LESC Pre- Solo Exam
June 23, 2024
Instructor Note: All Previous Versions Are Obsolete

1. Complete the following information for CA89:

What is the field elevation? _____ What is the CTAF frequency? _____

What is the pattern entry altitude at the IP? _____

What areas are sensitive when flying a standard pattern? _____

How many runways are there? _____ What are the runway designations? _____

What airspace is CA89? _____ How high is the CA89 airspace? _____

Not including the parachute operation at CA89, is there any other airspace consideration specific to CA89? If so, what is it? _____

2. What documents must be in your possession during solo flight?

A) Student glider pilot's license, medical certificate, logbook, and photo ID
B) Photo ID, logbook, and pilot's license
C) Student glider pilot's license, medical certificate, and logbook
D) Photo ID, logbook, medical certificate, and pilot's license

3. Ensuring the aircraft is safe for flight is the responsibility of the…

A) Owner or Operator
B) Mechanic or Inspector that approved the current Annual Inspection in the aircraft logbook
C) Chief Flight or Duty Instructor
D) Pilot in Command

4. During an emergency, what action is required of the pilot in command?

A) Maintaining aircraft control
B) Meeting the extent of the emergency
C) Select a suitable landing area and fly a modified pattern
D) Report your situation and intentions on LESC CTAF 122.90

5. What must a pilot do before every departure and every landing?

A) Establish 2-way radio communications with the tow plane and CTAF
B) Verify the wind direction and velocity by looking at the airport wind indicators
C) Review the pre-takeoff and pre-landing checklists
D) Set the Altimeter to the current pressure setting if known, or field elevation

6. The day VFR weather minimums are:

A) 3 statute miles and clear of clouds in Class A airspace
B) 5 statute miles, 1,000 feet below. 1,000 feet above, and 1 horizontal mile in Class B airspace
C) 1 statute mile and clear of clouds in Class D airspace
D) 3 statute miles, 500 feet below, 1,000 feet above and 2,000 horizontal feet in Class C airspace

7. Prior to entering Class A, B, C, or D airspace, a pilot must…

A) Contact ATC and give a position report
B) Establish 2-way radio communications
C) Remain well clear of any conflicting traffic and then contact ATC and give a position report
D) Gliders are prohibited from entering Class A and B airspace

8. If “Washout” is built into the design and shape of the wing, what purpose does “Washout” serve?

A) Helps reduce wingtip vortices
B) Allows the stall to start at the root of the wing instead of near the wingtip
C) Helps reduce parasitic drag caused by the ailerons
D) Helps reduce induced drag caused by the ailerons

9. Which type of air mass are thermals likely to develop?

A) Stable
B) Stationary
C) Unstable
D) Dry

10. A line of thunderstorms that often develop ahead of an advancing cold front are known as:

A) Shear line thunderstorms
B) Pre-frontal thunderstorms
C) Squall line thunderstorms
D) Embedded thunderstorms

11. The basic definition of HYPOXIA is:

A) Excessive nitrogen in the blood stream
B) A lack of oxygen
C) A lack of carbon dioxide
D) Too much carbon dioxide

12. Which of the following aircraft has the right of way?

A) Glider in the landing pattern
B) A tow plane towing a glider
C) A hot air Balloon
D) Any aircraft declaring an emergency

13. When 2 or more gliders are sharing the same thermal, the direction of turn is determined by:

A) The closest glider to you
B) The first glider in the thermal
C) All turns are to the right in the Northern Hemisphere
D) All turns are to the left in the Northern Hemisphere

14. While ridge soaring, you wish to overtake a slower glider, the safest way to do this is to…

A) Pass on the inside
B) Always pass on the right side
C) Radio the glider and announce your intentions to pass on either the right of left side, whichever is safer
D) Move to the outside of the slower glider prior to passing

15. The required items for the Schweizer 2-33A include…

A) Altimeter, Airspeed Indicator, and Vertical Speed Indicator
B) Seat Belts and Airspeed Indicator
C) Flight Manual, Seat Belts, Altimeter, and Airspeed Indicator
D) Altimeter, Airspeed Indicator, Vertical Speed Indicator, and Seat Belts

16. Which Instruments make up the Pitot/Static system?

A) Airspeed Indicator, Altimeter, and Vertical Speed Indicator, with Ram Air going into the Static ports
B) Altimeter, Vertical Speed Indicator, and Total Energy Compensator, with Static Air going into all three instruments
C) Energy Probe, Total Energy Compensator, Vertical Speed Indicator, Altimeter, and Airspeed Indicator
D) Altimeter, Airspeed Indicator, and Vertical Speed Indicator, with Static Air going into all three instruments

17. Spoilers, Dive-brakes, and other similar devices, are primarily used for:

A) Allowing the pilot to reduce airspeed without pulling back on the stick
B) Allowing the pilot to adjust the aircraft's angle of attack
C) To control altitude
D) Controlling stability during the landing approach

18. While banking the ailerons produce a roll rate. Provided you do not use adequate rudder, you can expect:

A) An increase in drag causing the nose to yaw towards the inside of the turn
B) An increase in drag causing the nose to yaw towards the outside of the turn
C) A decrease in drag causing the nose to yaw towards the inside of the turn
D) The aircraft to enter a skidding turn

19. The maximum airspeed at which abrupt full control deflection may be applied without exceeding the glider's designed load limits is called:

A) Top of the yellow arc maximum caution airspeed
B) Va Maneuvering airspeed
C) Vne Never exceed airspeed
D) Best L/D airspeed

20. The aerodynamic tendency of an aircraft to maintain uniform flight and return to that condition when disturbed is called:

A) Stability
B) Controllability
C) Inertia
D) Dihedral

21. As bank angle increases, the stall speed and load factor will:

A) Remain the same
B) Decrease/increase
C) Increase/increase
D) None of the above, since bank angle has no effect on the stall speed

22. Coordinated flight can best be determined by reference to the:

A) Compass
B) Horizon
C) Yaw string or ball
D) Airspeed indicator

23. How does a glider move through the air without an engine?

A) Newton's Law
B) Bernoulli's Law
C) Magnus Effect
D) Boyle's Law

24. A spin might develop from which flight attitude?

A) Excessive nose high
B) While performing cross controlled maneuvers
C) Uncoordinated turns
D) Stall

25. A stall will occur when…

A) The nose is raised well above the horizon
B) The wings upper and lower pressure differences are equal
C) The indicated airspeed falls below 38mph
D) The critical angle of attack is exceeded

26. A 60-degree bank angle will increase the stall speed by…

A) 40%
B) 20%
C) 2 G's
D) 4 G's

27. If the tow rope has a knot in it, the effective breaking strength is reduced by…

A) 30%
B) 60%
C) 20%
D) 50%

28. According to the FAR's, a tow rope's breaking strength should not exceed:

A) Maximum glider gross weight limits
B) Not less than 80% or more than 200%, of the gliders gross weight
C) 2 times the certificated operating weight of the glider
D) No more than 25% of the gross weight of the tow plane

29. Before taking off in a crosswind, the flight controls should be placed as to:

A) Hold the downwind wing high and apply upwind rudder
B) Hold the upwind wing high and apply downwind rudder
C) Hold the downwind wing low and apply upwind rudder
D) Hold the upwind wing low and apply downwind rudder

30. Before commencing any launch, what must the pilot do?

A) Set the flight controls into the prevailing winds
B) Make sure the canopy is closed and locked
C) Verify the spoilers/dive brakes are closed and locked
D) All of the above

31. Define and list the recommended airspeeds for the 2-33A glider:	**Solo**	**Dual**
A) Red Line airspeed _____	_____	_____
B) Maneuvering airspeed _____	_____	_____
C) Minimum Sink airspeed _____	_____	_____
D) Stall speed _____	_____	_____
E) Best L/D _____	_____	_____
F) Maximum aero tow airspeed _____	_____	_____

32. Maximum performance is known as Best L/D. What does Best L/D mean?

A) Lift is at its maximum
B) Parasite drag is at its minimum
C) Parasite and Induced drag are equal
D) Induced drag is at its minimum

33. Glider performance results from…

A) Polar Graphs as illustrated in the Aircraft Flight Manual
B) Indicated Airspeed
C) Groundspeed
D) Sink Rate as indicated on the Vertical Speed Indicator

34. When flying through areas of heavy sink, you should:

A) Fly at best L/D airspeed
B) Continue flying your indicated airspeed
C) Fly at minimum sink airspeed to conserve altitude
D) Lower the nose and fly faster to get out of the area of sink as rapidly as possible

35. While on aero tow you notice the tow plane's wings rocking, you should:

A) Release Immediately
B) Do nothing as the tow plane probably encountered turbulence
C) Stop the boxing maneuver and return to normal tow position
D) Check your Spoilers/Dive brakes

36. Why must you release immediately if you lose sight of the tow plane during an aero tow?

A) The tow plane may over stress your wings and cause significant control loss
B) You will overstretch the weak link or tow rope until it breaks
C) The tow plane may not be able to recover
D) You will not know where the tow plane is and there will be greater risk of a midair collision

37. The primary cause of slack in the towline during aero tow is from:

A) Deceleration of the glider
B) Being towed downwind
C) Inadvertently encountering the towplane's wake vortices (prop wash)
D) Acceleration of the glider

38. If a stack line develops during aero tow, what is the greatest danger?

A) An increased chance of breaking the towline
B) The glider becoming entangled in the towline
C) Developing knots in the towline
D) A pre-mature back release

39. While on tow you notice the tow plane's rudder wagging, you should:

A) Release immediately
B) Begin boxing the wake
C) Close your Spoilers/Dive brakes
D) Stop boxing the wake and return to normal tow position

40. While flying your 2-33A for some time you notice yourself approximately 5nm away from the field. Using the information below, determine what altitude is required to safely return to the field:

Field elevation 1,500'MSL
Winds are 10mph
IAS 50mph
L/D 15:1

A) 3,500'MSL
B) 4,000'MSL
C) 4,500'MSL
D) 5,000'MSL

41. You have been soaring at an unfamiliar airport for over 2 hours and you find you have drifted 10nm downwind. From the following information, what Indicated Altitude is required to return to the same airport, and arrive at pattern altitude? Show your calculations.

Field Elevation 1,900'MSL
Headwind 20kts
IAS 60mph
L/D 12:1

A) 7,900' MSL
B) 6,900' MSL
C) 6,000 'MSL
D) 5,000' MSL

42. Using the information from question 41, how long will it take to glide back to the airport and lose all of that altitude, with a 400' per minute sink rate? Show your calculations.

A) 12.50 minutes
B) 15.00 minutes
C) 17.25 minutes
D) 19.75 minutes

43. What is the sink rate of the 2-33A at 60mph dual, in still air?

A) 252 feet per minute
B) 660 feet per minute
C) 11 feet per second
D) 3.1 feet per second

44. Refer to the 2-33A Calculated Performance Curves. What is the projected sink rate flying solo at 69 MPH?

A) An L/D of 5.2:1
B) A sink rate of 16.6:1
C) A sink rate of 402' per minute
D) A sink rate of 5.3' per second

45. During an approach to landing into a 20mph headwind, you notice yourself low. You should:

A) Lower the nose and increase airspeed
B) Use spoilers to control your glide angle
C) Slow to Minimum Sink Speed to conserve altitude
D) Stretch your glide by raising the nose just above the horizon

46. When landing into a 15kt quartering headwind, you should…

A) Be alert for Low Level Wind Shear near the ground
B) Fly at Best L/D airspeed
C) Conserve altitude by flying at Minimum Sink airspeed
D) Increase your groundspeed

47. If attempting to land in gusty wind conditions, you should:

A) Fly at the recommended pattern airspeed on final
B) Slow to V_A (maneuvering airspeed) to minimize high wing loads
C) Add extra airspeed to your normal pattern airspeed allowing for unexpected gusts and sink
D) Always land into the wind

48. If you find it necessary to land in the vicinity of a thunderstorm, you should expect:

A) Light and variable winds, possible Thunder and Lightning
B) Turbulence, gusty surface wind's, heavy sink, wind shifts, and heavy rain or hail
C) High steady winds and moderate rain showers
D) Heavy sink, rain, hail, and light winds

49. What effect does an Aft CG have?

A) Cruise airspeed increases
B) Stall speed increases
C) Aircraft is more stable
D) Spin recovery is easier

50. Using the sample Schweizer 2-33A weight and balance information below, determine:

A) Total gross weight _____

B) Actual CG location _____

C) Is the gross weight within the allowable limits? _____

D) Is the CG within the allowable limits? _____

If not, what can be done to make the aircraft legal to fly? _____

_____

_____

2-33A Weight and Balance Data
Sample Aircraft
CG Range: STA. 78.20 to STA. 86.10
Maximum authorized gross weight l,040lbs

Arms:

Sailplane empty	96.12
Front pilot	43.80
Rear pilot	74.70

Weights:

Sailplane empty	691lbs
Front pilot	98lbs
Rear pilot	240lbs

0n the back of this page, draw and label the 6 legs of a standard airport traffic pattern:

Note: Instructor and student must correct test to 100% prior to student solo

Date of corrections _____

Student name _____

Student signature _____

Instructor name _____ CFIG # _____ Exp _____

Instructor signature _____