



Pre- Solo Written Exam

Student Name _____

Flight Instructor _____

Date Administered _____

Date Reviewed _____

Introduction

FAR 61.87(b) specifies that prior to conducting solo flight, a student pilot must demonstrate satisfactory aeronautical knowledge on a knowledge test that is administered and reviewed by the students authorized instructor and meets the requirements of the section. The test must address the student pilot's knowledge of applicable sections of FAR Parts 61 and 91, airspace rules and procedures for the airport where the solo flight will be performed and flight characteristics and operational limitations for the make and model of aircraft to be flown. Student pilots should understand that the pre-solo written exam is a separate exam and is different from and in addition to the FAA Recreational or Private Pilot knowledge tests.

Exam Procedures and Instructions

This pre-solo written exam will be given to a Student Pilot in anticipation of solo flight. This is an "open book" exam. Answers to most questions can be found in either the current FAR/AIM or the Pilots Operating Handbook/Owner's Manual for the aircraft to be flown. Each of the questions in this exam requires the Student Pilot to supply an answer as well as a current reference, rather than choose the correct answer as in most FAA tests. Consequently, some research and "digging" will be necessary. After the Student Pilot completes the exam, it will be reviewed with the student's instructor. Any incorrect answers will be discussed and corrected.

This is not a pass/fail exam. All questions address important areas that are critical to safe, legal and enjoyable flying. It is most important that the information be known and understood.

General

1. What preflight action is required, as per the FAR's, prior to a flight in the local area?
2. May a student pilot carry passengers while exercising solo privileges?
3. What are the restrictions on the proximity of one aircraft to another in flight?
4. What constitutes an aerobatic maneuver?
5. What time of day must the aircraft's position lights be turned on?
6. What is a "careless or reckless manner"? Do the FAR's specifically prohibit the operation of an aircraft in a careless or reckless manner?
7. During engine run-up, you cause rocks, debris and propeller blast to be directed toward another aircraft or person. Could this be considered careless or reckless operation of an aircraft? Why or why not?
8. What is considered to be a minimum safe altitude for all flight situations?
9. What is the minimum safe altitude over congested areas?
10. Who is responsible for determining if an aircraft is airworthy prior to flight?
11. When are seatbelts and shoulder harnesses required?
12. What are the regulations regarding the consumption of alcohol and operating an aircraft?

Right-of-Way

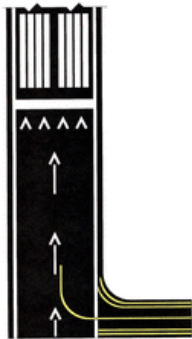
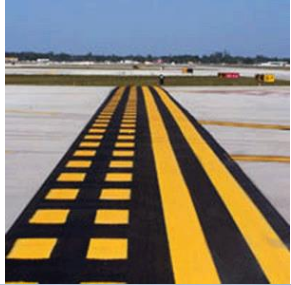
13. If an airplane is converging with a glider at approximately the same altitude, which aircraft has right-of-way?
14. When two aircraft are approaching head-on, in which direction shall each pilot alter course?
15. When two aircraft, neither of which on final approach, are approaching an airport for landing, but one aircraft is lower than the other, which aircraft has right-of-way?
16. When an aircraft is being overtaken by another aircraft, which has right-of-way?

Airport and Airspace Operations

17. If there is no altimeter setting available at a given airport, what setting should be used for flight in the local area?
18. Unless otherwise specified, what is the standard altitude and direction of turns at a non-towered airport?
19. What type of visual display indicates a non-standard traffic pattern for airports without a control tower?
20. May a right hand pattern be executed at an airport with an operating control tower even though the standard pattern is to the left?

21. What frequencies are necessary for the operation at Martin State Airport (MTN)
22. What is the FAA emergency frequency?
23. When operating an aircraft equipped with a two-way radio at an airport with an operating control tower, is the pilot required to maintain communications with the tower?
24. What steps must you take if you lose radio communications while in the MTN class D airspace?
25. What steps must you take if you lose radio communications while in the south east practice area?
26. What are the standard light gun signals for control of airport traffic without communications? What is the meaning of each signal for both on the ground and in the air?
27. What visual display is used to indicate that an airport runway or taxiway is closed to traffic?
28. As you are inbound from the practice area the tower responds "Aircraft Calling, Standby". Are you allowed to enter the Class D airspace? What about "N5275W, Standby"? What is the difference?
29. When may a pilot deviate from control tower instructions?
30. Where do you find noise abatement procedures for airports? What are Martin State's (MTN) noise abatement procedures?
31. What is wake turbulence? What are the procedures for avoiding wake turbulence?
32. When you are cleared to taxi to a runway, where are you expected to taxi to for departure?
33. What is Brett Aviation's policy on intersection departures?
34. What type of airspace are you not authorized to solo in, unless a special endorsement is given?
35. What is a TFR? Where do you find information pertaining to TFR's?
36. What are Brett Aviation's weather limitations for student solo flight?
37. What are the regulations limiting a solo student in regards to the weather?
38. What is Special VFR, Can a student pilot request Special VFR?
39. Martin ATIS states that the winds are 270° at 10 knots. Are you within your solo limitations to do pattern work? Explain.
40. Martin ATIS states that the winds are 170° at 10 knots gusting to 15 knots. Are you within your solo limitations to go to the practice area? Explain.
41. What are the basic weather minimums for VFR flight outside controlled airspace at or below 1,200 feet AGL?
42. What are the basic weather minimums for VFR flight within controlled airspace between 1,200 feet AGL and 10,000 feet MSL? 34. What are the appropriate cruising altitudes for VFR flights in level cruising flight above 3,000 feet AGL?

43. Airport Markings



Explain the Markings

Documentation

44. What documents are required to be on board the aircraft prior to flight?
45. What documents are required to be on your person while conducting solo operations?
46. What class of medical is required for solo flights? What is the duration of that medical?
47. What is the duration of a student pilot certificate?
48. What instructor endorsements are required for solo flight, where are the endorsements located, and when do they expire? What about for solo cross-country operations?
49. What is the maximum distance you can fly solo from Martin State Airport (MTN) without prior approval or a cross-country endorsement from a Brett Aviation flight instructor?

Aircraft and Maneuvers

50. What is the maximum usable fuel for your aircraft?
51. What is the minimum oil required for your aircraft?
52. Describe the emergency procedures step-by-step for a partial engine failure.
53. Describe the emergency procedures step-by-step for a complete engine failure.
54. What is best glide speed and when should best glide be used?
55. Describe the region of reverse command. How are the pilot's controls affected?
56. What is angle of attack? What is critical angle of attack?
57. What happens to an airplane when the critical angle of attack is exceeded?
58. When practicing maneuvers, at what altitude must you recover? (AGL)
59. What is Brett Aviation's policy on solo students performing intentional stalls?
60. What are the step-by-step procedures for recovering from a stall?
61. What is the stall speed of your training airplane in a 60 degree bank with flaps up?
62. Under what circumstances could a spin occur in your training aircraft?
63. What are the step-by-step procedures for recovering from a spin?
64. When and why should go-arounds be executed? Explain the procedures of a go-around.
65. Under what conditions may a student pilot practice takeoffs and landings at a nearby airport other than his/her home base airport?
66. What are the fuel requirements for VFR day flights? VFR night flights?
67. What is the maximum allowable RPM drop during a magneto check for your aircraft?

68. What is the maximum allowable flap setting for take-off in your aircraft?

69. What are the following airspeeds for your aircraft? Explain what each airspeed means.

➤ V_{so} - _____

➤ V_{s1} - _____

➤ V_r - _____

➤ V_x - _____

➤ V_y - _____

➤ V_{fe} - _____

➤ V_a - _____

➤ V_{no} - _____

➤ V_{ne} - _____

70. List the minimum equipment and instruments that must be working properly in your aircraft for day VFR flight.

71. Near our operating area, what type of transponder is required, and what mode must it be in?

72. If an air traffic controller instructs you to squawk VFR, what does that mean?

73. Perform the following calculations using the conditions provided:

| | | | |
|-----------------|-----------------|-----------------------------|-------|
| Field Elevation | 1000' | T/O Distance (50' obs.) | _____ |
| Temperature | 75 degrees F | Rate of Climb | _____ |
| Weight | Max Gross | Landing Distance (50' obs.) | _____ |
| Wind | 10 Kt. Headwind | | |
| Runway | Hard Surface | | |
| Altimeter | 29.92 | | |

| | | | |
|-----------------|--------------|-----------------------------|-------|
| Field Elevation | 5500' | T/O Distance (50' obs.) | _____ |
| Temperature | 90 degrees F | Rate of Climb | _____ |
| Weight | Max Gross | Landing Distance (50' obs.) | _____ |
| Wind | Calm | | |
| Runway | Hard Surface | | |
| Altimeter | 29.42 | | |

74. What power setting in your training airplane will yield 75% power at 3000' MSL on a standard day?

75. What is the TAS and fuel flow at the power setting in question 74?

Weight and Balance

Enter the current weight and balance information for your training aircraft and then calculate the weight and balance for the conditions given.

Empty Wt _____ Moment _____ Useful Load _____ Gross T/O WT _____

Conditions: Full fuel, 180 lb passenger in each seat, 25 lb baggage. If this is over gross weight or out of CG range, alter the load to correct the problem.

Washington, D.C. SFRA and FRZ

59. What must your aircraft be equipped with to operate within the D.C. SFRA?

60. What must you do before operating a flight into the D.C. SFRA?

61. How can an SFRA flight plan be filed?

62. Is there any other method an aircraft can gain access to an airport within the D.C. SFRA?

63. What frequency(ies) must be monitored while operating within the D.C. SFRA?

64. Are there any special procedures applicable to Martin State Airport with respect to D.C. SFRA operations?

65. What should you do when Martin Tower says, "Frequency Change Approved"?

67. What happens if the aircraft's transponder fails during a flight within the D.C. ADIZ?

70. What should you do when Potomac Approach says, "Proceed on Course"?

72. How would you file a flight plan for a trip from Martin State Airport to Leesburg Airport In Leesburg, Virginia?

73. You are approaching the GOLDA intersection from the Northeast, en-route back to Martin State, are flying at 4,500 feet, and after calling Potomac Approach, hear the following, "Beacon code observed, Proceed on Course, Remain clear of Bravo, and Call Martin Insight". Is this an authorization to fly through R-4001A/B and how would you know what restrictions are in-place?

76. You are approaching the EMI VORTAC, en-route back to Martin State, are flying at 5,500 feet and see a military aircraft alongside you rocking its wings. What should you do?

I understand that this Pre-Solo written examination is a sampling of, and NOT all-inclusive to, the knowledge required of me as a student pilot. As a student pilot I am required to abide by all applicable Federal Aviation Regulations (FAR) contained in 14 CFR parts 61 and 91. I have reviewed these FAR's and fully understand my responsibilities as a student pilot.

Student Name _____

Student Signature _____ Date: _____

CFI Name _____

CFI Signature _____ Date: _____