
Instrument Oral Exam Guide

1. What are the instrument currency requirements? (FAR 61.57)
 - ◆ Within the preceding 6 calendar months at least: (has to be same category)
 - ◆ 6 Instrument approaches, 1 Hold, Intercepting & Tracking
2. What happens if a pilot allows his instrument currency to expire? (FAR 61.57)
 - ◆ After 6 months beyond the expiration of IFR currency, the pilot in command may not operate in IFR conditions as PIC without receiving an instrument proficiency check or performing the above task with a safety pilot in simulated conditions.
3. Who can be a safety pilot?
 - ◆ Any appropriately rated pilot with at least private pilot license (same category and class).
4. What is legally considered instrument flight time? (FAR 61.51)
 - ◆ Flight solely by reference to the instrument.
5. When do you have to file an alternate? (FAR 61.167)
 - ◆ 1 hour before and 1 hour after ETA at airport, the weather reports of forecast indicate:
 - ◆ 2000 feet ceiling
 - ◆ 3 SM Visibility
6. What are the standard alternate minimums? (FAR 61.169)
 - ◆ 600 ft ceiling and 2 SM Visibility – Precision Approach
 - ◆ 800 ft ceiling and 2 SM Visibility – Non-Precision Approach
7. How can I tell if an airport has non-standard alternate minimums?
 - ◆ Look for dark triangle with the letter “A” on the approach plates
8. What are the standard take-off minimums? (FAR 61.175)
 - ◆ 1 SM for 1 or 2 engine
 - ◆ 1/2 SM for more than 2 engines
9. What are the fuel requirements for IFR flight? (FAR 61.167)
 - ◆ Complete flight to airport of intended landing
 - ◆ Fly from that airport to alternate (if required)
 - ◆ Fly for 45 minutes at normal cruising speed
10. What is the standard take-off procedure? (AIM 5-2-6)
 - ◆ Climb to 400 feet before turning
 - ◆ Based on climb rate of 200 feet/NM
 - ◆ Crossing the end of the runway at least 35 feet AGL
 - ◆ Minimum obstacle clearance gradient of 48 feet/NM is provided
 - ◆ IFR departure procedures are published in sections C & D (NACO charts)
11. How can I tell if an airport has non-standard take-off minimums and procedures?
 - ◆ Look for dark triangle with the letter “T” on the approach plates

12. What documents do you need on board an aircraft for it to be airworthy?

- ◆ A – Aircraft Airworthiness Certificate (the certificate remains valid as long as the aircraft is maintained and inspected as required)
- ◆ R – Registration Certificate (the certificate remains valid for two years)
- ◆ R – Radio Station License (valid for 5 years – for international flights)
- ◆ O – Owners Manual / Airplane Flight Manual, placards and operating limitations
- ◆ W – Weight & Balance (empty for the airplane)

13. How often must a VOR be checked for accuracy for IFR flight? (FAR 91.171)

- ◆ Within the preceding 30 days

14. What are the legal methods of checking VOR receiver accuracy, and what are the tolerances on each type of check? (FAR 91.171)

- ◆ VOT +/- 4°
- ◆ Designated Ground Checkpoint +/- 4°
- ◆ Designated Airborne Checkpoint +/- 6°
- ◆ Cross-reference a Prominent Ground Point with a VOR Radial +/- 6°
- ◆ Dual VOR Check 4°

15. Which inspections and what maintenance are required for IFR flight?

“AVIATE”

Annual inspection (91.409)

VOR every 30 days (91.171)

100 hour inspection (91.409)

Altimeter, altitude reporting and static system every 24 months (91.413)

Transponder every 24 months (91.413)

ELT every 12 months (91.207)

16. Where can you find the frequency for a VOT check?

- ◆ AFD and A/G Voice Communication on the Low Enroute Chart

17. How frequently should you check your altimeter setting?

- ◆ Set to a station within 100nm of your location

18. When can you cancel an IFR flight plan? (AIM 5-1-13)

- ◆ Fly – VFR conditions
- ◆ Ground

19. What are conditions for visual and contact approach? (AIM 5-4-20 & 5-4-22)

Visual:

- ◆ A Controller can issue a visual approach clearance
- ◆ Main purpose is to ease controller workload and expedite the flow of traffic
- ◆ Pilot must have the airport or preceding aircraft in sight
- ◆ Weather must be at least 1000 feet and 3 miles, and must remain clear of clouds

Contact:

- ◆ Can only be requested by the pilot
- ◆ Authorized by the controller
- ◆ Runway must have an approved approach procedure
- ◆ Ground visibility must be at least 1 mile and must remain clear of clouds (COC)

20. Which reports do you have to make to ATC without a request when in radar contact?

At All Times:

- ◆ A – Altitude; when leaving an assigned altitude
- ◆ C – Climb 500 ft/min., when unable to climb or descend at this rate
- ◆ M – Missed Approach
- ◆ E – Equipment; Loss of communication and/or navigation equipment
- ◆ W – Weather; not forecasted or hazardous
- ◆ A – Airspeed 5% or 10 knots; when true airspeed differs from what was filed by this amount
- ◆ S – Safety of the Flight; related information
- ◆ H – Holding; upon reaching or leaving an assigned holding fix - report time and altitude

21. When not in radar contact? (AIM 5-3-3)

Non-Radar Contact:

- ◆ Compulsory reporting point
- ◆ Outer Marker, precision approach
- ◆ FAF inbound, non-precision approach
- ◆ Flight plan points that define the route if flight is direct off-airway
- ◆ Error in excess of 3 minutes as to estimate given to ATC (for ETA)

22. What is Minimum Safe Altitude (MSA) for IFR conditions?

- ◆ Altitude depicted on approach plates which provide 1000 feet of obstacle for emergency use, usually a 25 miles radius. Navigational signal coverage is not guaranteed.

23. When are you *required* to have a Mode C transponder? (AIM 4-1-19)

- ◆ All aircraft in Class A, Class B, Class C
- ◆ With the 30 NM Mode C ring around Class B
- ◆ All airspace above 10,000 ft MSL
- ◆ Excluding the airspace at and below 2,500 ft above the surface
- ◆ *Should* be on at all times in controlled airspace (Class A, B, C, D, E)

24. What instruments are required for IFR flight?(FAR 91.205)

Day: Tachometer for each engine Oil Pressure gauge for each engine Magnetic Compass Airspeed Indicator Temperature gauge for each engine Oil Temperature gauge for each engine Fuel gauge for each tank Landing Gear position indicator Altimeter Manifold Pressure gauge for each engine ELT (91.207) Seat Belt and Shoulder Harness Flotation gear and at least one pyrotechnic signaling device if operating beyond power-off gliding distance from shore.	Night: Fuses, one spare set or three of each kind and/or circuit breakers Landing light (if for hire) Anti-collision lights (red beacon/strobes) Position light (nav lights) Sufficient electrical energy for equipment
IFR Instruments: Generator or Alternator of adequate capacity Radios (appropriate for facilities used) Altimeter (sensitive) Ball (Turn Coordinator) Clock (sweep second hand or digital presentation) Attitude Indicator Rate of Turn (Turn Coordinator) Directional Gyro DME – Fly above 24.000 ft MSL	

25. How is an aircraft approach category determined?

- ◆ 1.3 times (V_{so}) the stall speed in the landing configuration at maximum gross weight

26. When is a procedure turn not authorized?

Straight-in approach
Holding pattern
Arc
Radar vectored
Procedure turn not authorized (NoPT)
Timed approaches

27. What is the maximum holding speed for reciprocating engine airplanes, and when are you expected to effect the speed reduction?

- ◆ 175 KIAS
- ◆ Within 3 minutes of reaching the fix

28. What procedure do you follow when you have diverted from your destination and your alternate has gone below alternate minimums?

- ◆ Continue unless minimums have gone below applicable minimums for the approach
- ◆ Request a different another if possible

29. How wide is a vector airway?

- ◆ 4 NM each side of centerline up to 51 NM from the VOR
- ◆ Airways increase in width more than 51 nm from the VOR at an angle of 4.5° from centerline

30. What is a cruise clearance?

- ◆ Allows pilot to select any altitude between minimum IFR altitude (MEA) and assigned altitude.
- ◆ After reporting leaving an altitude, you can not go back to that altitude.
- ◆ Any approach can be used to land at the destination.

31. What is the sequence of information given when making a routine report IFR in a non-radar environment?

Identification
Position
Time
Altitude
Position (over next reporting point)
Time
Position (over following reporting point)

32. How often are the Enroute charts and approach plates revised?

- ◆ 56 days

33. What is the lost communication transponder code?

- ◆ Squawk 7600

34. Explain in detail the lost communication procedure with regard to altitude, routes and holding?(FAR 91.185)

1. Attempt contact – On previous assigned frequency or with a FSS
2. Monitor – NAVAIID the voice feature (cell phone)
3. Transponder – Set Transponder 7600 CODE

IFR Flight Plan / VFR Conditions:

1. Maintain VFR conditions
2. Land soon as practicable
3. Notify ATC after landing

IFR Flight Plan / IFR Conditions:

R	ROUTE (A V E F)
	A – Assigned (Last ATC Clearance) V – Vector E – Expected Further Clearance F – Filed (Flight Plan)
A	ALTITUDE HIGHEST (M E A)
	M – Minimum Enroute Altitude E – Expected Further Clearance A – Assigned Last ATC Clearance
T	TIME (ETA)
	On Time – Land Early – Hold <i>A) Is the fix an IAF?</i> <ol style="list-style-type: none">1. Early? Wait for EFC time or ETA and start the approach2. Late? Start the approach immediately <i>B) The fix is not an IAF:</i> <ol style="list-style-type: none">1. EFC Given? Leave the fix at the EFC time and fly to IAF for approach2. Late? Go to the IAF for the approach and do same as (A) above

35. If while Enroute to your destination you lost your communication completely, and upon arrival at the airport you were forced to execute a missed approach, what would your next action be?

- ◆ Go to alternate immediately. ATC will clear the airport area for 30 minutes thus shooting multiple approaches or holding will create a problem for ATC.

36. Define the following: MDA, DH, HAA, HAT, TCH, NoPT and TDZE

<p>MDA – Minimum Descend Altitude (Non-precision approach) DH – Decision Height (precision approach) HAA – Height Above Airport (highest point of any runway, used with a circling to land) HAT – Height Above Touchdown Zone (used conjunction with a straight-in approach) TCH – Threshold Crossing Height (height of GS antenna above threshold when on glidepath) NoPT – No procedure turn is authorized TDZE – Touch Down Zone Elevation (is highest point in the first 3000 ft of the runway or touchdown zone, used to determine HAT)</p>

37. What is the primary difference between a precision and non-precision approach?
- ◆ Precision provides vertical guidance (glidepath information)
38. What is meant by the term “cleared for the option” when issued in approach clearance?
- ◆ Stop-and-go, touch-and-go, full-stop, low-approach are all authorized. Used primarily in a training environment.
 - ◆ Published missed approach procedures are not to be carried out, climb out instructions should be followed if a missed approach occurs.

39. When can you descend below the MDA or DA? (FAR 91.175)

Min Decent Alt or Decision Alt

- ◆ When the runway environment is identified, the aircraft is in a position to make a normal landing and visibility requirements for that approach are met.
- ◆ The airplane does descend slightly below DA because you *make a decision* at DA, but a missed approach needs to be executed at DA

Runway environment:

- ◆ Runway, Runway Markings, Runway Lights
- ◆ Threshold, Threshold Markings, Threshold Lights
- ◆ Touchdown Zone, Touchdown Zone Markings, Touchdown Zone Lights
- ◆ VASI, REIL
- ◆ If red approach end or side row terminating bars are seen, then descent to 100 ft AGL above TDZE

40. What are the components of the ILS system?
- ◆ Localizer, Glideslope, Marker Beacon, Approach Lights Systems
41. What is compass locator?
- ◆ NDB is co-located with the outer marker
42. What is ASR, PAR and no-gyro approach?
- ◆ ASR – Airport Surveillance Radar (azimuth guidance and suggested altitudes)
 - ◆ PAR – Precision Approach Radar (azimuth and vertical guidance)
 - ◆ No-gyro – Radar guidance in the form of turn information (use standard rate turns unless on final, in which case use half-standard rate turns)
43. What do the terms VOR-A and VOR-B mean on the approach plate margin?
- ◆ Approaches are not aligned within 30° of the runway. They are circling approaches.
44. Explain a stepdown fix?
- ◆ Fix at which a descent to another altitude is allowed. Only one stepdown fix after the FAF is allowed. It must be identified by DME.
45. Does an aircraft on an instrument flight plan making an instrument approach in VFR conditions have the right-of-way or priority over other VFR traffic?
- ◆ No

46. When reporting missed approach, what procedure do you follow and what information do you give?
- ◆ Establish aircraft in climb and set up for the missed approach course. Inform ATC.
47. When will radar be used to assist an instrument approach?
- ◆ When radar is required on the approach plate and to expedite traffic.
48. Where is the missed approach executed when the navaid(VOR or NDB) is on the field? How do you time the approach?
- ◆ At station passage
 - ◆ No time is required since you wouldn't be shooting the approach if the navaid was out!
49. What is the maximum recommended allowable altimeter error for IFR?
- ◆ +/- 75 ft from field elevation
50. What is the maximum recommended allowable precision error DG for IFR flight?
- ◆ 3° in 15 minutes
51. What are the allowable errors for the attitude indicator, and how much time is allowed for the gyro to stabilize?
- ◆ 5° in turn while taxiing, and stabilized within 5 minutes
52. Does it matter where a VOT check is performed? Can it be done in the air?
- ◆ VOT check can be performed only as published in the A/FD whether as a ground or airborne checkpoint
53. When the approach controller says, "Turn left heading 230, expect ILS 5 approach," and two-way communication failure is experienced, what is your next action?
- ◆ Proceed direct to the IAF and complete the full approach if IMC
54. What is the procedure for timing the outbound leg of a holding pattern when holding at a VOR, NDB or an Intersection?
- ◆ VOR – Flag change TO – FROM
 - ◆ NDB – Needle is perpendicular to the inbound holding course
55. Explain the procedures for entering a holding pattern? (AIM 5-3-7)

a) Parallel:

1. Fly to the fix.
2. Turn outbound heading parallel to the inbound course (1 minute).
3. Turn in the direction of the holding side (opposite to the instructions by ATC). Through more 180°, inbound leg and re-intercept it from the holding side.
4. On reaching fix, turn to follow the holding pattern.

b) Tear Drop:

1. Fly to the fix.
2. Turn to a heading for 30° teardrop, to make good a track within the pattern (on the holding side) at 30° to the reciprocal of the inbound leg (1 minute).
3. Turn in the direction (opposite to the instructions by ATC) of the holding pattern to intercept the inbound leg.
4. On reaching fix, turn to follow the holding pattern.

c) Direct:

1. Fly to the fix.
2. Turn to follow the holding pattern.

56. What is the maximum altitude you can fly in reference to the instrument low altitude Enroute charts?

- ◆ Chart is good up to 17,999 ft, and highest cruising altitude would be 17,000 ft.

57. What are the three AGL altitudes on the approach plates?

- ◆ HAT, HAA, TCH

58. Explain the sensing on the ILS, front and back course, inbound and outbound?

- ◆ HSI – No difference if set to Front Course
- ◆ With an OBS:

<i>Front Course</i>	<i>Back Course</i>
When tracking localizer: Inbound – Direct sensing occurs Outbound – Reverse* sensing occurs	When tracking localizer (NO Glideslope): Inbound – Reverse sensing occurs Outbound – Direct sensing occurs

* When using ‘cardinal’ headings, there is no ‘reverse’ sensing. The needle will point to the opposite way to turn (left/right) but will point in the correct CARDINAL DIRECTION as long as the OBS is set to the front course

59. How would you correct for fly up or fly down error while on an ILS approach?

- ◆ Fly towards the needle with specific heading corrections for WCA
- ◆ Pitch – for glidepath
- ◆ Power – for airspeed

60. What is the FAF on a precision approach?

- ◆ Glideslope interception

61. Define the following: MEA, MOCA, MAA, MRA, and MCA?

- MEA** – Minimum EnRoute Altitude (guarantees adequate obstructions clearance: 1,000 ft non-mountain and 2,000 ft in mountains within 4 NM of airways. Navigational signal reception guaranteed but *not communications*!).
- MOCA** – Minimum Obstruction Clearance Altitude (provides same obstruction clearance as MEA, navigational signal coverage is guaranteed only within 22 NM from facility).
- MAA** – Maximum Authorized Altitude (highest altitude to avoid signal interference).
- MRA** – Minimum Reception Altitude (lowest altitude that guarantees reception of signals defining an intersection or fix).
- MCA** – Minimum Crossing Altitude (when MEA changes and the new altitude is required at the change, MCA is shown).

62. What symbol on the chart indicates a change in MEA, MOCA or MAA?

- ◆ | ---- | (terminating bars)
- ◆ | and | flags for MAA, MCA, MOCA

63. Explain the term “straight-in” versus “circling minimums”?

- ◆ Straight-in minimums require the runway to be aligned within 30°, otherwise circling minimums will be shown.

64. What is Tower Enroute Control (TEC)? (AIM 4-1-18)

- ◆ Applies to non-turbojet aircraft below 10,000 ft and flights less than 2 hours. Tower Enroute Control (TEC) information can be found in the A/FD when applicable in your area. It allows a pilot to fly IFR from one point to another without leaving approach control airspace (Orlando Exec. direct to Sanford).

65. What is a timed approach?

- ◆ Occurs when busy at airports to expedite traffic. The following are requirements for timed approaches:

- ◆ Control tower must be in operation.
- ◆ Direct communications are maintained between the pilot and the center or approach controller until pilot is instructed to contact the tower.
- ◆ If more than one missed approach, none required at course reversal.
- ◆ If only one missed approach procedure, no course reversal and visibility and ceiling are above prescribed circling minimums.
- ◆ No procedure turn is authorized when cleared for approach.

66. What is side-step maneuver, and why would you have to do such a maneuver?

- ◆ Landing on a parallel runway after using an approach for a different runway.
- ◆ Begin side-step ASAP after runway environment is in sight.
- ◆ The runway must be within 1,200 feet of the parallel runway.
- ◆ Landing minimums will be higher than the primary runway, but normally lower than circling minimums.

67. You are on a circling approach and have started your circling maneuver when you suddenly lose sight of the runway environment. How do you execute your missed approach?

- ◆ Climb toward the airport, then continue with the missed approach procedure.

68. What is a Visual Descent Point?

- ◆ Visual reference on a non-precision approach that aids the pilot in decision making on whether or not to descend below the MDA.
- ◆ Normal descent to landing if runway is in sight on the stated glidepath from the FAF

69. What can you use as substitutions for inoperable components on an ILS approach?

- ◆ Middle Marker – PAR or Compass Locator
- ◆ Outer Marker – PAR, ASR, NDB, VOR, DME

70. What are the limits of the area where you can receive proper course guidance from the localizer?

- ◆ 35° within 10 NM, then 10° out to 18 NM from 1,000 ft to 4,500 ft AGL

71. What is an LDA?

<i>Localizer-Type Directional Aid (LDA)</i>	
◆	Non-precision approach; no glide slope
◆	Frequency: 108.10 to 111.95 MHz
◆	3-letter identifier preceded by the letter “T”
◆	Comparable in utility and accuracy to ILS LOC
◆	Course width - 3° to 6° ; more precise than SDF
◆	NOT ALIGNED WITH RUNWAY
◆	Straight minimum may be published if course <u>does not exceed 30</u>

72. What is an SDF?

<i>Simplified Directional Facility (SDF)</i>	
◆	Non-precision approach; no glide slope
◆	Frequency: 108.10 to 111.95 MHz
◆	3-letter identifier
◆	NOT ALIGNED WITH RUNWAY
◆	Course may be wider than a standard localizer, 6° or 12°
◆	Off-course indications limited to 35° either side of center line
◆	Antenna may be offset from runway not more than 3°

73. What are the frequencies, colors and patterns for the marker beacons?

Indications a pilot receives when passing over a marker beacon:			
MARKER	CODE	LIGHT	SOUND
OM	— — —	BLUE	400 Hz two dashes/second
MM	. _ . _ . _	AMBER	1300 Hz Alternate dot and dash
IM	. . .		3000 Hz, only dots
BC	. . .		3000 Hz, dots with space

74. How can you tell the difference between a spin and a steep spiral by reference to the instruments?

- ◆ Spin – Airspeed is near zero
- ◆ Steep Spiral – Airspeed is rising

75. Is an alternate static source required for IFR flight?

- ◆ Only when flying for hire

76. What are the standard IFR clearance items?

Clearance limit (destination or fix) Route Altitude Frequency Transponder Code
--

77. Explain “VFR-on-top” clearance? (AIM 5-5-13)

- ◆ Fly at appropriate VFR altitude, comply with VFR visibility and cloud separation criteria
- ◆ Comply with all other IFR regulations

78. What is TDZL?(AIM 2-1-5)

- ◆ Touchdown Zone Lights (TDZL):

- | |
|--|
| <ul style="list-style-type: none">• <i>Bright white lights either side of the runway centerline in the touchdown zone.</i>• <i>From 100 feet from the landing threshold to 3000 feet or the half-way point along the runway, which ever is least.</i> |
|--|

79. What is RCLS? (AIM 2-1-5)

- ◆ Runway Centerline Lighting System (RCLS):

Flush center line at <u>50 feet interval</u> in from the landing threshold to within <u>75 feet of the stopping end.</u>
--

Colors:

- | |
|---|
| <ul style="list-style-type: none">◆ White initial 3000 feet from the landing threshold◆ Alternating red/white for last 3000 - 1000 ft◆ Red for the last 1000 ft |
|---|

80. What requires immediate notification to the NTSB?

- ◆ An accident or any of the following incidents:

- | |
|--|
| <ul style="list-style-type: none">◆ Flight control system malfunction◆ Injury or sickness of flight crew member◆ Failure of structural components of turbine engine, excluding in compressor or blades◆ In-flight fire◆ Collision in flight◆ \$25,000 damage to property other aircraft◆ Aircraft overdue and believed to have been involved in accident |
|--|

81. What follow-up reports are required by the NTSB?

- ◆ Accident – within 10 days
- ◆ Incident – If requested
- ◆ Missing Aircraft – within 7 days

82. What is a profile descent?

- ◆ Uninterrupted descent from cruising altitude to interception of the glideslope or to minimum altitude for approach segment of non-precision approach.

83. What are the types and service volumes of VOR and NDB?

◆ **NDB**

NDB CLASS	RANGE(NM)	POWER OUTPUT
HH (HIGH HOMING)	75 NM	POWER OUTPUT 2000 WATTS
H (Homing)	50 NM	Power output 50 To 1999 Watts
MH (Medium Homing)	25 NM	Power output Less than 50 Watts
LOM (Compass Locator)	15 NM	Power output Less than 25 Watts

◆ **VOR**

RECEPTION RANGE VS. ALTITUDE OF VORS		
VOR Class	Range (nm)	Within Altitude (feet)
Terminal (T)	25	1000 – 12,000
Low Altitude (L)	40	1000 – 18,000
High Altitude (H)	40	1000 – 14,500
	100	14,500 – 60,000
	130	18,000 – 45,000

84. What are standard IFR separations?

- ◆ Within 40 nm of a radar = 3 NM separation
- ◆ More than 40 nm = 5 NM separation.

85. What are the altimeter setting procedures?

- ◆ 18,000 ft MSL and above: 29.92”Hg
- ◆ Below 18,000 ft MSL:

- ◆ Less than 31 .00”Hg – Set to the current report altimeter setting of a station along the route and within 100 NM of the aircraft.
- ◆ Above than 31 .00”Hg – Then set 31 .00”Hg and consult the NOTAM

86. What is the “ADIZ” and what is required to pass through it?

- ◆ Air Defense Identification Zone (ADIZ):

- | | |
|---|--|
| ◆ | Requirements include: |
| ◆ | A flight plan: IFR or DVFR (Defense VFR) |
| ◆ | Two-way radios |
| ◆ | Operating Transponder |
| ◆ | Position reports |

87. What colors are the runway edges on an instrument runway? (AIM 2-1-4)

- ◆ Runway Edge Lights – Classified according to the intensity or brightness.

HIRL - High Intensity Runway Lights MIRL - Medium Intensity Runway Lights LIRL - Low Intensity Runway Lights

Colors:

- White initial
- Amber last 2000 feet or last half of runway shorter than 4000 feet

88. Who must have an ELT?

- ◆ All Aircraft except:

- | | |
|---|---|
| ◆ | Jets |
| ◆ | Scheduled flights |
| ◆ | Training flights within 50 NM of home airport |
| ◆ | Design and testing |
| ◆ | New aircraft |
| ◆ | Single seat aircraft |
| ◆ | Aircraft certified by Administrator for research and development purposes |

89. What is a Warning area? (AIM 3-4-4)

- ◆ Airspace of defined dimensions extending from 3 NM outward from the coast of the U.S. containing activity that may be hazardous to nonparticipating aircraft. You can enter it, just realize the potential dangers.

90. What are the 6-T's for holding and non precision approaches?

- 1. Turn 2. Time 3. Twist 4. Throttle 5. Talk 6. Track
-

91. What are the 3 T's on a precision approach?

- Time
- Tires
- Talk
-

92. What are the 4- C's of a missed approach?

- Climb
- Configure
- Comply
- Communicate

93. What is the terminology for cleared for the Approach?

- Last vector within 30 degrees of published final
- Name & type of approach
- Altitude until established
- Who to contact
- Where to contact @ final approach fix/point

94. Takeoff briefing includes?

- Runway heading
- Distance
- Altitude restriction
- Turn
- Emergency return

95. Abort briefing includes?

- Engine fire
- Engine failure
- Runway incursion
- Unusual rudder inputs

96. 4 Abort Steps?

- Max braking
- Throttle to idle
- Directional control
- Advise ATC

97. Name the 4 killer items before takeoff?

- Flaps in the takeoff position
- Fuel pumps , quantity, selector position
- Trims, aileron elevator, electric & disconnect

98. What is the minimum altitude to execute a return back to the runway?

- 1,5000 ft. depending on the airplane
- It is a calculated risk
-

99. What are the decision factors on the return to the runway?

- a. Altitude
- b. Turn bank angle
- c. Wind
- d. Airspeed- Glide speed plus
- e. Distance back to the runway

100. Considerations Circle to land?

- f. Keep the runway in sight
- g. Airspeed- VREF + 20
- h. Runway over shoot
- i. Stabilized approach

101. What does the term same side save side mean?

- CDI points to the same side as the VOR-Save side
A/C has not passed the radial /position fix.

102. With swing CDI with reverse sensing what does the needle indicate?

- The aircraft 's position
- Not the course
- With HSI CDI always points to the course, exception a back course.

103. What is the proper phraseology for a climb or descent?

- 4,000 **CLIMB** 6,000
- 8,000 **DESCEND** 3,000

104. What is the proper phraseology for a turn?

- 62B left turn 090
- Handoff 62B 090 assigned

Maintenance

Adding equipment (EX. Garmin 430 GPS)

1. Is there an STC for this aircraft?
 - a. If yes, find it under Garmin for this make and model of ac.
 - b. If no, need field approval from FAA
2. Who can install it?
 - a. An FAA approved radio shop w/station repair and installation radio license
 - b. The radio person can make structural mods to accommodate the device
3. What paperwork is required?
 - a. Weights and balance change – need amendment
 - b. If structural change, REQUIRED 337 which -filed with airframe logbook
 - c. Logbook entry
 - d. Manual for the device needs to be within reach of the pilot
 - e. Plane needs to be flight tested for operational integrity,(but not by a student pilot)
 - Required documents in AC? (ARROWE)
 - What validates the ac airworthiness? Annual inspection
 - Who can perform an annual inspection – AI-Aircraft Inspector.
 - FAR PART 93 maintenance REGS
 - AD– two TYPES – Emergency and Regular-CAN ONLY BE ISSUES BY FAA
 - There will be a list of Ads and a compliance log in the back of A/C log books.
 - If plane is out of annual and needs to go to another location for the work, it will need a ferry permit.
 - Procedure: Take logs and mechanic endorsement to FAA, they will issue permit only to owner of aircraft or with power of attorney will FAA issue ferry permit.

Mandatory Service Bulletins

- Issued by manufacturers
 - May become AD
 - Part 135 must comply with all service bulletins including
 - Non-mandatory service bulletins. Example - hoses and prop overhauls.
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- 100 hr inspection – may exceed by 10 hrs, to return aircraft for required maintenance, the excess time is deducted from next due time.
Note: The time limitation for AD compliance must not be exceeded.
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- Registration change- Temp registration form submitted to FAA
 - Pink copy goes in A/C, other copies sent to FAA
 - Old registration must be turned in to the FAA A/C registration branch.

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