

Pre-Solo Written Exam

Before we can let you solo, you will need to complete the pre-solo written examination, as required by 14 CFR Part 61. While this is an open book examination, which you can start working on at any time, it's important that you realize that this information must be well understood by you prior to your solo. If you have any doubts about your answers, or feel that you do not understand a concept completely, ask an instructor to clarify.

Once you have completed your pre-solo written, schedule an hour of ground school with an instructor. The two of you will review the examination, verifying that all of your answers are correct, and that you completely understand all of the concepts. If any answers are incorrect, additional instruction will be provided. The instructor will retain the original examination for his/her files. (If you want a copy of the examination, please make a photocopy prior to your ground instruction.)

If the instructor is satisfied that you have the knowledge necessary to safely pilot an aircraft in solo flight, (s)he will give you the pre-solo knowledge endorsement in your log book.

You will need the following materials to successfully complete this examination. (If you are missing any of these materials, they are available for purchase at Sanford Air.)

- ✓ A copy of the pilot operating handbook for the aircraft you are learning to fly.
- ✓ A current New York sectional chart.
- ✓ A current copy of the FAR/AIM.
- ✓ Your text books.
- ✓ Any other materials you would normally bring on a flight.

Remember – take your time and enjoy yourself.

9. What is CTAF, and on what frequency can it be received at Sanford Air?

10. What is UNICOM, and on what frequency can it be received at Sanford Air?

11. After consumption of alcoholic beverages, what conditions must be met prior to acting as the pilot of a civil aircraft?

12. When must safety belts and shoulder harnesses be worn?

13. What is the legal minimum fuel reserve for day VFR flights? On what speed is this based? What minimum fuel reserve will you use?

14. Describe the difference between a "Mode A" transponder, and a "Mode C" transponder.
15. Above which altitude must a transponder (with Mode C) be used? What exception applies?
16. What is the rule regarding the operations of a Mode C transponder in the vicinity of Class B airspace?
17. Do you need to use a Mode C transponder when operating:
- a. In Class G airspace? _____
 - b. In Class E airspace? _____
 - c. In Class D airspace? _____
 - d. Above Class D airspace? _____
 - e. In Class C airspace? _____
 - f. Below Class C airspace? _____
 - g. Above Class C airspace? _____

18. What aircraft documents must be onboard when you are flying solo (ARROW)?
19. Two aircraft are in the traffic pattern at the same time. Who has the right of way?
What stipulation applies to this rule?
20. You are overtaking another aircraft. Who has the right of way?
21. You are converging with another aircraft from the left (the other aircraft is on your right). Who has the right of way? How do you pass?
22. You are encountering another aircraft, head on. Who has the right of way? How do you pass?

23. How close to another aircraft can you legally operate?

24. Except as necessary for takeoffs and landings, what is the lowest altitude you may fly over congested areas?

25. Except as necessary for takeoffs and landings, what is the lowest altitude you may fly over non-congested areas?

26. If you are unable to obtain the altimeter setting for an airport you are departing from. To what value should you set the altimeter?

27. You have set your altimeter to the local altimeter setting prior to takeoff. What is the maximum permissible altimeter error?

28. List the three vacuum instruments/gauges in your aircraft. How can you detect a failure of the vacuum pump?

29. List three pitot-static instruments/gauges in your aircraft. What would happen if the pitot tube and the drain hole were blocked at the same time?

30. When flying in a straight line, above 3,000 feet AGL, what altitudes should you use?

31. When practicing your air work (not including ground reference maneuvers), above which altitude (AGL) should you begin the maneuver?

32. At what altitude (AGL) should you be when practicing ground reference maneuvers?
33. From which direction (relative to the wind) do you enter a ground reference maneuver? Why?
34. When is it appropriate to abort a landing?
35. You are climbing through 200-feet AGL, over the departure end of the runway, when your engine fails. What procedures do you use?
36. You are in cruise flight, at 2,000-feet AGL, when your engine fails. What procedures do you use?

37. You are practicing your maneuvers over Wells Beach when ground fog envelopes Sanford. What do you do?

38. When flying, you accidentally penetrate a cloudbank. What do you do?

39. List the following frequencies: (NOTE: These must be committed to memory).

- a. Sanford CTAF
- b. Sanford UNICOM
- c. Sanford AWOS
- d. Portland Approach (north of Sanford)
- e. Boston Approach (south of Sanford)
- f. VHF Guard (Emergency)

40. What equipment and instruments must be properly working prior to departing on a day, VFR flight?

41. Define and identify the following airspeeds for your aircraft? If they are marked, how are they marked on the airspeed indicator?

- a. VSO
- b. VS1
- c. VX
- d. VY
- e. VFE
- f. VGLIDE
- g. VA
- h. VNO
- i. VNE

42. What flap setting should you use for a short-field takeoff?

43. What is the total fuel capacity of your aircraft? How much is usable?

44. You are flying at 3,000 feet, with an altimeter setting of 29.62-inches. The outside temperature is 4-deg C., and you are running at 75% power. What is your airplanes' fuel consumption?

45. What grade of fuel is used in your aircraft? What color is it?

46. When you sump your tanks, you find only a clear liquid. What are two possible causes?

47. What is the maximum oil capacity of your aircraft?

48. What is the minimum oil quantity with which you are allowed to depart in your aircraft?

49. What is the maximum crosswind component, as specified by your instructor, for solo flight?

50. You are departing on runway 32. The wind is 290 at 21 knots. What is the crosswind component?

51. What are the indications of carburetor icing?

52. The engine is running roughly, and you turn on carburetor heat. The engine begins to sound worse. What do you do?

53. Your aircraft is loaded to its maximum certificated takeoff weight. AWOS is reporting:

KSFM 172015Z 29014KT 10SM CLR 01/M10 A3006 RMK AO1

On which runway would you depart? What is the takeoff distance over a 50-foot obstacle? What is the landing distance over a 50-foot obstacle?

54. When approaching an airport to land, each pilot must make all turns of that airplane to the _____ unless the airport displays approved light signals or visual markings indicating that turns should be made to the _____, in which case the pilot must make all turns to the _____.

55. Based on the previous question, name two other sources of information regarding the direction of turns in traffic patterns.

56. At Sanford, identify the direction of turns in the traffic pattern for each runway?

- a. 7
- b. 14
- c. 25
- d. 32

57. What is the traffic pattern altitude at Sanford?

58. What is the recommended method of entering the traffic pattern at Sanford?

59. You are departing on runway 32, and wish to fly to the Wells coast for some practice. How would you exit the traffic pattern?

60. When aircraft operating in the traffic pattern at Sanford, what radio calls are they required to make on CTAF?

61. When operating in the traffic pattern at Sanford, what radio calls are recommended?

62. How can you determine if a runway is closed?

63. What are the typical dimensions of Class D airspace? Give an example of nearby Class D airspace.

64. What requirements must be met prior to entering Class D airspace?

65. Prior to taxiing at a Class D airport, whom must you contact for instructions?

66. What requirements must be met prior to entering Class C airspace?

67. Give an example of nearby Class C airspace.

68. As a student pilot, and without special training and an endorsement, may you operate an aircraft within Class B airspace?

69. If an air traffic controller gives you instructions that may compromise your safety or cause you to violate a regulation, what should you do?

70. You are approaching Pease. When you attempt to contact ATC, they reply with "Aircraft calling Pease, please standby." Are you allowed into their airspace? Why or why not?

71. You are approaching Portland. When you attempt to contact ATC, they reply with "Cessna 93114, please standby." Are you allowed into their airspace? Why or why not?

72. You are approaching Boston. When you attempt to contact ATC, they reply with "Warrior 8321H, squawk 4376 and ident." Are you allowed into their airspace? Why or why not?

73. You are flying directly over the Sanford Air building with an indicated altitude of 950 feet. What type of airspace are you in? What are the cloud clearance requirements?

74. Are student pilots allowed to operate under Special VFR?

75. What landmarks can you use to remain clear of Portland's airspace?

76. What landmarks can you use to remain clear of Pease's airspace?

77. What landmarks can you use to remain clear of P-67 (the prohibited airspace around Walkers Point)?

78. Where are there wildlife refuges in the vicinity of Sanford? What is the minimum recommended altitude for operations above wildlife refuges?

79. When a large business jet lands at Sanford, it generates wake turbulence that can be hazardous. How long should you wait before landing on the same runway?

80. The winds at Sanford are from 320-deg at 10 knots, and you are doing crosswind-landing practice on runway 25. A Robinson R-22 helicopter (a small, two-seat helicopter) is also in the pattern for 25, but is flying right traffic (per regulations), and is landing to the right of the runway. Do you need to worry about rotor wash? Why or why not?
81. It is a bright, beautiful and sunny summers day, with light winds and smooth air. You decide to go for a relaxing flight in the vicinity of Lebanon, ME. What hazards should you be aware of?
82. Describe the operations of the "AUX" switch on the aircraft's audio panel.
83. When locking and unlocking the primer in your aircraft, in which direction should you turn it?

84. When starting an engine, what is the maximum RPM setting allowed before the aircraft registers oil pressure?
85. If the alternator fails on your aircraft, and you are running on battery, how much time do you have until the engine stops?
86. You are on short final, when you inadvertently pull the mixture to idle/cutoff instead of pulling the throttle to idle. What is the best way to restart the engine? Describe why this works.
87. Why is it important to obtain a preflight briefing from Flight Services prior to every flight? What is the phone number for Flight Services?
88. How much frost are you allowed to have on the wings of your aircraft when taking off?

89. When practicing stalls, you inadvertently enter a spin. What are the spin recovery procedures for your aircraft?

90. Are intentional spins allowed in Sanford Air aircraft?

91. When will an airplane stall?