

**USAFA Aero Club Center
Mountain Flying Exam
Updated April 2017**

Instructions

This exam is part of the USAF Academy Aero Club Mountain Flying Course. Do not assume information not specifically provided in the questions. You will need to read the Academy Aero Club Mountain Flying Course binder and have a basic knowledge of the FARs/AIM.

1. This checkout may be combined with:
 - A. the C-182RG checkout
 - B. only the T-41B model because it is the best mountain aircraft
 - C. no other checkout because only a mountain checkout may be accomplished . . . required aircraft checkouts must be accomplished first
 - D. a night checkout

2. On the average, the Rocky Mountains claim _____ aircraft per month.
 - A. one
 - B. two
 - C. three
 - D. five

3. Why is it difficult for weather forecasters to accurately report the weather in the Rockies?
 - A. because weather stations such as the Air Force Academy cannot see past the first range of mountains
 - B. because of the random nature of the development of weather systems in the mountains
 - C. because of the scarcity of the reporting stations in the mountains
 - D. both B & C

4. The most favorable place to fly when flying under low clouds in the mountains is, when practical ...
 - A. fly close to the bases because that gives you more distance from the ground
 - B. try to fly in the lower third between the ground and clouds
 - C. both A & B
 - D. fly as close to the mountain tops as possible on the windward side

5. The minimum ceiling and visibility required for any mountain flight is _____.
 - A. 2,000 ft AGL and 10 miles
 - B. 2,000 ft AGL and 15 miles
 - C. 2,500 ft AGL and 10 miles
 - D. 2,500 ft AGL and 15 miles

6. If almost all reporting stations are located in valleys, what reported ceiling is recommended and why?
- A. only 2,000 ft is recommend because that will almost always guarantee a safe margin
 - B. 6,000 to 8,000 ft is recommended because a 2,000 ft ceiling at the valley airport could mean there is no way in from altitude
 - C. only 2,000 ft is recommended if there is 25 miles visibility because that will guarantee you a hole in the ceiling.
 - D. twice the distance from the reporting station to the top of the tallest peak within 25 miles.
7. The maximum reported winds aloft for a mountain flight are _____.
- A. 25 MPH
 - B. 25 Knots
 - C. 30 MPH
 - D. 30 Knots
8. Valley fog is most likely to spread when the temperature/dew point spread is within _____ .
- A. 5 degrees Celsius
 - B. 5 degrees Fahrenheit
 - C. 2 degrees Celsius
 - D. 2 degrees Fahrenheit
9. Why should a landing at an airport with ground fog not be attempted?
- A. it is illegal
 - B. vertigo and slant range effect
 - C. both A & B
10. Wind force/velocity over mountain ranges can almost double or triple because of the venturi effect.
- A. true
 - B. false
11. Mountain ranges are primarily oriented parallel to the prevailing winds aloft.
- A. true
 - B. false
12. The barometric pressure at the top of a ridge will _____ if winds are blowing across it.
- A. rise
 - B. fall
 - C. stay the same
13. "Valley breezes" originate in the mountains and then flow into the valleys.
- A. true
 - B. false
14. The length of a typical mountain wave is _____.
- A. between 2 nm and 25 nm
 - B. between 3 nm and 30 nm
 - C. between 4 nm and 40 nm
 - D. approximately 50 nm

15. Mountain waves only form with the presence of mountain wave clouds.
- A. true
 - B. false
16. Where is turbulence most severe in standing rotor clouds?
- A. just below the wave crests
 - B. below mountain top level
 - C. both A & B
 - D. within 5 nm of the cloud anvil
17. Up and down drafts in excess of 5,000 ft/min could be encountered in areas occupied by rotor clouds.
- A. true
 - B. false
18. The best place to fly when your course parallels mountain wave activity is _____.
- A. in the updraft
 - B. in the downdraft
 - C. just don't
 - D. A or C
19. When flying up a canyon:
- A. fly in the center because that gives the most maneuverability
 - B. fly on the updraft side
 - C. fly on the downdraft side
20. When canyon flying, one should fly down slope.
- A. true
 - B. false
21. The best course reversal technique for most pilots is _____.
- A. a hammerhead turn
 - B. a chandelle
 - C. a steep turn
 - D. a split "S"
22. The minimum safe altitude recommended for crossing a ridge in the mountains is _____.
- A. 2,000 ft in turbulent air and 1,000 ft in smooth air
 - B. 1,000 ft in turbulent air and 500 ft in smooth air
 - C. 3,000 ft in turbulent air and 1,500 ft in smooth air
 - D. 4,000 ft in turbulent air and 2,000 ft in smooth air
23. Could you legally fly through Independence Pass if the current ceilings in that area were reported by the area forecast to be 13,000 ft broken (refer to Denver Sectional)?
- A. yes
 - B. no

24. What is the highest altitude a pilot may fly without oxygen?
- A. 15,500 ft MSL
 - B. 12,000 ft MSL for no more than 30 minutes
 - C. 13,999 ft MSL for no more than 30 minutes
 - D. 12,500 ft MSL for no more than 30 minutes
25. When flying in the mountains, the best assurance against getting lost is to trust your instincts.
- A. true
 - B. false
26. During an emergency landing:
- A. you should always try to avoid aircraft damage, therefore, avoiding bodily harm
 - B. use disposable structures on the aircraft to absorb the violence of stopping
 - C. you should start crying and curse the instructor that gave you your mountain checkout
 - D. attempt to stall the aircraft going up slope to slow down as soon as possible, avoiding damage
27. When crossing a ridge, cross it at a 45 degree angle to _____.
- A. take advantage of updrafts
 - B. improve forward visibility
 - C. give yourself a way out should you have to turn back
 - D. avoid downdrafts
28. Explain (spell out) I _____ M _____ S _____ A _____ F _____ E
29. The type of hypoxia that is most likely to affect a pilot flying in the mountains is _____.
- A. hypemic hypoxia
 - B. histo-toxic hypoxia
 - C. stagnant hypoxia
 - D. hypoxic hypoxia
30. Density altitude is _____.
- A. what is indicated on the altimeter when the altimeter is set to 29.92
 - B. approximately 6,500 ft at the Air Force Academy when the temperature is approximately 2 degrees Celsius
 - C. the altitude in standard air where the density is the same as the existing air density. It is affected by the pressure, temperature, and moisture content of the air
 - D. both B & C
31. Calculate pressure altitude given the following conditions: altimeter 31.12 and field elevation 7835 ft.
- A. 6635
 - B. 9035
 - C. 7835
 - D. none of the above
32. It is important to lean the aircraft mixture out to the airport elevation.
- A. true
 - B. false

33. Indicated airspeed will increase with density altitude.
- A. true
 - B. false
34. Using the chart, find the current density altitude: OAT 20C, Altimeter 28.20, field elevation 8,551 ft.
- A. 12,000 ft
 - B. 13,000 ft
 - C. 13,500 ft
 - D. 14,100 ft
35. A 10% increase in gross takeoff weight can result in a _____ increase in takeoff speed, a _____ decrease in acceleration, and a _____ increase in takeoff distance.
- A. 10%, 15%, 9%
 - B. 21%, 9%, 5%
 - C. 5%, 9%, 21%
 - D. 10%, 15%, 20%
36. It is best to _____.
- A. fly with full tanks even though the aircraft is close to max gross weight because it would be bad to run out of gas in the mountains
 - B. fly with half tanks and just make sure the mixture is leaned out real good so as to save fuel
 - C. fly with half tanks and plan frequent stops
 - D. fly with full tanks but always climb and cruise at a higher airspeed to offset the extra weight
37. Always lift off and climb at the recommended indicated airspeed regardless of altitude.
- A. true
 - B. false
38. Using the Koch Chart, how much would a pilot have to increase his/her takeoff roll if the outside ambient air temperature is 90 degrees Fahrenheit and the pressure altitude is 5,000 ft?
- A. 100%
 - B. 140%
 - C. 120%
 - D. 160%
39. The best insurance when going on a mountain flight is _____.
- A. a well planned cross country
 - B. a thorough check of the weather, NOTAMs, and TFRs
 - C. file a flight plan with FSS
 - D. all of the above
40. What is the highest mountain pass in Colorado and could an Aero Club aircraft fly through it?
- A. Independence Pass . . . yes
 - B. Independence Pass . . . no
 - C. Mosquito Pass . . . don't even think about it
 - D. Breakheart Pass . . . watch out for Charles Bronson

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