

Appendix One: Answers to quiz questions

Introduction:

1. Rising elevation on a stationary altimeter indicates: **(b)** decreasing pressure. This information can be important because *it may* indicate the approach of a low pressure system (i.e.-storm).
2. True/False: Air within a low pressure weather system generally moves toward the center of the low and upward? **True**- see Chapter 3.
3. True/False: As a general rule of thumb: wind speeds decrease with height in the lower atmosphere? **False**- winds typically increase with height in the troposphere.
4. What is the windiest season in the Presidential Range of New Hampshire? **(c)** Winter. You do not have to know anything about this region to hazard a good guess-wind speeds are almost always highest during the winter months in any location, because of the temperature contrasts.
5. Cloud-to-ground lightning has the highest frequency of occurrence between the hours of: **(b)** 3-7pm. The actual peak time varies to some degree from one region to the next, however the best answer is b.
6. True/False: Wave clouds and a mountain cloud cap indicated high winds near the summit of a mountain? **True**- you will find that more often than not, winds are moderate to high near the summit of a peak that has a cloud cap or is producing wave clouds.
7. True/False: Due to mixing of air in the atmosphere, a climber at 5000 m (16,400 ft) in the Alaska Range experiences roughly the same air temperature as a climber at the same elevation in the Himalaya? **False**- the temperature on each mountain of course depends on a number of factors, however, statistically (or climatologically), the climber in Alaska will be colder than his/her counterpart at the same elevation in the Himalaya.
8. Large thunderstorms typically develop over what time period: **(d)** 1-2 hours- you may find this hard to believe because you have observed large thunderstorm cloud systems live a lot longer than several hours. However, most of those thunderstorm systems (complexes) are made-up of many individual storms-hence they appear to have a much longer lifetime.
9. During the summer, air temperatures _____ as a major low pressure system approaches: **(b)** Cool down- This is true because cool air surrounds the low pressure center.
10. True/False: Most 'ground blizzards' occur after new snow has fallen? **True**.
11. On a night with no clouds and little wind, pick the location that will have the coldest morning temperature: **(c)** Floor of a valley- this is so because the radiational cooling of the valley causes the cool dense air to sink toward the bottom of the valley during the night.

12. True/False: Precipitation (rain or snow) always increases with increasing elevation?
False- in mid-latitude mountain ranges the amount of snow or rain per storm, per month, per year typically increases from sea-level to some height, after which the amount decreases with further increase in elevation. The height of maximum precipitation depends on a number of factors: air temperature, proximity to large moisture source, size of the mountain range to name a few.
13. True/False: The primary climbing seasons in Ecuador are May-September and January?
True- see section on Andes in Chapter 8 for explanation.
14. True/False: Climate statistics are not useful in expedition planning since the weather on any given day can be dramatically different than the long-term normals? **False-** If you answered this question with a 'true', you should be shot. Of course the weather can be different than the climatic normals, however, climate statistics give you some idea of what type of weather you can expect- rainy season versus dry season, temperature ranges, windy season versus light winds, etc.
15. True/False: Water in the atmosphere always freezes when the air temperature is at or below 0° C (32° F)? **False-** many people may have gotten this question wrong because we are taught in school that water more or less turns into a solid when it reaches its freezing point. This is correct as long as there are ice or freezing nuclei in the water. In the atmosphere, in order for liquid water to turn into a solid, it must do so on some type of foreign material (dirt, dust, aerosols). If there are not enough of these ice nuclei in a parcel of air, the water will continue to cool below 0° C (32° F) as a liquid. See Chapter 5 and Appendix 3.
16. A large cumulus cloud generates the following types of 'wind': **(d)** all of the above. Updrafts and downdrafts are best developed within the cloud tower, horizontal winds can form near the ground as downdrafts make contact with the earth's surface and are forced to 'spread out'. See Chapter 5.
17. True/False: Wind chill temperatures increase with decreasing wind speeds? **True-** note carefully how the question is worded. Wind chill temperatures decrease (get colder) as wind speeds increase, so as wind speeds decrease- the wind chill temperature increases (warms).

score - for introduction quiz.

# <u>correct answers</u>	<u>Action required</u>
15-17	Climb on!!
11-14	Good show! - you know what your doing.

- 8-10 Your on the right track - with a little work you will be a weather god in no time.
- 4-7 Your weather skills need improvement - read on!
- 0-3 Stay at home, lock the doors and read a book!