National Science Olympiad Exam Name _____

North Carolina State University, 1997 Interpreting Weather Maps

Background information: Surface observations are an easy-to-read informational source of current weather conditions and limited predications of near-future events. During this exam you will use several weather charts and other reference materials to plot and decipher the weather for the Midwest United States.

Column 1 of Table I lists several reporting stations within the USA. Each reporting station has been identified with its three-letter code.

MPX [Minneapolis, MN]	**DDC** [Dodge City, KS]	**OAX** [Omaha, NE]
ABR [Aberdeen, SD]	**ILX** [University of Illinois]	**GRD** [Green Bay, WI]
	RAP [Rapid City, SD]	

1. Plot the data appearing on the May 1 and May 2, 1997, weather maps onto the respective charts below. The dew point is the temperature at which the air becomes saturated [100% saturation]. All temperatures are stated in degrees Fahrenheit. A reference key to the weather map symbols may be found at the back of this packet.

Convert the barometric pressure values recorded on these weather maps to millibars.

> For reported values greater than 500, insert "9" in front of the stated value. Then divide by 10. Example: 927 first becomes 9927. This value is then divided by 10 to obtain a value of 992.7 mb.
>
> For reported values less than 500, insert "10" in front of the stated value. Then divide by 10. Example: 027 first becomes 10027. This value is then divided by 10 to obtain a value of 1002.7 mb.

Table I: Weather Data for May 1, 1997

Station	Temp.	Wind Speed	Wind Direction	%Cloud Cover	Dew Point	Barometric Press.	Weather
DDC	°F	kts		%	°F	mb	
MPX	°F	kts		%	°F	mb	
ILX	°F	kts		%	°F	mb	
GRB	°F	kts		%	°F	mb	

Table II: Weather Data for May 2, 1997

Station	Temp.	Wind Speed	Wind Direction	%Cloud Cover	Dew Point	Barometric Press.	Weather
DDC	°F	kts		%	°F	mb	
MPX	°F	kts		%	°F	mb	
ILX	°F	kts		%	°F	mb	
RAP	°F	kts		%	°F	mb	

2. Plot the data from the weather map for May 5, 1997, onto Table III below.

Table III: Weather Data for May 5, 1997

Station	Temp.	Wind Speed	Wind Direction	%Cloud Cover	Dew Point	Barometric Press.	Weather
DDC	°F	kts		%	°F	mb	
MPX	°F	kts		%	°F	mb	
ILX	°F	kts		%	°F	mb	
RAP	°F	kts		%	°F	mb	

3a. What can you infer from the data plotted for May 1, 1997 through May 2, 1997 as it crossed the Midwest? _____

_____

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_____

3b. Describe how Minneapolis was affected? _____

_____

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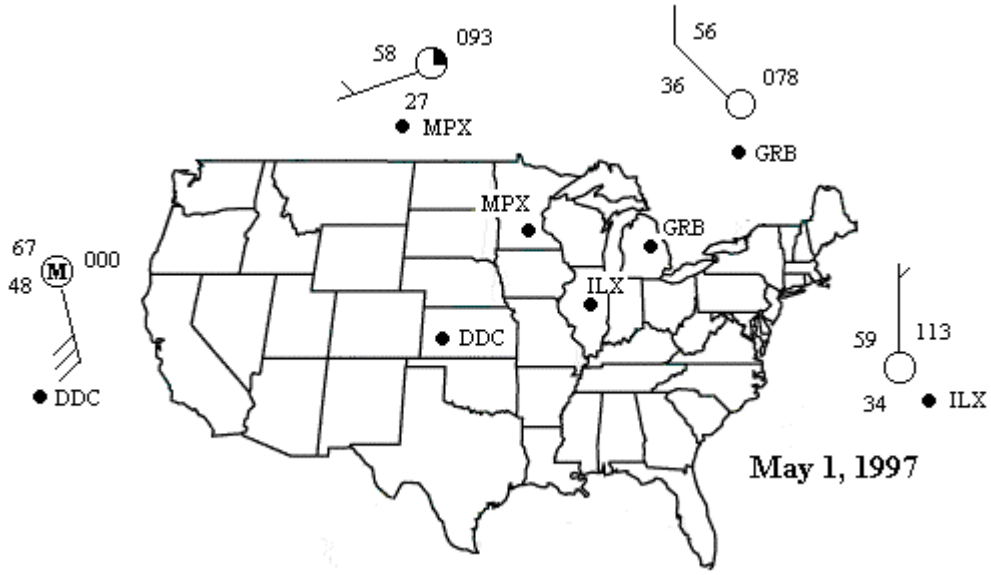
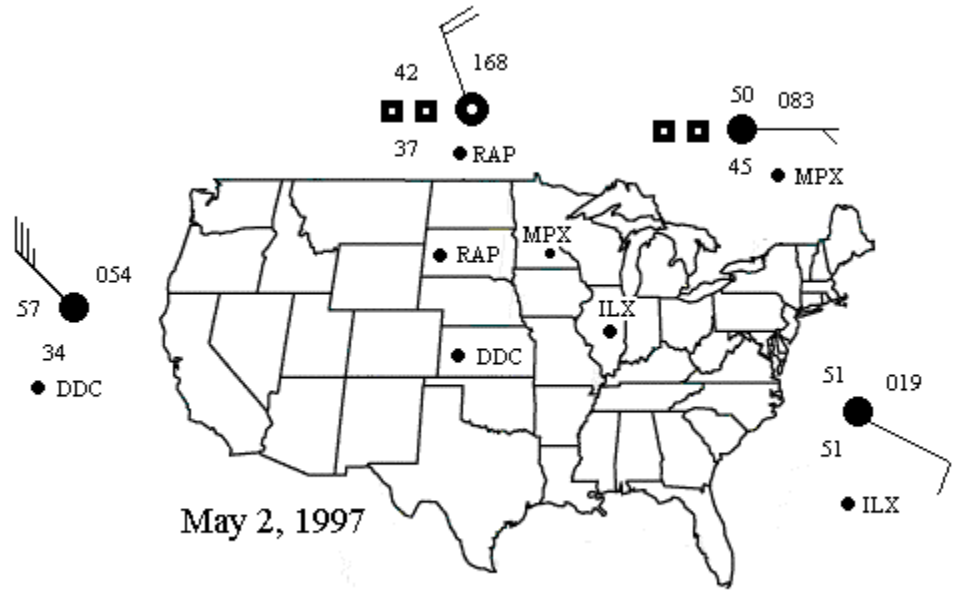
_____

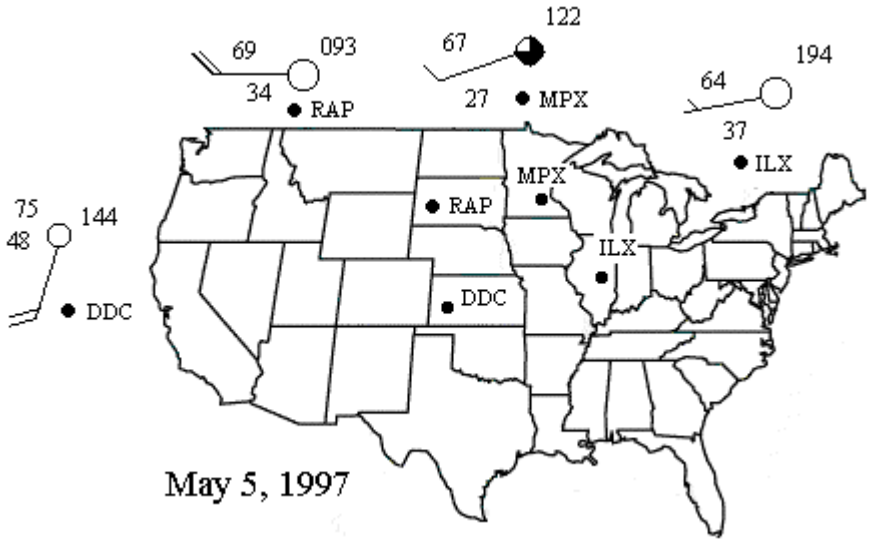
Directions: Circle the correct response.

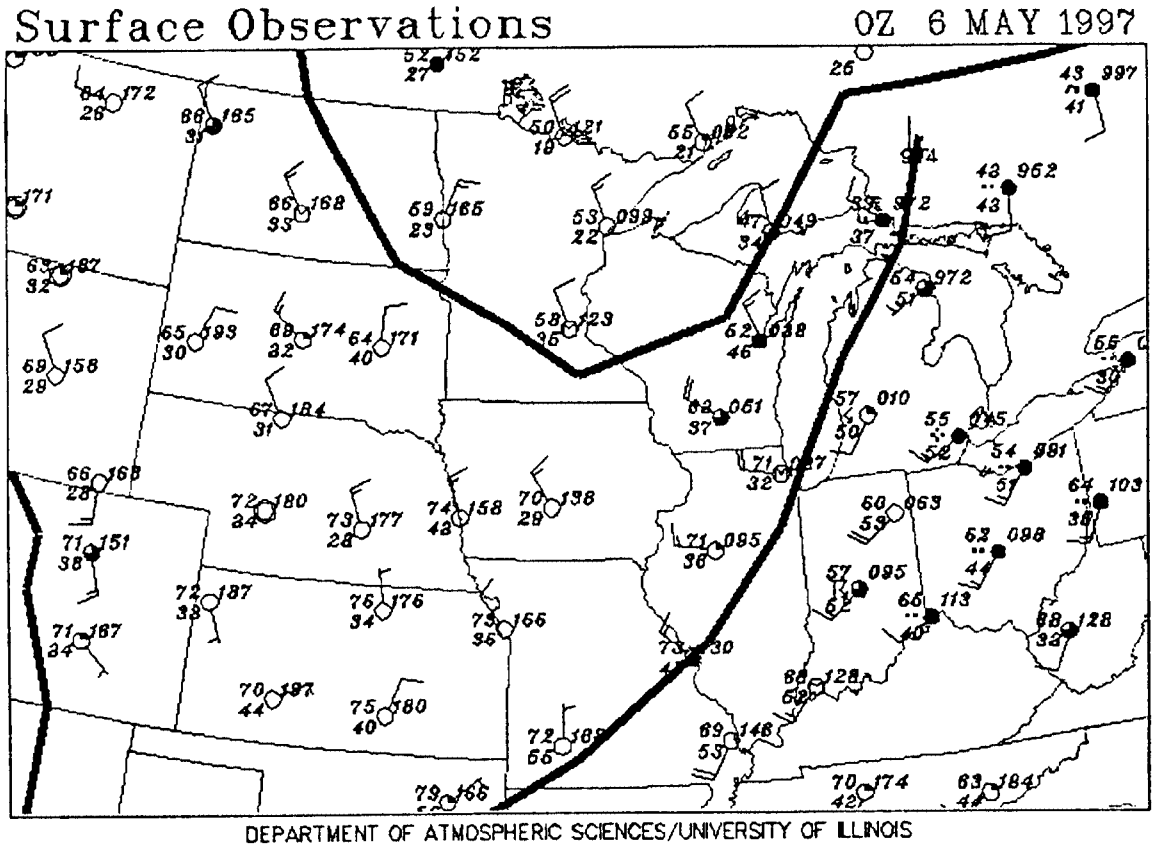
4a. Due to Earth's rotation, weather patterns travel across an area from West to East. Frontal systems change the weather of an area as they pass. High pressure systems passing through an area will result in [low/high] temperatures to the front and [low/high] temperatures behind it.

4b. Consult the weather map for May 6, 1997, found on page 4. Is the southern front a [warm/cold] front?


58
093
27
MPX
56
36
078
GRB
MPX
GRB
ILX
DDC
67
48
000
DDC
59
113
34
ILX
May 1, 1997


42
168
37
RAP
50
083
45
MPX
RAP
MPX
ILX
DDC
054
57
34
DDC
51
019
51
ILX
May 2, 1997


69
093
34
RAP
67
122
27
MPX
64
194
37
ILX
75
48
144
DDC
MPX
RAP
ILX
DDC
May 5, 1997


Surface Observations
0Z 6 MAY 1997
DEPARTMENT OF ATMOSPHERIC SCIENCES/UNIVERSITY OF ILLINOIS

KEY TO WEATHER SYMBOLS

RAIN	SNOW	DRIZZLE	FREEZING RAIN	OTHER
 Light	Light	 Light	 Light	 Haze
 Moderate	Moderate	 Moderate	 Moderate	 Ice Crystals
 Heavy	Heavy	 Heavy Drizzle		 T-Shower
 Light Shower	 Light Shower			 Heavy T-Storm
 Moderate Shower	 Moderate Snow Shower			