1. On which station model would the present weather symbol * most likely be found?



Base your answer to question 2 on the weather map, which shows a low-pressure system over the eastern United States. Letters *A* through *D* represent weather stations.

2. Which station model correctly represents the barometric pressure at station *A*?





Base your answers to **questions 3 through 5** on the station models below, which show various weather conditions recorded at the same time on the same day at four different cities.



3. Which wind speed was recorded at Detroit?

(1) 15 knots	(3) 35 knots
(2) 25 knots	(1) 15 knots

- (2) 25 knots (4) 45 knots
- 4. Which city had the lowest relative humidity?
 - (1) Chicago(3) Buffalo(2) Detroit(4) Utica
- 5. Which weather symbol best represents the type of precipitation that was most likely occurring in Utica?



6. 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?



7. 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
- 8. 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

Base your answers to **questions 9 and 10** on the graph below, which shows air temperature, dewpoint, and present weather conditions for a 23-hour period at Dallas, Texas.

029



- 9. 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
- 10. Which weather condition was reported at Dallas when the air temperature was equal to the dewpoint?
 - (1) fog (3) thunderstorm
 - (2) rain

(4) drizzle

11. Which station model shows the correct form for indicating a northwest wind at 25 knots and an air pressure of 1023.7 mb?



12. 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



Base your answers to **questions 13 through 16** on the satellite image below, which shows a Northern Hemisphere hurricane, and on your knowledge of Earth science.



- 13. What is the usual surface wind pattern around the eye of Northern Hemisphere hurricanes?
 - (1) clockwise and outward(2) clockwise and inward

- (3) counterclockwise and outward(4) counterclockwise and inward
- 14. Which air mass is normally associated with the formation of hurricanes?
 - (1) continental tropical
 - (2) maritime tropical

- (3) continental polar
- (4) maritime polar
- 15. Clouds form in the hurricane because the air is
 - (1) sinking, expanding, and cooling
 - (2) sinking, compressing, and warming
- (3) rising, expanding, and cooling
- (4) rising, compressing, and warming
- 16. When the eye of this hurricane reaches 43° N latitude, this hurricane will most likely be pushed by planetary winds toward the
 - (1) northwest
 - (2) northeast

(3) southwest(4) southeast

17. Weather data is normally recorded at positions *A*, *B*, *C*, and *D* on the weather station model shown.

At which position should the measurements from a rain gauge be recorded? (1) *A* (3) *C*

(2) B

- A B D
- 18. Which cross section below best represents the conditions that cause early winter lake-effect snowstorms in New York State?

(4) D



19. Which weather-station model shows an air pressure of 993.4 millibars?



20. On the map to the right, dark-gray areas represent regions of lake-effect snow on a December day.

Which New York State location appears to be experiencing a lake-effect snowstorm?

- (1) New York City(2) Utica
- (3) Plattsburgh (4) Watertown



099

(1)

993

934

034

(4)

(8)

03

- 21. What are the dewpoint and wind direction shown on the station model?
 - (1) 72°F and wind from the northeast
 - (2) 72°F and wind from the southeast
 - (3) 74°F and wind from the northwest
 - (4) 74°F and wind from the southwest

72

74

002

Weather station models for three New York State cities on the same day at the same time are shown below.



22. Which map shows the front that was most likely passing through Rochester at that time?



23. Arrows on the maps below show differences in the direction of winds in the region of India and the Indian Ocean during January and July. Isobar values are recorded in millibars.



Heavy monsoon rains usually occur in India during (1) January, when winds blow from the land (2) January, when winds blow toward high pressure

(3) July, when winds blow from the ocean

(4) July, when winds blow toward high pressure

24. The map below shows a typical position and average velocity of the polar front jet stream during two different seasons For the eastern United States, the change of the polar front jet stream from this summer position to this winter position causes



(1) warmer temperatures farther north and causes storms to move more slowly

(2) warmer temperatures farther north and causes storms to move more rapidly

(3) cooler temperatures farther south and causes storms to move more slowly

(4) cooler temperatures farther south and causes storms to move more rapidly

Base your answers to **questions 25 through 28** on the weather map below. The map shows isobars and seven weather station models. Four of the weather stations are identified by letters *A*, *B*, *C*, and *D*.

25.	Which New Y	ork State weather station had
	clear skies?	
	(1) Albany	(3) New York City
	(2) Buffalo	(4) Syracuse

26. Which weather station had the highest relative humidity?(1) A(3) C

27. What was the probable air pressure, in millibars, at station D?(1) 1015 0 mb(2) 1021 0 mb

(1) 1015.0 mb	(3) 1021.0 mb
(2) 1017.0 mb	(4) 1036.0 mb



28. Which weather information shown at station B was measured with an anemometer and weather vane?



29. Which map below shows the most likely storm track for a hurricane () in the Atlantic Ocean?



- 30. A large number of thunderstorms occur in the southeastern United States. Which type of air mass is most likely the main source of the moisture that produces these thunderstorms?
 - 1 continental tropical
 - 2 continental polar

- 3 maritime tropical
- 4 maritime polar
- 31. Tornadoes occur when a very cold, dry air mass meets a very warm, wet air mass. Which two air masses would most likely form a tornado when they meet?
 - 1 cP and cA
 - 2 cT and mP

- 3 cP and mT
- 4 mP and mT

The map to the right shows the average yearly number of thunderstorms in the continental United States.

- 32. Approximately how many thunderstorms occur yearly
 - in Albany, New York State? 1 15 3 35 2 25 4 45
 - 2 25 4 45



Base your answers to **questions 33-37** on your knowledge of Earth Science and the satellite photograph to the right. In the satellite photograph, a tropical storm (white cloud swirl) is centered in the Gulf of Mexico. An outline of the southeastern part of the United States and the latitude-longitude system have been drawn on the photograph.

- TOP W BOW BOW SOL N 20'N 100'W BOW BOW
- 33. The center of the eye of the tropical storm on the satellite photograph is closest to
 - 1 25°N, 88°W
 - 2 91°N, 24°W

- 3 24°N, 91°W
- 4 88°N, 25°W
- 34. What type of air mass would most likely be associated with the storm in the satellite photograph?
 - 1 warm and moist
 - 2 warm and dry
- 35. Which map best represents the surface air pressure field of this tropical storm? [The solid lines represent isobars.]
- 3 cold and moist4 cold and dry







- 36. At the time this photograph was taken, the weather conditions at point X could be described as
 - 1 partial cloud cover with scattered precipitation
- 3 heavy precipitation associated with the storm
- 2 heavy cloud cover but not precipitation
- 4 clear skies and sunny
- 37. What is the primary source of moisture for this storm?
 - 1 transpiration from tropical jungles
 - 2 evaporation of ocean water

- 3 evaporation of river water
- 4 melting of southern glaciers