PRACTICE EXAM 7 SIMULATION

1. On an ILS approach, the localizer provides which type of guidance?

A. Vertical guidance to the touchdown zone

B. Distance to the runway threshold

C. Lateral (course) guidance aligned with the runway centerline

D. Missed approach holding instructions

2. The ILS glide slope provides guidance that defines the:

A. Runway centerline alignment

B. Descent path, normally about 3 degrees, to the touchdown zone

C. Distance remaining to the threshold

D. Circling approach radius

3. The localizer transmits in which frequency band?

A. UHF

B. VHF

C. Low/medium frequency

D. HF

4. Compared with a VOR course, the localizer course is:

A. Identical in sensitivity

B. Wider and less sensitive

C. Referenced to true north

D. Much narrower and more sensitive

5. Full-scale deflection of the localizer represents approximately how many degrees either side of course?

A. 2.5 degrees

B. 10 degrees

C. 5 degrees

D. 20 degrees

6. A pilot should intercept the glide slope from below at the published intercept altitude in order to avoid:

A. Excessive localizer sensitivity

B. Capturing a false glide slope at a higher angle

C. Reverse sensing on the CDI

D. A premature missed approach

7. False glide slope signals typically exist at angles such as:

A. 1 to 2 degrees

B. Exactly 3 degrees

C. Around 9 and 12 degrees

D. Below the horizon

8. The glide slope antenna is located:

A. Near the approach end of the runway

B. At the far departure end of the runway

C. At the middle marker

D. In the control tower

9. The outer marker on a traditional ILS is associated with which light and audio?

A. Amber light, alternating dots and dashes

B. Blue light, continuous low-tone dashes

C. White light, rapid dots

D. Green light, steady tone

10. A localizer back course approach is subject to reverse sensing unless the equipment provides automatic correction. On a back course without such correction, the pilot should:

A. Fly toward the needle as normal

B. Fly away from the needle deflection

C. Disregard the CDI entirely

D. Use the glide slope for guidance

11. When the glide slope fails or is unavailable on an ILS, the pilot may fly the:

A. Circling approach only

B. Visual approach exclusively

C. Localizer (LOC) approach to an MDA

D. Back course with vertical guidance

12. A typical CAT I ILS provides minimums of approximately:

A. A 50-foot decision height

B. Zero-zero minimums

C. A 200-foot decision height and 1/2 mile or RVR 2400 visibility

D. A 600-foot ceiling and 2 miles

13. A GPS receiver requires signals from how many satellites, at minimum, to compute a three-dimensional position?

A. Four satellites

B. Three satellites

C. Two satellites

D. Six satellites

14. RAIM (Receiver Autonomous Integrity Monitoring) generally requires at least how many satellites to detect a faulty signal?

A. Five satellites

B. Three satellites

C. Four satellites

D. Two satellites

15. To both detect and exclude a faulty satellite (fault detection and exclusion), a GPS receiver generally requires at least:

A. Four satellites

B. Five satellites

C. Three satellites

D. Six satellites

16. WAAS improves basic GPS primarily by enhancing:

A. Accuracy and integrity through correction signals

B. Radio communication range

C. The line-of-sight reception of VOR signals

D. Transponder reply strength

17. A WAAS-enabled approach that provides both lateral and vertical guidance to minimums comparable to a CAT I ILS, with no ground equipment at the airport, is the:

A. LPV approach

B. LNAV-only approach

C. Localizer back course

D. VOR/DME approach

18. RNAV (Area Navigation) permits an aircraft to:

A. Navigate only directly to or from ground NAVAIDs

B. Fly without any navigation source

C. Fly any desired path within the coverage of its navigation sources

D. Operate only in Class A airspace

19. On an RNAV (GPS) approach, the LNAV line of minimums provides:

A. Precision vertical guidance equal to an ILS

B. Lateral and vertical guidance to a decision altitude

C. Advisory vertical guidance that lowers minimums

D. Lateral guidance only, flown to an MDA

20. The LNAV+V line on an RNAV (GPS) approach provides vertical guidance that is:

A. A precision glidepath to a decision altitude

B. Sufficient to descend below the MDA

C. Advisory only and does not lower the minimums

D. Equivalent to a CAT I ILS glide slope

21. A non-WAAS GPS receiver relies on RAIM for integrity. Before commencing a GPS approach, the pilot should:

A. Set the transponder to standby

B. Verify RAIM availability for the approach

C. Disable the moving map

D. Tune the ILS as a mandatory backup

22. A WAAS receiver differs from a non-WAAS receiver in that the WAAS unit:

A. Cannot fly LNAV approaches

B. Continuously monitors integrity through the augmentation system

C. Requires six satellites at all times

D. Cannot provide vertical guidance

23. The marker beacons of a traditional ILS, from farthest to nearest the runway, are:

A. Outer, middle, inner

B. Inner, middle, outer

C. Middle, outer, inner

D. Outer, inner, middle

24. A pilot flying an LPV approach descends along the glidepath to a:

A. Minimum descent altitude

B. Circling altitude

C. Decision altitude

D. Maximum authorized altitude

25. The localizer antenna is located at the:

A. Approach end of the runway

B. Middle marker

C. Far (departure) end of the runway

D. Outer marker

26. Modern ILS installations increasingly replace marker beacons with:

A. Additional glide slopes

B. DME, GPS fixes, or radar

C. A second localizer

D. Visual approach slope indicators only

27. A pilot loses GPS navigation in flight in a GPS-equipped aircraft. The appropriate action is to:

A. Continue using the failed GPS

B. Squawk 1200 and proceed VFR

C. Climb to regain satellite signals automatically

D. Revert to ground-based navigation and advise ATC

28. RNP (Required Navigation Performance) differs from basic RNAV in that RNP adds:

A. A ground-based monitoring station

B. Reverse sensing capability

C. Dependence on VOR radials

D. Onboard performance monitoring and alerting

29. GPS signals are vulnerable to interference and jamming, which the FAA addresses by issuing:

A. AIRMETs

B. NOTAMs for GPS testing and interference

C. SIGMETs

D. Convective outlooks

30. A WAAS approach may downgrade from LPV to LNAV if vertical guidance becomes unavailable. This downgrade:

A. Raises the applicable minimums

B. Has no effect on the approach

C. Lowers the minimums further

D. Requires an immediate missed approach

31. The middle marker on a traditional CAT I ILS is located approximately near the:

A. Final approach fix

B. Initial approach fix

C. Missed approach holding fix

D. Decision height point, about 3,500 feet from the threshold

32. A pilot flying a localizer-only (LOC) approach without glide slope should treat it as a:

A. Precision approach with a decision altitude

B. Visual approach

C. Circling-only procedure

D. Non-precision approach flown to an MDA

33. The principal advantage of WAAS-enabled LPV approaches is that they provide near-ILS minimums:

A. Without any ground-based equipment at the airport

B. Only at airports with an existing ILS

C. Using VOR radials for vertical guidance

D. Only above 10,000 feet

34. A GPS navigation database must be current for IFR use because an expired database may contain:

A. Incorrect transponder codes

B. Outdated procedures, waypoints, or frequencies

C. Reversed CDI sensing

D. Faulty altimeter settings

35. On an RNAV (GPS) approach, the LNAV/VNAV line of minimums provides:

A. Lateral guidance only to an MDA

B. Advisory vertical guidance only

C. Lateral guidance with a vertical path to a decision altitude

D. No vertical guidance of any kind

36. A pilot intercepting the localizer should be aware that localizer sensitivity:

A. Decreases steadily toward the runway

B. Increases as the aircraft nears the runway

C. Remains constant throughout the approach

D. Is identical to VOR sensitivity

37. A GPS position solution that includes a fourth satellite signal beyond three is necessary to resolve:

A. Magnetic variation

B. Wind correction

C. Slant-range error

D. The three-dimensional position plus a precise time solution

38. A Localizer-type Directional Aid (LDA) differs from a standard localizer in that the LDA course is:

A. Steeper than a glide slope

B. Reverse-sensing by design

C. Wider than an ILS by ten times

D. Not aligned with the runway

39. The glide slope transmits in which frequency band, paired automatically when the localizer is tuned?

A. UHF

B. VHF

C. Low/medium frequency

D. HF

40. A Simplified Directional Facility (SDF) provides a final approach course that is:

A. A precision glidepath

B. Identical to a standard localizer

C. Wider and less precise than a localizer

D. A DME arc

41. A pilot planning a GPS approach at the alternate in a WAAS-equipped aircraft, under current rules, may:

A. Never use GPS at the alternate

B. Use GPS only above FL180

C. Use GPS only if a VOR approach also exists

D. Plan GPS-based approaches at both destination and alternate with appropriate planning

42. Approach minimums on an RNAV (GPS) chart are listed from lowest to highest generally in the order:

A. LNAV, LNAV+V, LNAV/VNAV, LPV

B. LNAV/VNAV, LPV, LNAV, LNAV+V

C. LPV, LNAV, LNAV+V, LNAV/VNAV

D. LPV, LNAV/VNAV, LNAV+V, LNAV

43. The inner marker is associated with which ILS category operations?

A. CAT I only

B. Visual approaches

C. CAT II and CAT III

D. Circling approaches

44. A pilot flying a coupled ILS approach with the autopilot in approach mode must:

A. Disengage all instruments

B. Ignore the raw localizer and glide slope data

C. Rely solely on the moving map

D. Monitor that the correct modes are engaged and the aircraft is tracking properly

45. The localizer is more sensitive than a VOR by a factor of approximately:

A. Two times

B. Four times

C. Ten times

D. One-half

46. A pilot receives a "RAIM not available" annunciation while approaching the final approach fix on a non-WAAS GPS approach. The pilot should:

A. Discontinue the GPS approach and use an alternate means of navigation

B. Continue the approach ignoring the annunciation

C. Reset the transponder

D. Descend below the MDA to acquire the runway

47. WAAS uses which components to broadcast its correction signals?

A. A network of ground reference stations and geostationary satellites

B. The ILS localizer antenna

C. The VOR network

D. Marker beacons

48. A GPS receiver loses one satellite, leaving it with exactly four. The receiver can still compute a position but may lose the ability to:

A. Display a moving map

B. Perform RAIM fault detection

C. Tune the ILS

D. Maintain communication

49. A pilot wants vertical guidance comparable to an ILS at an airport with no ground-based approach equipment. The best available option is typically an:

A. LPV approach with a WAAS receiver

B. NDB approach

C. VOR circling approach

D. Localizer back course

50. A pilot flying an ILS observes both the localizer and glide slope needles centered. This indicates the aircraft is:

A. On both the lateral course and the vertical path

B. Left of course and above the glidepath

C. Right of course and below the glidepath

D. Past the missed approach point

51. The marker beacon that produces a white light and rapid dots is the:

A. Outer marker

B. Middle marker

C. Inner marker

D. Back-course marker

52. A non-WAAS GPS unit performing a RAIM prediction during flight planning is checking whether:

A. The transponder will reply

B. The ILS will be available

C. Sufficient satellite geometry will support the approach

D. The database is the correct region

53. A pilot flying an RNAV (GPS) approach to the LNAV+V line who treats the advisory glidepath as a precision path risks:

A. Capturing a false localizer

B. Descending below the MDA

C. Reverse sensing

D. Losing satellite lock

54. The most capable line of minimums on most RNAV (GPS) approaches, providing the lowest minimums, is:

A. LPV

B. LNAV

C. LNAV+V

D. Circling

55. A pilot tuning the localizer frequency on an ILS automatically receives the:

A. DME groundspeed only

B. ADF bearing

C. Paired glide slope

D. Marker beacon audio only

56. GPS provides position information that is:

A. Limited to within line-of-sight of a ground station

B. Available only in daylight

C. Dependent on VOR coverage

D. Worldwide, continuous, and all-weather, independent of ground stations

57. A localizer course that is offset and not aligned with the runway centerline is characteristic of an:

A. ILS CAT III approach

B. LDA approach

C. LPV approach

D. RNAV/VNAV approach

58. The glide slope on an ILS should be intercepted from below because intercepting from above risks:

A. Reverse sensing on the localizer

B. Loss of DME

C. Excessive localizer width

D. Capturing a false, steeper glidepath toward terrain

59. A pilot using a WAAS receiver generally does not need to perform a separate RAIM prediction for a WAAS-based approach because:

A. RAIM is required only for ILS approaches

B. WAAS approaches do not use satellites

C. The receiver continuously monitors integrity through the augmentation system

D. RAIM applies only above 18,000 feet

60. The fundamental reason GPS integrity monitoring (RAIM or WAAS) is required for IFR is that:

A. GPS cannot compute altitude

B. GPS signals are too strong near the ground

C. The system must detect a faulty signal that could mislead the aircraft at low altitude

D. GPS only works above the tropopause

Answer Key

1. C — The localizer provides lateral (course) guidance aligned with the runway centerline. Vertical guidance, by contrast, comes from the glide slope.

2. B — The glide slope defines the descent path, normally about 3 degrees, to the touchdown zone. It supplies the vertical component of the ILS.

3. B — The localizer transmits in the VHF band (108.10 to 111.95 MHz, odd-tenth frequencies). The glide slope, separately, transmits in UHF.

4. D — The localizer course is much narrower and more sensitive than a VOR course, roughly four times as sensitive. This sensitivity increases near the runway.

5. A — Full-scale localizer deflection represents about 2.5 degrees either side of course. A VOR, by contrast, is about 10 degrees full scale.

6. B — The glide slope is intercepted from below at the published altitude to avoid capturing a false glide slope at a higher angle. A false capture would put the aircraft on a dangerously steep path.

7. C — False glide slope lobes exist at higher angles such as around 9 and 12 degrees. Intercepting from below at the published altitude avoids them.

8. A — The glide slope antenna is located near the approach end of the runway. The localizer antenna, by contrast, is at the far departure end.

9. B — The outer marker uses a blue light with continuous low-tone dashes. It marks roughly the glide slope intercept point near the final approach fix.

10. B — On a back course without automatic correction, the CDI exhibits reverse sensing, so the pilot flies away from the needle deflection. Normal "fly toward the needle" sensing is reversed.

11. C — With the glide slope unavailable, the localizer alone supports a localizer (LOC) approach flown to an MDA. This is a non-precision approach with higher minimums than the ILS.

12. C — A typical CAT I ILS provides about a 200-foot decision height with 1/2 mile or RVR 2400 visibility. CAT II and III provide lower minimums with additional equipment.

13. A — A GPS receiver needs at least four satellites to compute a three-dimensional position plus a time solution. RAIM requires additional satellites beyond this minimum.

14. A — RAIM generally requires at least five satellites to detect a faulty signal. A sixth is needed to both detect and exclude a faulty satellite.

15. D — Fault detection and exclusion (FDE) generally requires at least six satellites. Five suffices for detection alone.

16. A — WAAS improves GPS accuracy and integrity by broadcasting correction signals. This augmentation enables vertically guided LPV approaches.

17. A — An LPV approach provides lateral and vertical guidance to minimums comparable to a CAT I ILS, with no ground equipment at the airport. It is the most capable WAAS line of minimums.

18. C — RNAV permits an aircraft to fly any desired path within the coverage of its navigation sources, rather than only to or from ground NAVAIDs. This enables direct routing and flexible procedures.

19. D — The LNAV line provides lateral guidance only, flown as a non-precision approach to an MDA. Vertical guidance requires LNAV/VNAV or LPV.

20. C — LNAV+V vertical guidance is advisory only and does not lower the minimums; the approach is still flown to the MDA. Treating it as precision can lead to descent below the MDA.

21. B — Before a non-WAAS GPS approach, the pilot must verify RAIM availability for the approach. Without RAIM the receiver may be unable to begin or continue the approach.

22. B — A WAAS receiver continuously monitors integrity through the augmentation system, generally eliminating the need for a separate RAIM prediction. This is a key advantage over non-WAAS units.

23. A — From farthest to nearest the runway, the markers are outer, middle, inner. The outer marker is near the FAF and the inner marker serves CAT II/III operations near the threshold.

24. C — On an LPV approach, the pilot descends along the glidepath to a decision altitude. At the DA, the pilot lands if the runway is in sight or goes missed.

25. C — The localizer antenna is located at the far (departure) end of the runway, projecting its course back along the approach. The glide slope antenna is near the approach end.

26. B — Modern ILS installations increasingly replace marker beacons with DME, GPS fixes, or radar. These provide position information without the dedicated marker antennas.

27. D — Losing GPS in a GPS-equipped aircraft requires reverting to ground-based navigation (VOR, ILS) and advising ATC. Continuing on the failed unit or proceeding VFR is inappropriate.

28. D — RNP adds onboard performance monitoring and alerting to RNAV, allowing tighter, more precisely defined paths. Basic RNAV lacks this self-monitoring capability.

29. B — The FAA issues NOTAMs for GPS testing and interference that may affect navigation in specific regions. Pilots check these in planning and prepare to revert to ground-based navigation.

30. A — A downgrade from LPV to LNAV raises the applicable minimums because vertical guidance is lost. The receiver annunciates the downgrade so the pilot can apply the higher minimums.

31. D — The middle marker is located near the decision height point on a CAT I ILS, about 3,500 feet from the threshold. The outer marker, by contrast, is near the FAF.

32. D — A localizer-only approach without glide slope is a non-precision approach flown to an MDA. It lacks the vertical guidance that defines a precision approach.

33. A — The principal advantage of LPV approaches is near-ILS minimums without any ground-based equipment at the airport. This expands precision-like access to thousands of runways.

34. B — An expired navigation database may contain outdated procedures, waypoints, or frequencies, so it must be current for IFR use. IFR GPS approaches generally may not be flown with an expired database.

35. C — The LNAV/VNAV line provides lateral guidance with a vertical path to a decision altitude. It offers vertical guidance, unlike the lateral-only LNAV line.

36. B — Localizer sensitivity increases as the aircraft nears the runway because the beam narrows toward the antenna. Small deviations produce large CDI movement near touchdown.

37. D — A fourth satellite signal is needed to resolve the three-dimensional position plus a precise time solution. Three satellites alone cannot fully fix position in three dimensions with timing.

38. D — An LDA course is not aligned with the runway centerline, unlike a standard localizer. It is a localizer-family aid with an offset final approach course.

39. A — The glide slope transmits in the UHF band and is paired automatically when the localizer frequency is tuned. The localizer, by contrast, is VHF.

40. C — An SDF provides a final approach course that is wider and less precise than a localizer. It is a simplified, less accurate course aid.

41. D — Under current rules, a WAAS-equipped aircraft may plan GPS-based approaches at both the destination and the alternate with appropriate planning. WAAS provides the integrity that formerly required a non-GPS approach at the alternate.

42. D — From lowest to highest minimums, the order is generally LPV, LNAV/VNAV, LNAV+V, LNAV. LPV offers the lowest, ILS-like minimums.

43. C — The inner marker is associated with CAT II and CAT III operations, located near the threshold. CAT I operations typically use the outer and middle markers.

44. D — On a coupled approach, the pilot must monitor that the correct modes are engaged and the aircraft is tracking properly. Mode awareness and cross-checking raw data remain essential.

45. B — The localizer is approximately four times more sensitive than a VOR (about 2.5 degrees versus 10 degrees full scale). This greater sensitivity demands smoother corrections.

46. A — A "RAIM not available" annunciation on a non-WAAS GPS approach requires discontinuing the GPS approach and using an alternate means of navigation. Continuing without integrity monitoring is not permitted.

47. A — WAAS uses a network of ground reference stations and geostationary satellites to broadcast its correction signals. Ground stations measure GPS error and the corrections are uplinked for broadcast.

48. B — With exactly four satellites the receiver can compute a position but may lose RAIM fault-detection capability, which needs five. Integrity monitoring requires the extra satellites.

49. A — At an airport with no ground-based approach equipment, an LPV approach with a WAAS receiver provides the best near-ILS vertical guidance. It requires no ground equipment at the airport.

50. A — Both needles centered on an ILS indicate the aircraft is on both the lateral course and the vertical path. This is the on-path condition for a precision approach.

51. C — The inner marker produces a white light with rapid dots. The outer marker is blue with low-tone dashes and the middle marker amber with alternating dots and dashes.

52. C — A RAIM prediction checks whether sufficient satellite geometry will support the approach at the planned time. It verifies integrity-monitoring availability, not the transponder or ILS.

53. B — Treating the LNAV+V advisory glidepath as a precision path risks descending below the MDA, since the advisory guidance does not lower the minimums. The MDA remains a hard floor.

54. A — LPV is the most capable line of minimums on most RNAV (GPS) approaches, providing the lowest minimums. It offers lateral and vertical guidance to near-ILS values.

55. C — Tuning the localizer frequency automatically pairs the glide slope on an ILS. The two are tuned together as a single frequency selection.

56. D — GPS provides worldwide, continuous, all-weather position information independent of ground stations. This independence is a fundamental advantage over line-of-sight ground NAVAIDs.

57. B — An offset final approach course not aligned with the runway centerline characterizes an LDA approach. A standard ILS localizer is aligned with the runway.

58. D — Intercepting the glide slope from above risks capturing a false, steeper glidepath toward terrain. Intercepting from below at the published altitude avoids the false lobes.

59. C — A WAAS receiver generally does not require a separate RAIM prediction because it continuously monitors integrity through the augmentation system. The augmentation provides the integrity assurance.

60. C — GPS integrity monitoring is required for IFR because the system must detect a faulty signal that could mislead the aircraft at low altitude on approach. This integrity is what makes GPS legal for IFR use.