



Instructor Written Test Key

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Note to the Administrator on grading this test from the author: Human beings taking this test will get items wrong, and many of these items may be contestable or change as time and/or technology changes....it is my humble opinion that any wrong items on any test are simply open windows to pass on wisdom rather than opportunity to berate any candidates lack of knowledge. Only in the event of dangerous gaps of knowledge and indication that candidate is unable or unwilling to accept or absorb information, would I ever consider issuance of a failing grade on this test.
Sincerely, Brad MJ Weiss USHGA ADV Instructor

- 1) Diagram should explain in some manner the most current view on how our wings generate lift showing applicable airflows
- 2) Diagram should indicate a wing at a too high AOA and show the turbulence or disturbed airflow above the upper surface and trailing edge of the wing
- 3) Diagram or explanation should make it plain that increased thrust increases AOA
- 4) G
- 5) D
- 6) Surge forward and in extreme cases fall into the wing or lines
- 7) Crossporting keeps even pressure throughout
- 8) Lightly loaded wings are much more prone to collapses but generally more docile during the recovery
- 9) Increase, ALSO INCREASED
- 10) A
- 11) Descent rate
- 12) 3 feet forward for each 1 foot of altitude
- 13) Aspect ratio / glide or performance or stability
- 14) Reeling in brakes, building better wall before inflation, pulling central a lines only instead of whole set, folding tips over a bit etc...
- 15) Increased risk of collapse with less weight shift to deal with it, higher takeoff speeds, increased sensitivity to thrust induced surging/rolling etc...
- 16) Inducing a stall
- 17) Adding some brake once wing is overhead, putting the trims back to neutral setting, reminding them to keep moving forward even if they look up etc..
- 18) B
- 19) C

- 20) Circle appropriate responses to complete the grid
- | | <u>High pressure system</u> | <u>Low pressure system</u> |
|-------------------|-----------------------------|----------------------------|
| Winds | decreasing | Increasing |
| Weather Stability | increasing | decreasing |
- 21) Possibly you might soon be on the rotor or downwind side of a large source of mechanical turbulence and lose your safe LZ.
- 22) Diagram or writing should indicate increasing wind speed as altitude increases
- 23) Perhaps use it as a teaching moment to discuss the various hazards and dangers that you see at the site and why you feel it is or is not appropriate for them to fly from there.
- 24) Increased turbulence and collapse risk as the thermals are becoming more mature, increased stress for smooth landing and flight.
- 25) More Less
- 26) Less More
- 27) Some discussion of how warm air rises...tendency to stick to ground unless wicked by some thing, the appearance of clouds where they terminate in the cooler air above associated problems
- 28) Gust front- weather system generating strong highly variable wind speeds
Micro burst- an extremely fast burst of air associated with overdevelopment / storms etc some clocked at over 900 miles per hour

Over-development_ used to describe when thermal generated clouds become dark and heavy with moisture and reach much higher into the sky

Virga- rain that is not making it to the ground because of rapidly rising air below indicative of crappy flying weather

AGL – how far is pilot above the ground at any site

MSL- How far above true sea level the pilot or site is

Anabatic- air flowing up-slope in hilly/mountainous areas

Catabatic- air flowing down-slope in hilly/mountainous areas

- 29) Mechanical: turbulence located on the downwind side of an obstruction
Thermal turbulence: associated with the mixing of air associated with thermal activity
- 30) D

- 31) D
- 32) There is too many things to be doing and watching during your initial flights to risk distraction from these sources
- 33) Some method of explaining increasing and decreasing the angle of the wing to the relative airflow to a complete beginner should be present.
- 34) Radio cannot be depended on, the student must have a plan for their flight pattern and landing
- 35) -Flying over fog when the ground is not easy to make out
-Flying inside / through a decent sized cloud at 3400 feet
-Flying over a football game at a local high school
-Flying over your suburban neighborhood waving at you friends
-Flying on full moon at midnight with beacon lights flashing
- 36) C,D, E
- 37) Risk of stalling wing on takoff, risk of letting brakes up too quickly after take-off causing surge and rop possibly into ground at high speed/angle
- 38) Remind your student that adding things to a flight system can create problems (like things that cut lines on inflation/ or get into prop/ or compromise ones connection to the wing or integrity of main lift web) that they might not have thought of, and that any additions/ subtractions modifications should be discussed with their instructor.
- 39) Remind them that no motor is failsafe and its not if but when...motor flight operations should be conducted from sufficient height and clearance to provide a safe landing option at the pilots particular skill level when the motor quits.
- 40) Proper routing of brakes is critical for safe flight operations and it should be part of a redundant preflight check, use of rear riser steering should be a learned and practiced basic skill.
- 41) Decreases
- 42) Remind them of the dangers and horrible track record associated with untrained towing specifically lockout (where the pilot turns too far away from the tow connection point causing the wing fly over towards the ground like a stunt kite and also the danger overloading the glider by not having a method of tension control)
- 43) teach pin checks and remind them that once deployed they must disable the main wing with symmetrical bline stall or other disabling method to avoid the main from flying around the reserve and entangling.
- 44) 1. Helmut/chinstrap
2. Carabeeners locked and all risers and lines routed properly

- 3. Leg straps and chest strap secure
- 4. Reserve pin check if equipped
- 45) Weightshift aggressively to the good side to aid reinflation and also to steer away from source of deflation while maintaining heading, and gradually add brake to the good side being cautious about the new tiny wings higher sensitivity to stalling from too much input... remind them that if they are not sure what is happening for them to go arms up to help the wing recover on its own.
- 46) Check for damage and condition and find loose items that may cause damage
- 47) Not applying power until wing is overhead and flying, Moving forward even during an abort to keep tension on the lines until prop stops moving, careful layout of glider to avoid lines hanging up on cages, knowing when to hit the kill switch, etc
- 48) Open response.