Northern Hemisphere high-pressure system are generally moving
    (1) counterclockwise away from the high-pressure center
    (2) counterclockwise toward the high-pressure center
    (3) clockwise away from the high-pressure center
    (4) clockwise toward the high-pressure center

Base your answers to questions 27 through 29 on the weather map below and on your knowledge of Earth science. The weather map shows a typical low-pressure system and associated weather fronts labeled *A* and *B*. The L indicates the center of the low-pressure system. A few New York State cities are shown. Symbols cP and mT represent different air masses. The wind direction at Utica and Rochester is shown on the station models.
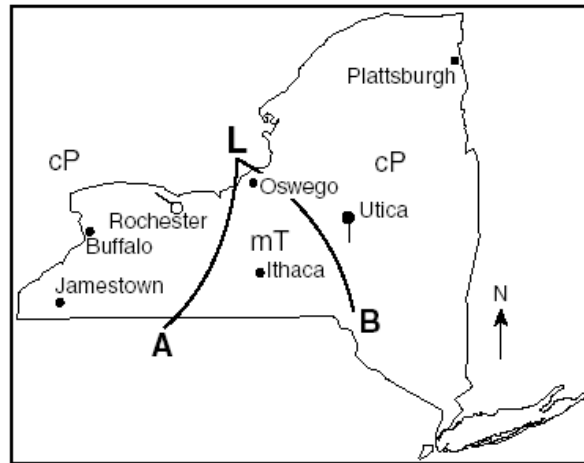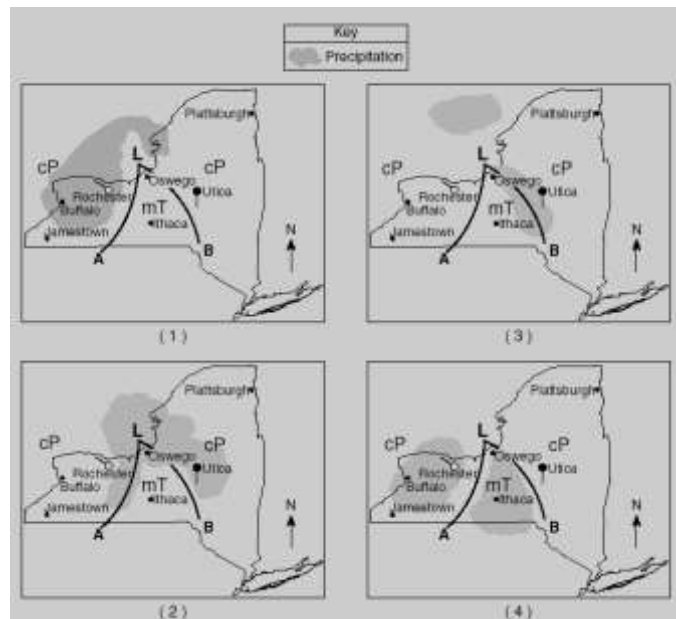

27. Which front symbols   ?

(1)   (2)   (3)   (4)
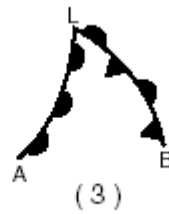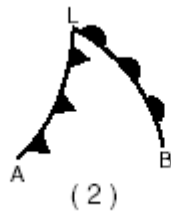
28. If this weather system is following a normal storm track, the center of this low is most likely moving toward which city?
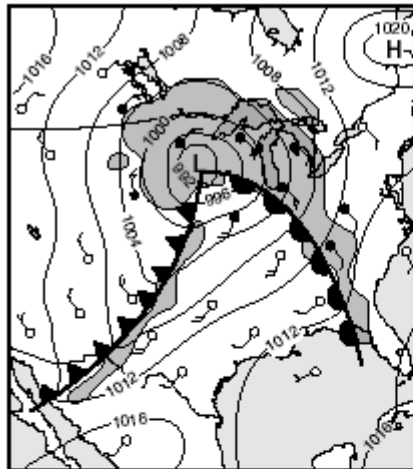   (1) Buffalo   (3) Utica
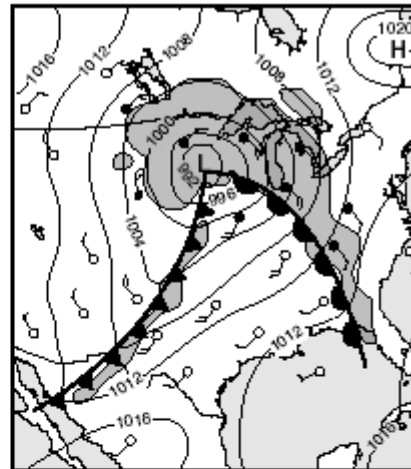   (2) Ithaca   (4) Plattsburgh

29. Which map shows the regions that are most likely experiencing the precipitation associated with this weather system?
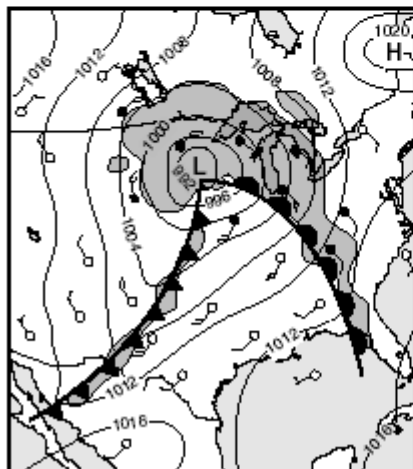
30. On which weather map do the front symbols best represent the direction of movement of the cold front and warm front associated with the low-pressure system shown on the map?
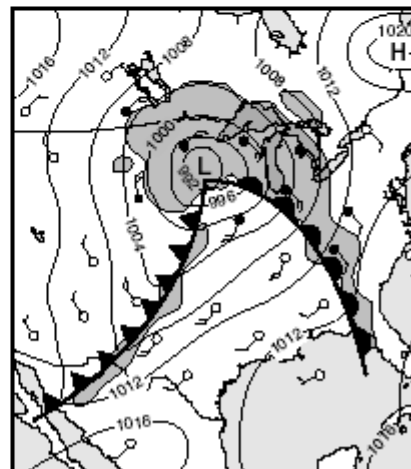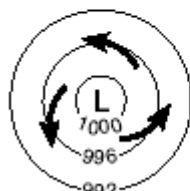
(1)

(3)

(2)

(4)

31. Which map view best represents the pattern of isobar values, in millibars, and the pattern of wind flow, shown by arrows, at Earth's surface surrounding a Northern Hemisphere low-pressure center?

(1)

L
992
996
1000

(3)

L
992
996
1000

(2)

L
1000
996
992

(4)

L
1000
996
992