**Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Treasure Hunt#1**

**Mountain Meteorology Due: Wed. 29 Jan. 2025**

**Mountain Climates & Lee Cyclogenesis Score:\_\_\_\_\_\_\_\_\_\_\_\_/ 20**

(1) List the four factors that cause climate to differ from one location to another {found on page(s)\_\_\_\_\_\_\_\_\_\_}.

(2) What two factors determine the temperature at a given site within a mountain *massif* {found on page(s)\_\_\_\_\_\_\_\_\_\_}?

(3) Which season (summer or winter) experiences extensive precipitation along the coastal mountains of the U.S. west coast? Name the regional atmospheric and oceanic circulations that play a role in this precipitation along the west coast of the U.S. {found on page(s)\_\_\_\_\_\_\_\_\_\_}.

(4) Name the mountain ranges that have a primarily maritime climate, the mountain ranges that are sometimes subject to a maritime influence, and the mountain ranges that have a primarily continental climate {found on page(s)\_\_\_\_\_\_\_\_\_\_}.

(5) Name the two factors that make a detailed description of the climate of a mountainous region difficult {found on page(s)\_\_\_\_\_\_\_\_\_\_}.

(6) Name the location and mountain range containing the location that recorded the highest wind speed ever at the earth’s surface [at the time of the textbook’s printing] {found on page(s)\_\_\_\_\_\_\_\_\_\_}.

(7) Describe how the Great Smoky Mountains got their name {found on page(s)\_\_\_\_\_\_\_\_\_\_}.

(8) Name the state in which the Olympic Mountains are located and list the annual rainfall on the western slope and in the rain shadow (Sequim) {found on page(s)\_\_\_\_\_\_\_\_\_\_}.

(9) Explain why the annual precipitation amounts in the Rockies are lower than other ranges in the U.S. {found on page(s)\_\_\_\_\_\_\_\_\_\_}.

(10) Which geographic feature has elevation differences between 14,495 and 282 ft above and below sea level, respectively, and contains the location having the highest recorded temperature in the Western Hemisphere {found on page(s)\_\_\_\_\_\_\_\_\_\_}?

(11) Name ***three*** nonclassic features associated with cyclones in the central United States {found on page(s)\_\_\_\_\_\_\_\_\_\_}.

(12) A lee trough that also has the characteristics of a dryline is called a \_\_\_\_\_\_\_\_\_\_\_\_ {fill in the blank, found on page(s)\_\_\_\_\_\_\_\_\_\_}.

(13) Name an important difference between a typical warm front and a drytrough {found on page(s)\_\_\_\_\_\_\_\_\_\_}.

(14) The precipitation from what two features can result in the unusual simultaneous occurrence of snowfall, thunder, and lightning {found on page(s)\_\_\_\_\_\_\_\_\_\_}?

(15) Describe ***briefly*** how a cold front aloft forms {found on page(s)\_\_\_\_\_\_\_\_\_\_}.

(16) As the CFA advances over the drytrough, it occludes to form a \_\_\_\_\_\_\_\_\_\_\_\_ occluded-like structure {fill in the blank, found on page(s)\_\_\_\_\_\_\_\_\_\_}.

(17) What two processes may act to form a rainband in the vicinity of the leading edge of the CFA {found on page(s)\_\_\_\_\_\_\_\_\_\_}?

(18) The drytrough and arctic front are often mistakenly analyzed as what features {found on page(s)\_\_\_\_\_\_\_\_\_\_}?

(19) Name two aspects of feature “W1” in Rossby and Weightman’s surface analysis that indicate that W1 cannot be a surface front {found on page(s)\_\_\_\_\_\_\_\_\_\_}.

(20) Analysis of “the Holt storm” suggests that squall lines can be associated with what feature in the new conceptual model {found on page(s)\_\_\_\_\_\_\_\_\_\_}?