

Instrument Stage 1 Questions
PIC Requirements/Currency

1. What are the requirements to obtain an instrument rating?

2. What aeronautical experience is required for the instrument-airplane rating?

3. What privileges can you exercise with an instrument rating?

4. Since July 17th, 2019, you have completed 5 instrument approaches and 2 landings. Today is November 20th, 2019 and IMC prevails across the area.
 - Can you do this flight solo? With passengers?
 - When does your instrument currency expire?
 - Can you get current by flying solo in February 2020?
 - What can you do if you do not complete your instrument currency requirements within 12 calendar months?

5. What is the difference between currency and proficiency?

6. How do you change your mindset when you might be current but not proficient?

7. What are your personal minimums?

8. Why is it important to set personal minimums?

Required Equipment

10. What is the required equipment for IFR flight?

11. What actions should you take if you find that the PFD is inoperative during preflight?

12. What steps should you take if you find inoperative equipment during preflight?

Analog Flight Instruments

13. What are the different pitot/static instruments and how do they operate?

14. What happens to the airspeed indicator if?

- The ram and drain hole are blocked?

- The ram hole is blocked but the drain is open?

- The static port is blocked but the ram and drain are open?

15. What happens to the V.S.I. if the static port is blocked?

16. What happens to the altimeter if the static port is blocked?

17. If while flying you notice the altimeter is frozen what may have happened? Is there anything we can do? What does the POH say?

18. What are the gyroscopic instruments and how do they operate?

19. What is the purpose of pendulous vanes?

20. Which gyroscopic instruments are electric and which ones use the vacuum? And why?

21. Describe how the magnetic compass operates and its errors.

G1000 Instruments

22. What instruments work off the ADC component of the ADAHRS and how do they get their information?

23. What instruments work off the AHRS component of the ADAHRS and how do they get their information?

24. Does the archer have gyros? If so, what kind?

25. Describe the magnetometer. Where is it located? Why?

26. Describe the Aspen Evolution Standby.

27. Draw and explain the G1000 Line Replaceable Units (LRU) layout.

28. If there is a pitot tube blockage how would the pilot know?

29. If there is a static blockage how would the pilot know?

30. How is a flight deck check performed? What do you look for?

PA-28-181 Systems

31. Describe the fuel system.

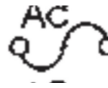
32. Describe the pitot/static system.

33. Describe the electrical system.

34. How many electrical buses do we have? What are they?

35. How many batteries are onboard the aircraft?

36. What are these symbols?



Departure Procedures

37. What are the different types of departure procedures?

38. What are SIDs and why do airports have them?

39. Are there different types of SIDs? If so, what are the differences?

40. What is the purpose of an ODP? When is an ODP created for an airport?

41. For the Riverside 1 Departure runway 27 requires what ft/nm climb? How do you convert that to ft/min?

42. How do you depart an airport with no departure procedure?

43. Describe a VOCA.

Failures

43. What should you do if you experience an alternator failure during flight?

44. What should you do if you experience a PFD failure during flight and what features, if any, will become inoperative?

45. If we have an alternator failure what is powering the aircraft systems now? What if that power source fails? What if that subsequent power source fails?

46. While on an IFR flight in IMC your MFD becomes inoperative. What actions should you take? Should you declare an emergency?

Aircraft Icing

46. What are the different types of ice?

47. What are the different types of structural icing? Which one is the most dangerous and why?

48. What conditions, temperature ranges and cloud types do different types of ice occur?

49. Define known icing.

50. Are we certified to fly in known icing conditions? How do we know?

51. What are some different weather products that will forecast known icing?

52. How can we tell if ice is forming on the aircraft?

53. Explain a tail stall. How would a pilot identify it and why does a tail stall first?

54. If a tail stall is encountered what action should be taken?

55. What is the difference between de-ice and anti-ice?

56. What de-icing or anti-icing systems do we have?

57. What are other types of anti-icing and de-icing systems?

GPS/RAIM/WAAS

58. Describe the GPS system. How does it operate?

59. What is RAIM and what is its purpose? How do you check if RAIM is available?

60. Describe the WAAS system. Are we equipped with this?

61. Why is it important to have a current database for the GPS?

62. Can you fly in IFR conditions without a current database?

63. Can you use a handheld GPS for IFR navigation?

64. What are the GPS requirements for IFR flight?

65. How do we check GPS during the instrument takeoff brief?

66. Does GPS replace DME?

Ground Based Navigation

67. What is a VOR and how does it operate?

68. What are the different service volumes of a VOR?

69. What are the limitations of a VOR?

70. Describe the errors of a VOR?

71. What are different types of VOR checks? How do you record them? How often?

72. Describe an NDB.

73. What is an ILS? Describe the three components.

74. What are the coverage volumes of a localizer and glideslope?

75. What is an RMI? How does it work?

Holding Procedures

76. What is the purpose for holds? What would be some situations that would require a hold?

77. When is a hold considered published?

78. What are the different types of holds?

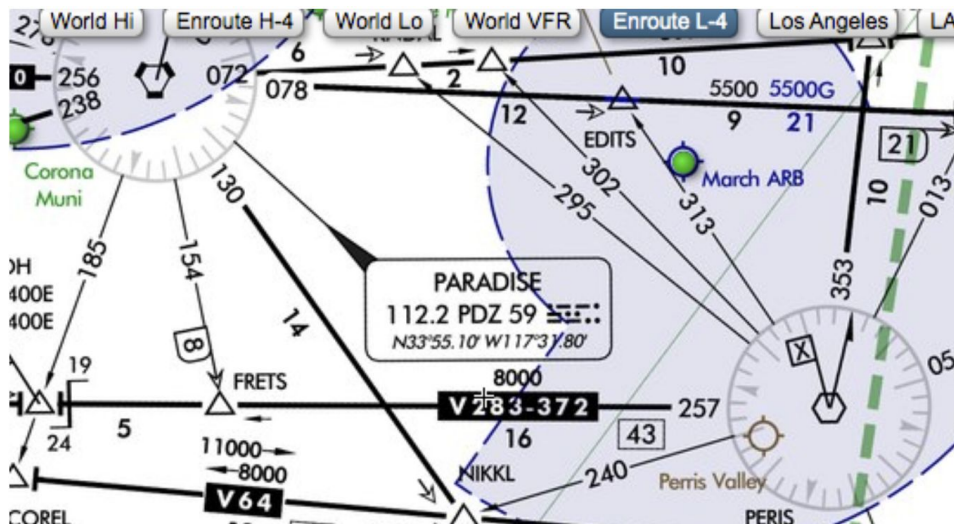
79. Describe the different holding entries.

80. What are the maximum holding speeds? When should you start to slow to that speed?

81. What basic information is given during hold instructions? What should you do if you do not understand these instructions?

82. Draw out the hold

- Hold northeast of the Paradise VORTAC on the 030° radial
- Hold west of the 10 DME fix on the 270° radial of the Paradise VORTAC, 5 mile legs, left turns
- Hold east of FRET intersection on V283



83. If you are holding over PDZ when do you start your timer on the outbound leg?

84. How can you identify abeam the VOR? Abeam the holding fix of a DME or intersection hold?

85. How is wind correction calculated for the outbound leg?

86. What are the Ts considered in a hold?

87. What should you report when reaching and leaving a holding fix?

88. How long should your legs be if you are holding at 6,000 MSL vs. holding at 20,000 MSL?

89. What is the purpose of an EFC time?

ATC Clearances

90. What does the acronym CRAFT stand for?

91. What are different ways to obtain an IFR clearance on the ground and in the air?

92. What if you do not like the instructions given? Do you have to follow them? Is there a way to request a change?