

## Homework – Module 1

Name: \_\_\_\_\_

- 1) Warning signs such as the one to the right are common before bridges.

Why does the bridge get icy before the pavement on the ground when air temperatures drop below freezing? Use heat transfer concepts to explain your answer.



- 2) One of my most humbling forecasts (a.k.a. early learning experiences) occurred for Corvallis, Oregon during the winter of 1979-80. I forecast mostly clear, calm conditions overnight and a low a freezing ( $33^{\circ}\text{F}$ ). It was indeed calm all night and clear too...most of the night, but low-clouds began to pass overhead after midnight, at which time the temperature actually rose to above  $45^{\circ}\text{F}$  and stayed there through the night. My forecast low ended up  $10^{\circ}\text{F}$  too cold...a major bust!

Use heat transfer concepts to explain why the surface temperature increased as the low clouds moved overhead.