

Instrument Pilot Study Guide

1. Define "ceiling."
2. Which of the following is not controlled airspace?
 - a. Class A
 - b. Class B
 - c. Class C
 - d. Class D
 - e. Class E
 - f. Class F
 - g. Class G
3. Define equivalent airspeed:
4. Define true airspeed:
5. Flight time is from:
 - a. takeoff to touchdown
 - b. runup to clear of landing runway
 - c. first movement until coming to rest
 - d. hobbs time
6. Compare/contrast VFR-Over-the-Top with VFR-on-Top:
7. What is the difference between an MM and an LMM?
8. Define:
MEA
MAA
DH
ALS
MALS
MALSR
MCA
MOCA
MRA
NOPT
PAR
RCLM
RCLS
RVR
SSALS
TDZL
HAA
HAT
V_{S0}
V_{S1}
9. On what date does your medical certificate expire?
10. Give examples of "category" and "class" as they pertain to a) airmen certification, and b) aircraft.
11. What time may an instrument pilot log as instrument flight time?
12. What are the recency of flight requirements for instrument flight?
13. Define transition area:
14. Use of portable electronic devices by your passengers is prohibited: T/F?
15. What are the IFR fuel requirements?
16. Where are Mode C transponders required?
17. Describe the four types of VOR equipment checks:
18. What equipment is required to be installed in the aircraft for instrument flight?
19. Where must the ELT battery expiration date be recorded?
20. What are the aircraft speed limits?
21. It is illegal to turn off your strobe lights while flying IFR at night. T/F?
22. An alternate airport must be listed on any IFR flight plan unless...
23. What weather minima must be forecast at a given airport in order that you may list that field as an alternate?
24. You may not continue an approach below MDA or DH unless:
25. On an ILS, the missed approach point is where?
26. What are the required components of an ILS?
27. What navigation facilities may you substitute for the:
 - a. outer marker
 - b. middle marker
28. When may you operate below the published MEA?

29. You are approaching the Long Beach airport. You are operating on an IFR flight plan. The approach controller gives you the following clearance:

"CESSNA TWO SIX ALPHA, TURN LEFT, HEADING THREE THREE ZERO, VECTORS FOR THE LONG BEACH VOR RUNWAY 30 FINAL APPROACH COURSE, MAINTAIN TWO THOUSAND UNTIL ESTABLISHED, CLEARED FOR THE APPROACH, CONTACT THE TOWER AT THE VOR."

What kind of procedure turn is required? (See Long Beach VOR Rwy 30 approach plate.)

30. You are approaching a VOR enroute. The MEA is 5000 feet higher on the next leg (on the other side of the VOR.) When should you begin your climb to the new MEA?

31. You are cleared "VFR conditions on top." At what altitudes may you fly?

32. Define "route" when you are:

- a. on an airway:
- b. off airway

33. List the thirteen required reports; note which are required at all times vs. not in radar contact. (AIM 5-3-2 and 5-3-3; FAR §91.183)

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.
- 8.
- 9.
- 10.
- 11.
- 12.
- 13.

34. Why are pilots encouraged to monitor NDB audio continuously during NDB approaches?

35. What are the correct instrument indications when checking a VOR on a VOT signal?

36. What is "slant range?" Why is it of concern to pilots when utilizing DME?

37. What is the course width (full scale left to full scale right) of a localizer at the runway threshold?

38. What is an LDA?

39. What is an SDF?

40. What is the "normal" glideslope angle?

41. Your marker beacon receiver should normally be set to high or low sensitivity?

42. What are the morse code identifiers and light colors for:

- a. OM
- b. MM
- c. IM

43. What are the morse code identifiers transmitted by:

- a. LOM
- b. LMM

44. Sometimes VOR's are allowed to continue transmitting navigation signals even while the facility is undergoing maintenance. During these times the navigation signals may be dangerously inaccurate. What two means are available to alert you, the pilot, that these signals are not to be used?

45. How might you have found out about this (43, above) prior to takeoff?

46. What is the accuracy of LORAN-C?

47. If a LORAN station was out of service, how would you know?

48. Under what conditions might your aircraft be invisible to ATC radar?

49. What are the positions and colors of a runway edge lighting system?

50. Some airports permit pilot control of airport lighting when the airport is unattended. How is this done?

51. Define Class E airspace:

52. Define Class A airspace:

53. What is the significance of the magenta tint on VFR charts:

54. Define Class D airspace:

55. Pilots on IFR flight plans must continue to scan for other traffic when operating in VFR weather conditions, because they still are responsible to see and avoid other aircraft, except when inside Class B airspace. T/F?

56. While enroute, you notice that the course and altitude given to you by ATC will cause you to penetrate a restricted area. You should:

- begin circling, avoid the restricted airspace, and request an amended clearance from ATC.
- fly through the restricted airspace
- remain on course, but request an amended clearance far enough before the restricted airspace to permit the controller to issue a new clearance prior to penetration of the restricted area.
- request an amended clearance; if ATC will not provide one, then comply with your clearance and report the incident to the ATC facility manager as soon as practical after landing.

57. Same situation as question 56, above, except the airspace in question is a MOA. What should you do?

58. Define an Alert Area.

59. Standard Instrument Departures provide terrain clearance during your departure and climb provided the aircraft maintains a climb gradient of not less than _____ feet per nautical mile.

60. T/F: When departing from or arriving at an airport not served by an operating control tower, IFR pilots are not required to announce their intentions on the CTAF, as they are required to be in contact with approach/departure control.

61. Wind speed and direction in an airport ATIS broadcast are given in:

- MPH/true
- MPH/magnetic
- KTS/true
- KTS/magnetic

62. You have listened to the ATIS of your destination airport. The correct way to convey this to the approach controller is:

- CESSNA TWO SIX ALPHA HAS THE NUMBERS
- CESSNA TWO SIX ALPHA INFORMATION ZULU RECEIVED
- CESSNA TWO SIX ALPHA HAS THE INFORMATION

63. What is a Warning Area?

64. What frequency is used for air-to-air communications?

65. T/F: ATC is required to advise a pilot on an IFR flight plan of a converging VFR or unidentified track.

66. What is a Tower Enroute Clearance? When and why would you use it?

67. CESSNA TWO SIX ALPHA, CRUISE TEN THOUSAND." What does this clearance mean? What does it permit you to do--and not do?

68. ATC will generally issue holding instructions how many minutes prior to you reaching the holding fix?

69. What should you do if you have not received a clearance past the clearance limit by the time specified in your answer to the previous question?

70. When ATC assigns you a new altitude, what rate of climb or descent are you expected to use?

71. Compare and contrast NOTAM(L), NOTAM(D), FDC NOTAMS and Class II (NTAP) NOTAMS. (AIM 5-1-3)

72. What NOTAMS are NOT included in your FSS Standard Briefing unless specifically requested by you?

73. What type of NOTAMS are not disseminated either by computer or by written publication? How could you get such information, and what kind of information might it include?

74. What is a composite flight plan?

75. What suffixes are used to denote aircraft with the following equipment?

- no tpx
- txp
- txp with Mode C
- DME, tpx and Mode C
- RNAV, tpx and Mode C

76. Your destination is South Lake Tahoe, CA. The weather forecast calls for 2000 and 3 for 1 hour before and after your ETA. An alternate is not required (why?), but a prudent pilot would file one anyway. Why?

77. Your destination is an unattended, uncontrolled field. As such, your IFR flight plan is not automatically closed by ATC upon your arrival as it would be at a controlled airport. After landing and securing your aircraft, you find that the only phone on the field is out of service. Due to lack of line of sight coverage, you cannot contact any ATC facility by radio from the ground. Your cousin was to meet you at the airport, but is delayed. In all, it is two hours before you can get to a phone and call the FSS. What has happened during this time?
78. What is a CLEARANCE VOID TIME? When, where and why is it used?
79. What is a "SID?" If you do not have SID charts, how can you avoid getting a SID in your clearance?
80. SID procedures provide obstacle clearance provided you climb to what altitude prior to turning?
81. What is a "COP?"
82. What is the length of the inbound leg of a holding pattern?
83. When do you begin timing the outbound leg of a holding pattern?
84. While on radar vectors for the final approach course, you see that you are crossing the localizer, but you have not been cleared for the approach. What should you do?
85. What is an MSA? When would you fly it?
86. What is an MVA?
87. The approach controller issues the following clearance prior to you reaching the IAF: "CLEARED FOR THE APPROACH." Of the seven different approaches published for this airport, how do you know which one you must use?
88. While on the final approach segment of an IFR approach, you notice that you have a gear unsafe light. You decide to begin the missed approach early. When may you begin climbing? When may you turn away from the final approach course?
89. You are in IMC. ATC clears you for the VISUAL APPROACH. What should you do?
90. What is a CONTACT APPROACH? When might you get one?
91. Under a lost communications condition, what course and altitudes must you fly?
92. Both of your communications radios have failed, and your hand-held has a dead battery. How else might you receive voice communications from ATC?
93. In a lost-communications scenario, at what time should you begin the instrument approach?
94. Terminal Aerodrome Forecasts (TAFs) are issued ? times daily.
95. Terminal Aerodrome Forecasts (TAFs) are valid for ? hours.
96. A pilot should request a Standard Briefing when:
97. What information, potentially critical to the safety of flight, is NOT included in a Standard Briefing unless specifically requested?
98. A pilot should request an Abbreviated Briefing when:
99. A pilot should request an outlook briefing when:
100. You are enroute, at altitude, navigating by VOR. How might you obtain an inflight update of your preflight briefing?
101. Convective Sigmets are issued to alert pilots of what phenomena?
102. When are Convective Sigmets broadcast?
103. SIGMETS are issued to alert pilots of what phenomena?
104. AIRMETS are issued to alert pilots to what phenomena:
105. What service provides radio broadcasts of selected weather?
106. What is the broadcast schedule for Severe Weather Forecast Alerts (AWW) and Convective SIGMETS?
107. What is the broadcast schedule for SIGMETS, CWA's and AIRMETS?
108. Ceilings in aviation weather reports are AGL or MSL? Refer to your enroute low altitude chart.

109. You are flying from Fillmore to Avenal via V107.

- What is the MEA?
- Where is the COP?
- How far is it from Fillmore to Avenal?
- How far is it from Fillmore to Reyes intersection?

110. You are flying V107 from Santa Monica to Avenal. You have lost all communications capability. You filed and were assigned an altitude of 5000 feet MSL.

- What is the MEA between GINNA intersection and Fillmore VOR?
- What is the MEA between Fillmore VOR and PIRUE intersection?
- When should you begin your climb to the higher MEA?

111. You are flying from Van Nuys to San Luis Obispo. The forecast calls for a freezing level of 7000 MSL. What route should you take? What cruising altitude will you request?

112. What are frontal waves? (Aviation Weather)

113. How does advection fog form? Where in the Western US is it common?

114. What is stable vs. unstable air?

115. What conditions are indicative of greater possibility of thunderstorms?

- a. Excellent visibility
- b. Poor visibility
- c. Smooth air
- d. Stratus clouds
- e. Turbulence
- f. Scattered, puffy clouds

116. Given the following winds aloft forecast:

FT	3000	9000	18000	30000
STL		2332+02	2356-27	730649

- a. What is the wind and temperature at 30,000 feet?
- b. Why are there no winds forecast for 3000?

117. In the winds aloft forecast, altitudes are true or pressure?

118. Describe the procedure for flying a DME arc.

119. Refer to the Burbank NDB Runway 8 approach plate. The ATIS reports visibility of 3/4 in haze and smoke, sky partially obscured, estimated ceiling 800 broken. You conduct the approach and are able to see the threshold and the ALS prior to reaching the MAP. After landing ground control instructs you to call the tower immediately after securing your aircraft. What has happened?

120. You are at the Fillmore VOR; the controller clears you for the Van Nuys VOR DME-B. What altitudes and routes do you fly, and where may you begin your descent in each case?

121. What are the IAF's for the Van Nuys VOR DME-B approach?

122. Refer to the Burbank, CA LOC Rwy 8 Approach. This is a non-precision approach; why are there no FAF to MAP times listed at the bottom of the chart?

123. You are flying from Santa Monica, CA (SMO) to San Diego-Lindberg, CA (SAN) via the following clearance:

LAX V64 SLI V23 MZB

Just as you arrive over the Oceanside VOR (OCN) you lose all communications capability. You are in IMC. You decide to use the LOC Rwy 27 approach, and you have not been given an EFC time.

Will you have to hold? (Assume you are on schedule.) If you must hold, where and for how long? When will you leave which fix to begin the approach?

124. Same as 122, above, except you have an EFC time of 25 minutes past the hour. Your filed ETA is 27 minutes past the hour.

125. What is a TEC Route?

126. Where can you obtain a listing of the TEC routes for your area?

127. You are about to begin a standard rate turn. How do you estimate the approximate angle of bank?

128. State the approximate relationship between manifold pressure, rpm, rate of climb/descent and airspeed.

129. To transition from a climb or descent to level flight, begin the level-off how far from your desired altitude?

130. To correct an altitude error (deviation from desired altitude in level flight) use a rate of climb (or descent) equal to:

131. During straight and level flight, use pitch alone to correct altitude errors of less than _____ feet; for larger errors, _____ must also be used.

132. While flying an ILS, use (pitch/power) corrections alone to deal with small deviations from the glideslope. For large needle deflections, or when airspeed changes significantly, you must also use what?

133. Describe the procedure for changing airspeed during straight and level flight.

134. Describe the procedure for changing configuration during straight and level flight at a constant airspeed.

135. What are the Five "A's," and when do you do them?

136. What are the Six "T's," and when do you do them?

137. Describe the procedure for unusual attitude recovery, nose high, and nose low.

138. The Burbank, CA ILS 8 plate provides for flying the ILS without the glideslope, or "GS OUT." What is the difference between this and the Burbank LOC 8 approach? Why are they different?

139. When can you use a GPS for enroute IFR navigation?

140. When may you use a GPS for an instrument approach?

141. How can you determine if the GPS is IFR enroute and approach certified?

142. How can you tell if the database is current?

143. What is RAIM?

144. What is a waypoint?

145. What is autosequencing?

146. What is a flight plan?

147. What is a leg?

148. What is the OBS mode?

149. What is DTK?

150. What is TRK?

151. What is BRG?

152. How do you tell which radio (VOR or GPS) is driving the first CDI?

153. How do you go direct to a waypoint?

154. How do you change the active waypoint in a flight plan?

155. How do you clear a flight plan?

156. How do you store a flight plan?

157. How do you invert a flight plan?

158. How do you insert or delete a waypoint?

159. Can the airspace depictions on the moving map page be used to avoid airspace? Why?

160. Does the moving map display all possible traffic hazards?

161. What are the limits of the traffic display?

162. What are the limits of the terrain display?

163. Contrast ENR, TERM and APPR modes:

164. What conditions are required to enter the TERM mode?

165. What conditions are required to enter the APPR mode?

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