READ THE DIRECTIONS CAREFULLY!

This is an open resources study but a closed test. You may read over the test as many times as you like. Do as much research as you need using any resource including books, the internet, discussion with your peers and instructors, etc. HOWEVER, do not consult someone else's answers to the test. When you are ready to take the test, you must close all sources and take the test in one sitting (no time limit) without further aid from any resource. You are on your honor to exercise intellectual honesty by submitting your own answers without any assistance.

During the AVI evaluation you may be asked to defend, explain, or embellish on your test responses.

Your answers should be black and white (not color). Email your answers to Brandon Deane ([cbdeane@comcast.net](mailto:cbdeane@comcast.net)) and Tom Hughes ([thughes31@gmail.com](mailto:thughes31@gmail.com)) by February 15, 2012.

Leave the test questions (don’t delete them) and insert your answers whatever size in the spaces between.

1. List three physical conditions that contribute to the occurrence of snow avalanches.
2. A climax avalanche is\_\_\_(enter the letter of the best answer)
3. Is caused as a result of a single, heavy storm
4. Involves multiple layers of old snow
5. Is a freak avalanche that only occurs at intervals of several years
6. a and b above
7. b and c above
8. How can hard-slab avalanches be distinguished from soft-slab avalanches?
9. What is the effect of atmospheric lifting?
10. What is dew point?
11. What is surface hoar? How does it form?
12. What is meant by “settlement” of new snow?
13. How does wind affect snowpack formation?
14. What is the significance of warm to cold storms on slope stability?
15. The two weather factors most important for predicting avalanche potential

are and .

1. Where does adhesion occur in a snowpack?
2. Because of its low thermal conductivity, snow is a good

. This results in the temperature at the snow-ground interface being very close to 32oF, (0oC), in most cases.

1. How does sintering affect snowpack stability?
2. Where and when does melt-freeze metamorphism usually occur?
3. What happens to graupel when it is buried under layers of new snow?
4. The general notion that south facing slopes are more stable in midwinter and north facing slopes in spring is based, at least in part, on consideration of\_\_\_(enter the letter of the best answer).
5. Depth hoar formation
6. Terrain pattern
7. Solar radiation
8. Geothermal heat
9. Rime forms\_\_\_(enter the letter of the best answer).
10. At night under clear skies
11. On warm, sunny days
12. When the mountain is immersed in clouds
13. All of the above
14. The following are examples of meteorological conditions that cause high temperature gradients in the snowpack (Enter a Y beside the correct answer(s)).

A Radiation loss through clear night skies

B Low air temperature with wind

C Cold snow deposited on warm snow layer

D Warm snow deposited on cold snow

E All of the above

F A and C only

1. The property determining whether an avalanche will be loose snow or slab is\_\_\_(enter the letter of the best answer).
2. Inter-granular strength
3. Sublimation
4. Saltation
5. Cohesion
6. The process of sintering results in\_\_\_(enter the letter of the best answer).
7. Weaker snow
8. Stronger snow
9. Larger grains
10. Surface hoar
11. Rough ground surfaces inhibit avalanches\_\_\_(enter the letter of the best answer).
12. Throughout winter
13. Until metamorphism is well established
14. In spring, when water lubricates the surface
15. Until ground obstructions are covered by snow
16. Describe how the following five key terrain features of a slope should be considered when evaluating avalanche potential.

a. Angle

b. Elevation

c. Aspect

d. Surface

e. Shape/configuration

1. As snow depth increases, the effectiveness of anchors\_\_\_(enter the letter of the best answer).
2. Increases
3. Decreases
4. Remains the same
5. All of the above
6. Give four basic triggers of avalanches.
7. The two contributory factors shown to have most value in predicting

avalanches are and .

1. Name and describe the three basic forms of stress found in a snowpack.
2. List two traits you would especially check for when digging a snow pit to evaluate stability.
3. What is the difference between a Full Profile and a Test Profile? When would you observe a Test Profile vs. a Full Profile?
4. Describe at least three indicators of previous avalanche activity.
5. If caught in an avalanche, what are the average chances of being killed due to trauma?
6. What are some large group (5+ members) dynamics that contribute to increased avalanche risk?
7. What are some ways of countering human factors that contribute to increased avalanche risk?
8. Draw a diagram that shows how slope angle affects the occurrence of slides. Either use the shapes utility to create the diagram or do it free hand and scan it and include it in the email.
9. How is slope exposure an important factor in recognizing possible avalanche paths?
10. What is the special danger associated with "inverted” (cold to warm) storms?
11. List three danger signs that could be observed while skiing.
12. Describe how you would choose people to accompany you in the backcountry.
13. Before you cross a suspected avalanche path: (Put a Y beside all that apply)

\_\_\_ Remove pole straps from wrist

\_\_\_ Make sure safety straps are attached

\_\_\_ Zip up all pockets and button up

\_\_\_ Remove excess clothing

\_\_\_ Make sure that everyone is ready to cross together.

\_\_\_ Switch avalanche transceiver to receive

\_\_\_ Cross one person at a time

\_\_\_ Have first man carry shovel

\_\_\_ Consider a different route

\_\_\_ Carry backpack in arms

1. What are some alternatives to consider if a planned route becomes doubtful?
2. If you are the sole survivor in a backcountry avalanche, should you take the time to make a thorough search or go immediately for help?

1. Describe the advantages and disadvantages of test skiing as a control measure.
2. Ways to lessen avalanche hazards include which of the following? (Put a Y beside all that apply)

A Forbid the use of the area

B Remove all triggers

C Restrict the use of the area

D Use artificial snow

E Control hazard

F Educate and train

G Regulate temperature in snowpack

1. Describe advantages and disadvantages of slope closure as a mitigation method.
2. What is the most important thing to do with your avalanche transceiver?
3. Name five probable places an avalanche victim might be found on the initial fast probing.
4. What does NIMS stand for? How does it operate?
5. The most important component of an organized avalanche rescue is\_\_\_(enter the letter of the best answer).
   1. Equipment
   2. Discipline
   3. Proper organization
   4. Speed
6. You are the leader for the first immediate search unit to arrive on scene (you, five rescuers and the witness). Describe your next six actions.
7. List five pieces of avalanche rescue equipment.
8. A trained avalanche dog\_\_\_(enter the letter of the best answer).
   1. Is easy to keep working at peak efficiency during the season
   2. Is not distracted by urine or food odors
   3. Must be a Saint Bernard
   4. Can search about eight times faster than a 20-rescuer probe line