PRACTICE EXAM 12 (60 QUESTIONS)

1. What is the primary advantage of a WAAS-enabled GPS receiver over a non-WAAS unit for instrument approaches?

A. It allows the receiver to operate without satellite signal reception

B. It provides vertical guidance enabling approaches with lower minimums

C. It eliminates the need for any ground-based navigation equipment

D. It permits the pilot to disregard RAIM checks before every approach

2. An attitude indicator powered by the vacuum system fails. Which instruments remain available to determine bank in a partial-panel scenario?

A. The vertical speed indicator and the altimeter working together

B. The directional gyro and the manifold pressure gauge combined

C. The pitot-static airspeed indicator used as a bank reference

D. The turn coordinator and the magnetic compass used together

3. What does an "LPV" approach minimum on an approach chart indicate?

A. A GPS approach with vertical guidance and precision-like minimums

B. A localizer-only approach providing lateral guidance to the runway

C. A circling-only approach restricted to daytime visual conditions

D. A non-precision approach requiring a procedure turn before final

4. Why is an alternator/generator failure a significant concern during IFR flight in IMC?

A. It immediately disables the pitot heat and the static system ports

B. It causes the vacuum-driven gyros to topple within a few seconds

C. It has little effect because all instruments are vacuum powered

D. It depletes the battery, threatening electrically powered avionics

5. What does a solid magenta line on a modern IFR GPS navigation display typically represent?

A. The boundary of restricted or prohibited special-use airspace

B. The lateral limits of the en route minimum vectoring altitude area

C. The active flight plan leg the aircraft is currently navigating

D. A weather radar return showing precipitation along the route

6. What is the function of an aircraft's pitot heat system during instrument flight?

A. To prevent ice from blocking the pitot tube and corrupting airspeed

B. To warm the static ports so the altimeter reads accurately in cloud

C. To heat the gyroscopic instruments and prevent their precession

D. To de-ice the leading edges of the wings during the approach phase

7. On an HSI, what does the course deviation bar indicate when it is deflected to the right of center?

A. The selected course lies to the right of the aircraft's position

B. The aircraft has crossed directly over the tuned navaid station

C. The navigation receiver has failed and the display is unreliable

D. The aircraft is established precisely on the selected course line

8. What does the term "RNAV (GPS)" on an approach plate signify?

A. An approach flown solely with ground-based VOR and DME equipment

B. An approach requiring continuous radar vectors from the controller

C. An approach reserved exclusively for transport-category aircraft

D. An area navigation approach using GPS for lateral course guidance

9. Why must a pilot verify the GPS database currency before an IFR approach?

A. An outdated database may contain incorrect waypoints or procedures

B. The receiver will not power on at all if the database has expired

C. An expired database automatically disables the unit's RAIM function

D. The autopilot cannot be engaged with an out-of-date navigation database

10. What is depicted by a feathered or barbed line symbol on a surface weather chart?

A. The location of a major airway intersection along the route

B. A weather front, with the symbols indicating its type and motion

C. A restricted airspace boundary requiring a clearance to enter

D. The published track of a standard terminal arrival procedure

11. What does the autopilot mode "NAV" typically command the aircraft to do?

A. Hold the current heading regardless of the navigation source

B. Track the course provided by the selected navigation receiver

C. Maintain a constant airspeed using automatic throttle inputs

D. Capture and hold a preselected altitude entered by the pilot

12. What information does the DME provide to the pilot?

A. Slant-range distance in nautical miles to the tuned station

B. The magnetic bearing from the aircraft to the selected station

C. The aircraft's groundspeed corrected for the prevailing wind

D. The aircraft's altitude above the elevation of the navaid site

13. On an instrument approach chart, what does a maltese cross symbol typically identify?

A. The location of the airport's primary control tower facility

B. The point where the missed approach climb gradient begins

C. The final approach fix on a non-precision approach procedure

D. The initial approach fix at the start of the feeder route

14. What is the purpose of an emergency or standby attitude indicator in many IFR aircraft?

A. To provide attitude information independent of the primary power source

B. To display engine parameters when the primary gauges have failed

C. To replace the magnetic compass during periods of heavy turbulence

D. To show navigation course guidance when the GPS unit has failed

15. What does the symbol depicting a small flag with an "A" inside on an approach chart denote?

A. The runway alignment relative to magnetic north on the field

B. The location of the airport's automated weather observing station

C. A note that the approach is approved for autopilot coupling only

D. A nonstandard alternate minimum applies to that approach procedure

16. Why is a backup or secondary attitude reference especially important in glass-cockpit aircraft?

A. Glass displays are immune to failure and need no backup at all

B. Electronic displays require recalibration before every single flight

C. A total electrical or display failure can remove the primary attitude data

D. The standby instrument provides more accurate readings than the screen

17. What does the "GS" annunciation on an ILS approach indicate when it becomes active?

A. The aircraft has reached the published decision altitude on final

B. The groundspeed has stabilized within the approach speed window

C. The glide slope has been captured and vertical guidance is active

D. The aircraft has been cleared by the tower to land on the runway

18. What is the function of a transponder's "IDENT" feature?

A. To change the aircraft's altitude reporting to a standby mode

B. To make the aircraft's radar return momentarily highlighted to ATC

C. To transmit the aircraft's registration number to the controller

D. To switch the transponder between Mode A and Mode C operation

19. What does a depicted "MSA" circle on an approach chart provide?

A. Emergency obstacle clearance within a specified radius of a fix

B. The minimum airspeed required during the final approach segment

C. The standard altitude for entering the published holding pattern

D. The minimum altitude for the entire en route airway structure

20. Why should a pilot cross-check the GPS-derived position against other navigation sources when available?

A. To detect a possible GPS error or anomaly before it causes a problem

B. Because GPS is prohibited as the sole navigation source under IFR

C. Because the GPS receiver must be manually updated every few minutes

D. To conserve the limited battery life of the panel-mounted GPS unit

21. What does the autopilot "ALT" mode do once engaged?

A. It commands a continuous climb to the service ceiling of the aircraft

B. It holds the aircraft at the altitude captured when the mode engaged

C. It tracks the glide slope vertically during the final approach segment

D. It maintains the selected airspeed by adjusting the pitch attitude

22. On an en route low-altitude chart, what does a heavy line bordering an area usually depict?

A. The centerline of a published victor airway between two navaids

B. The boundary of special-use airspace such as a restricted area

C. The minimum reception altitude line for an airway intersection

D. The published route of a standard instrument departure procedure

23. What is the significance of an "off-airport" VOR being identified by its Morse code?

A. It confirms the VOR is transmitting weather information continuously

B. It indicates the VOR is operating in a reduced-power test mode only

C. It verifies the pilot has tuned the correct and operational station

D. It signals the VOR is undergoing maintenance and is unmonitored

24. Why must a pilot understand the limitations of an aircraft's autopilot in IMC?

A. Improper use or over-reliance can mask developing unsafe conditions

B. The autopilot will always recover the aircraft from any unusual attitude

C. Autopilots are certified to fly approaches without any pilot monitoring

D. The autopilot eliminates the need to monitor the flight instruments

25. What does a "circling only" minimum on an approach chart indicate about the procedure?

A. The approach may be flown straight-in to the aligned runway end

B. The final course is not aligned for a straight-in landing on a runway

C. The approach is restricted to aircraft equipped with autopilot systems

D. The approach can only be flown during published daylight hours locally

26. What is the purpose of the "suspend" or "SUSP" function on an IFR GPS unit?

A. To shut down the receiver to conserve electrical power in cruise

B. To stop automatic waypoint sequencing, such as in a holding pattern

C. To suspend the RAIM integrity check during the en route phase

D. To temporarily disable the moving map display during the approach

27. On an approach chart profile view, what does a depicted lightning-bolt or zigzag arrow typically represent?

A. The final approach course inbound to the runway threshold

B. The location of the airport rotating beacon and lighting system

C. The published feeder route from the en route structure to the fix

D. The missed approach track to be flown when landing is not completed

28. Why is the static system critical to multiple flight instruments in IMC?

A. The altimeter, VSI, and airspeed indicator all depend on static pressure

B. The attitude indicator derives its erection force from the static ports

C. The directional gyro requires static air to maintain its heading reference

D. The turn coordinator uses static pressure to sense the rate of turn

29. What does an "alternate static source" allow a pilot to do if the primary system blocks?

A. Switch the airspeed indicator to read directly from the pitot tube

B. Restore static pressure to the instruments using cabin air pressure

C. Bypass the altimeter entirely and rely on the GPS-derived altitude

D. Power the gyroscopic instruments from a secondary vacuum pump

30. What does a "T" symbol in a black triangle on an approach chart indicate?

A. The approach requires a procedure turn before the final segment

B. Nonstandard IFR takeoff minimums or a departure procedure exists

C. The airport tower operates only during published daylight hours

D. The approach is approved for use with a coupled autopilot only

31. Why might a pilot select "OBS" mode on a GPS unit during an approach?

A. To automatically sequence through the published approach waypoints

B. To display the nearest airports and their available approach types

C. To manually set and hold a desired course to or from a waypoint

D. To suspend the integrity monitoring while in the holding pattern

32. What is the primary role of the directional gyro (heading indicator) in the instrument scan?

A. It senses and displays the aircraft's rate of turn during maneuvers

B. It provides pitch attitude information relative to the visible horizon

C. It indicates the aircraft's bank angle during coordinated turns aloft

D. It provides a stable heading reference free of magnetic compass errors

33. On a STAR chart, what do the depicted crossing altitude restrictions require?

A. The pilot may cross the fixes at any convenient altitude desired

B. The restrictions apply only when the aircraft is being radar vectored

C. The pilot must request permission before complying with each crossing

D. The aircraft must cross the named fixes at the specified altitudes

34. What does a non-WAAS GPS receiver require to be used for an instrument approach?

A. A continuous data link connection to the controlling ATC facility

B. A second independent GPS unit installed and operating in the panel

C. A successful RAIM prediction confirming adequate satellite geometry

D. A ground-based augmentation station located within forty miles

35. Why is it important to identify a navaid before using it for IFR navigation?

A. To confirm the correct station is tuned and is transmitting properly

B. To determine the navaid's published service volume and range limits

C. To verify the aircraft is within radar coverage of the facility

D. To check whether the navaid provides distance as well as bearing

36. What does an autopilot's "HDG" mode command the aircraft to do?

A. Track the active GPS flight plan course leg automatically

B. Capture and hold the altitude set in the altitude preselect window

C. Turn to and maintain the heading set on the heading bug

D. Follow the localizer course inbound during an ILS approach

37. On an instrument approach chart, what does the depicted "TDZE" represent?

A. The threshold crossing height of the glide slope over the runway

B. The touchdown zone elevation at the approach end of the runway

C. The decision altitude for the precision approach to that runway

D. The minimum descent altitude for the circling approach maneuver

38. Why does the magnetic compass require periodic resetting of the heading indicator?

A. The compass is unreliable and the heading indicator is always accurate

B. The compass drifts steadily while the heading indicator stays fixed

C. The heading indicator gyro precesses and drifts from the correct heading

D. The compass must be calibrated against the heading indicator each hour

39. What does a depicted DME fix on an approach (e.g., "D6.0") allow a pilot to do?

A. Determine the aircraft's altitude above the runway touchdown zone

B. Identify the published missed approach holding pattern entry point

C. Identify a position along the approach using distance from a navaid

D. Confirm the localizer frequency is tuned and correctly identified

40. What is the benefit of an aircraft equipped with dual independent navigation receivers under IFR?

A. It doubles the navigation range of each individual receiver in use

B. It provides redundancy and allows cross-checking of navigation data

C. It eliminates the requirement to identify navaids before using them

D. It permits the pilot to fly approaches without an ATC clearance

41. What does the "FLAG" or warning indication on an ILS receiver signify?

A. The localizer or glide slope signal is unreliable and not usable

B. The aircraft has captured both the localizer and glide slope together

C. The approach has been cleared by ATC and may now be commenced

D. The receiver has successfully completed its internal self-test sequence

42. On an en route chart, what does a VOR depicted with a small box containing frequency and Morse code indicate?

A. The VOR is out of service and should not be used for navigation

B. The VOR is collocated with an airport control tower facility

C. The station identification and frequency needed to tune and verify it

D. The VOR transmits continuous weather broadcasts on that frequency

43. Why is understanding autopilot disconnect procedures essential for IFR pilots?

A. The autopilot can never be disconnected once an approach is begun

B. Disconnecting the autopilot automatically cancels the IFR clearance

C. The autopilot disconnects only when the aircraft reaches the runway

D. A pilot must promptly take manual control if the autopilot malfunctions

44. What does a "VOR/DME" or "VORTAC" station provide that a standalone VOR does not?

A. Both bearing and distance information from a single tuned station

B. A precision glide slope for vertical guidance to the runway end

C. Continuous radar surveillance of aircraft within its service volume

D. Automatic transmission of weather conditions at the nearest airport

45. What is the significance of the term "GPS RAIM unavailable" during preflight planning?

A. The GPS receiver cannot acquire any satellites and will not function

B. The aircraft must be equipped with a backup vacuum-driven attitude system

C. Integrity monitoring may not be assured, affecting GPS approach use

D. The receiver database has expired and must be updated before the flight

46. On an approach chart, what does the depicted "GS 3.00°" notation indicate?

A. The required groundspeed in knots for the final approach segment

B. The minimum visibility in statute miles needed to begin the approach

C. The maximum permitted bank angle during the procedure turn

D. The glide slope angle providing vertical guidance to the runway

47. Why should a pilot brief the missed approach procedure before beginning the approach?

A. Because the autopilot requires the procedure to be programmed in advance

B. Because ATC will not issue the missed approach instructions in flight

C. Because the procedure can only be flown if briefed on the ground first

D. Because a missed approach demands immediate action with little time to read

48. What does the autopilot "APPR" (approach) mode typically enable?

A. Capture and tracking of both the localizer and glide slope on an ILS

B. A constant-rate descent to the field elevation regardless of guidance

C. Automatic selection of the nearest suitable airport for landing

D. A holding pattern to be flown automatically at the approach fix

49. On an IFR chart, what does an open (unfilled) triangle symbol at a fix usually denote?

A. A compulsory reporting point that must always be reported to ATC

B. An on-request or non-compulsory reporting point along the route

C. The location of a published holding pattern for that intersection

D. The site of a ground-based distance measuring equipment facility

50. Why is a vacuum system failure indicator (suction gauge) important to monitor in IMC?

A. A low suction reading warns that the gyroscopic instruments may be unreliable

B. The suction gauge displays the aircraft's rate of climb during the approach

C. It indicates the remaining electrical charge available in the main battery

D. It shows the manifold pressure available for the engine at altitude

51. What does a depicted "lead radial" on an approach chart help a pilot anticipate?

A. The minimum altitude required to cross the final approach fix

B. The visibility minimum that applies to the circling approach

C. The point to begin a turn onto the next course or final approach

D. The location of the airport's primary instrument landing system

52. What is the purpose of a "marker beacon" test or self-test function?

A. To verify the localizer frequency is correctly tuned for the approach

B. To confirm the glide slope receiver is providing vertical guidance

C. To check the transponder is replying to ATC interrogation signals

D. To confirm the marker beacon lights and audio are functioning properly

53. On a glass cockpit PFD, what does the magenta diamond or chevron on the airspeed or altitude tape usually represent?

A. The current outside air temperature converted to a density value

B. The maximum operating limit speed for the current configuration

C. The aircraft's present heading relative to the selected course

D. A command or target value such as a selected speed or altitude

54. Why must a pilot be familiar with reversionary mode in a glass cockpit?

A. It increases the brightness of the displays during night operations

B. It allows the pilot to customize the layout of the flight instruments

C. It consolidates essential flight data onto one display if one screen fails

D. It automatically engages the autopilot when a display malfunctions

55. What does an "ILS PRM" approach designation indicate?

A. A standard ILS with no special monitoring or equipment requirements

B. A precision approach using high-update monitoring for closely spaced runways

C. A non-precision localizer approach without any vertical guidance provided

D. An approach reserved exclusively for use during emergency conditions

56. Why is it important to set the correct altimeter setting before an instrument approach?

A. An incorrect setting changes the indicated airspeed on the approach

B. An incorrect setting causes the aircraft to fly the wrong indicated altitude

C. The altimeter setting determines the localizer sensitivity on final

D. The setting adjusts the glide slope angle for the approach being flown

57. What does the autopilot "VS" (vertical speed) mode command?

A. A turn to and tracking of the selected navigation course leg

B. The capture and holding of the preselected target altitude

C. The tracking of the glide slope during a precision approach

D. A constant rate of climb or descent set by the pilot in fpm

58. On an en route chart, what does an "MEA gap" or "MEA change" symbol indicate?

A. The point where the airway crosses an international boundary line

B. The location of a mandatory frequency change along the route

C. The boundary between two adjacent air route traffic control centers

D. A point where the minimum en route altitude changes along the airway

59. Why should a pilot understand the difference between "TO" and "FROM" indications on a VOR?

A. The flag determines whether the DME displays distance or groundspeed

B. The flag changes the sensitivity of the course deviation indicator needle

C. The flag shows whether the selected course leads toward or away from the station

D. The flag indicates whether the VOR is transmitting on high or low power

60. What is the function of a "course pointer" on an HSI?

A. It displays the aircraft's current magnetic heading at the top index

B. It shows the aircraft's bank angle during a coordinated standard turn

C. It indicates the rate of turn toward the selected navigation course

D. It shows the selected course set against the rotating compass card

Answer Key

1. B — A WAAS-enabled receiver provides vertical guidance, enabling approaches such as LPV with lower, precision-like minimums. The augmentation improves accuracy and integrity enough to support a glide path. This lowers decision altitudes compared to lateral-only GPS approaches.

2. D — With a vacuum failure the turn coordinator (electrically powered) and the magnetic compass remain available to determine bank and heading. Together they support partial-panel control. Timed, standard-rate turns replace the lost attitude reference.

3. A — LPV (Localizer Performance with Vertical guidance) is a WAAS GPS approach offering vertical guidance and precision-like minimums. It produces a glide path similar to an ILS without ground equipment. It typically allows the lowest GPS-based minimums available.

4. D — An alternator or generator failure means the battery becomes the only electrical source, and once depleted it threatens electrically powered avionics and instruments. The pilot must shed load and plan a prompt landing. In IMC this can progressively remove navigation and communication capability.

5. C — On a GPS navigation display the solid magenta line typically depicts the active flight plan leg currently being navigated. Magenta highlights the leg in use, distinguishing it from upcoming white legs. It gives an at-a-glance picture of the current course.

6. A — Pitot heat prevents ice from blocking the pitot tube, which would corrupt or freeze the airspeed indication. Loss of pitot pressure produces dangerously erroneous airspeed readings. Heating the tube preserves a reliable airspeed in icing or visible moisture.

7. A — On an HSI a course deviation bar deflected right means the selected course lies to the right of the aircraft, so a right correction re-intercepts it. The bar shows where the course is relative to the aircraft. Centering it confirms the aircraft is on course.

8. D — "RNAV (GPS)" denotes an area navigation approach using GPS for lateral course guidance, with waypoints rather than ground navaids. It allows flexible, satellite-based routing to the runway. Depending on equipment it may also provide vertical guidance.

9. A — An outdated GPS database may contain incorrect or obsolete waypoints, frequencies, or procedures, making it unsafe for IFR approaches. Current data ensures the procedure flown matches the published chart. Database currency is a regulatory and safety prerequisite for approaches.

10. B — Feathered or barbed lines on a surface weather chart depict weather fronts, with the symbol shape indicating the front type and direction of movement. Triangles denote cold fronts and semicircles warm fronts. The symbols communicate the boundary's nature at a glance.

11. B — In NAV mode the autopilot tracks the course provided by the selected navigation receiver, such as a VOR or GPS leg. It follows lateral guidance automatically. The pilot must ensure the correct source and course are selected.

12. A — DME provides slant-range distance in nautical miles to the tuned station. Because it measures the direct line including altitude, the reading is slightly greater than ground distance, especially when close and high. It supports fixes, arcs, and groundspeed derivation.

13. C — On a non-precision approach the maltese cross marks the final approach fix, where the final descent typically begins. It is a key reference in the profile view. Crossing it establishes the aircraft on final at the proper altitude.

14. A — A standby attitude indicator provides attitude information independent of the primary power source, preserving control reference during a primary failure. Its independence is its purpose. It is critical when the main attitude display or its power is lost in IMC.

15. D — A flag with an "A" inside denotes that nonstandard alternate minimums apply to that approach. It directs the pilot to the published alternate-minimums section. It signals the standard 600/800-2 alternate criteria do not apply here.

16. C — A secondary attitude reference matters in glass cockpits because a total electrical or display failure could remove the primary attitude data on the screens. The independent standby instrument preserves control capability. Redundancy guards against a single point of failure.

17. C — The "GS" annunciation active means the glide slope has been captured and vertical guidance is being followed. The aircraft is now descending on the published path. The pilot monitors the descent toward decision altitude.

18. B — The transponder IDENT feature momentarily highlights the aircraft's return on the controller's radar scope. It helps ATC positively identify the specific aircraft. Pilots press it only when requested by the controller.

19. A — The MSA circle on an approach chart provides emergency obstacle clearance, typically 1,000 feet, within a specified radius of a fix. It is for emergency use, not routine navigation. It offers a quick safe-altitude reference if disoriented.

20. A — Cross-checking GPS position against other navigation sources helps detect a GPS error or anomaly before it leads to a navigation problem. Independent confirmation builds redundancy. Good practice catches subtle position errors early.

21. B — Once engaged, ALT mode holds the aircraft at the altitude captured when the mode activated. It maintains level flight automatically. The pilot can change altitude only by re-engaging or selecting a new target.

22. B — A heavy bordering line on a low-altitude chart usually marks the boundary of special-use airspace such as a restricted area. The shading and labels identify the type and limits. Pilots use it to plan avoidance or coordination.

23. C — Identifying a VOR by its Morse code verifies that the correct, operational station is tuned. An absent or incorrect identifier means the station should not be used. This confirmation is a required step before IFR navigation by the navaid.

24. A — Over-reliance on the autopilot can mask developing unsafe conditions, such as trim runaway or an unnoticed deviation. Understanding its limits keeps the pilot in the loop. Active monitoring is essential even when the autopilot is engaged.

25. B — A "circling only" minimum means the final approach course is not aligned within tolerances for a straight-in landing. The pilot must maneuver visually to the landing runway. Only circling minimums are published for the procedure.

26. B — The SUSP function stops automatic waypoint sequencing, which is needed in situations like holding so the unit does not advance past the holding fix. The pilot un-suspends to resume normal sequencing. It keeps the navigation solution correct during the hold.

27. D — On the profile view the lightning-bolt or zigzag arrow depicts the missed approach track to be flown if landing is not completed. It shows the climb and routing to the missed approach holding fix. Briefing it before the approach is essential.

28. A — The static system feeds the altimeter, vertical speed indicator, and airspeed indicator, all of which depend on static pressure. A blockage corrupts all three simultaneously. This makes static integrity critical in IMC.

29. B — An alternate static source restores static pressure to the instruments, usually by drawing from cabin air, when the primary port blocks. It keeps the static instruments usable, though small corrections may be needed. It is a vital backup in icing or blockage situations.

30. B — A "T" in a black triangle indicates that nonstandard IFR takeoff minimums or a departure procedure exists for that airport. It directs the pilot to the takeoff-minimums section. It flags special requirements for departing IFR.

31. C — OBS mode lets the pilot manually set and hold a desired course to or from a waypoint, suspending automatic sequencing. It mimics a VOR-style course selection. It is useful for holds, course intercepts, and procedure turns.

32. D — The directional gyro provides a stable heading reference free of the magnetic compass's turning and acceleration errors. It is steadier to read than the compass in maneuvers. It must be periodically reset to the compass because the gyro precesses.

33. D — Crossing altitude restrictions on a STAR require the aircraft to cross the named fixes at the specified altitudes. They ensure orderly, separated descents into terminal airspace. Pilots must comply unless ATC amends them.

34. C — A non-WAAS GPS receiver requires a successful RAIM prediction confirming adequate satellite geometry for the approach. Without RAIM availability the approach may not be authorized. The check ensures integrity in the absence of WAAS augmentation.

35. A — Identifying a navaid confirms the correct station is tuned and transmitting properly before it is used for IFR navigation. An unverified station could lead the aircraft off course. Positive identification is a basic IFR navigation safeguard.

36. C — HDG mode commands the aircraft to turn to and maintain the heading set on the heading bug. It follows the bug rather than a navigation course. The pilot steers by repositioning the bug.

37. B — TDZE is the touchdown zone elevation at the approach end of the runway, the highest elevation in the first 3,000 feet of the landing surface. It is referenced for approach minimums and height calculations. It appears on the approach chart for the runway.

38. C — The heading indicator gyro precesses over time and drifts from the correct heading, so it must be periodically reset to the magnetic compass in steady flight. Mechanical friction and earth rotation cause the drift. Regular alignment keeps headings accurate.

39. C — A charted DME fix such as "D6.0" lets the pilot identify a position along the approach by distance from a navaid. It provides a positive fix without a separate crossing radial or marker. It supports stepdown and final approach references.

40. B — Dual independent navigation receivers provide redundancy and allow the pilot to cross-check navigation data between them. If one fails, the other maintains capability. This improves reliability and safety under IFR.

41. A — A FLAG or warning on an ILS receiver signifies the localizer or glide slope signal is unreliable and must not be used. It alerts the pilot to disregard that guidance. Continuing to follow a flagged signal is hazardous.

42. C — A VOR depicted in a small box with its frequency and Morse code provides the station identification and frequency needed to tune and verify it. The box presents the data for navigation setup. Confirming the Morse identifier validates the correct station.

43. D — Understanding autopilot disconnect procedures is essential because the pilot must promptly take manual control if the autopilot malfunctions. Quick, correct disconnect prevents loss of control. Familiarity with the procedure is a core IFR competency.

44. A — A VOR/DME or VORTAC provides both bearing and distance from a single tuned station, unlike a standalone VOR which gives bearing only. The combined data supports arcs, fixes, and position awareness. It enhances navigation precision from one facility.

45. C — "GPS RAIM unavailable" means integrity monitoring may not be assured for the planned time and location, affecting the legality of GPS approaches. The pilot may need an alternate plan or timing. RAIM availability is required where WAAS is not used.

46. D — "GS 3.00°" on an approach chart denotes the glide slope angle providing vertical guidance, here 3 degrees, to the runway. It defines the descent path's steepness. Pilots use it to anticipate the required descent rate.

47. D — A missed approach must be briefed beforehand because it demands immediate action with little time to read the chart at a critical, low-altitude moment. Pre-briefing builds a ready mental plan. This reduces workload and error during the go-around.

48. A — APPR mode typically enables capture and tracking of both the localizer and glide slope on an ILS. It couples the autopilot to fly the full precision approach laterally and vertically. The pilot monitors and prepares to disconnect as required.

49. B — An open (unfilled) triangle at a fix denotes a non-compulsory or on-request reporting point. A solid triangle marks a compulsory reporting point. The symbol tells the pilot whether a report is automatically required.

50. A — A low suction (vacuum) reading warns that the vacuum-driven gyroscopic instruments may be unreliable. Monitoring the gauge gives early indication of impending gyro failure. In IMC this prompts a timely switch to partial-panel technique.

51. C — A lead radial helps the pilot anticipate the point to begin a turn onto the next course or final approach. It provides advance warning so the turn is started in time. This improves the accuracy of course interception, especially on arcs.

52. D — A marker beacon test or self-test confirms the marker lights and audio are functioning properly. It verifies the equipment will annunciate when passing the beacons. Functioning markers provide positive position cues on the approach.

53. D — On a PFD the magenta diamond or chevron on a tape usually represents a command or target value, such as a selected airspeed or altitude. Magenta denotes the bug or target the autopilot or pilot is aiming for. It shows where the aircraft is being commanded.

54. C — Reversionary mode consolidates essential flight data onto a single display if one screen fails. Familiarity ensures the pilot can quickly restore a usable instrument picture. It is a key glass-cockpit failure-management feature.

55. B — An ILS PRM is a precision approach using high-update-rate monitoring to permit simultaneous approaches to closely spaced parallel runways. Special pilot training and monitoring procedures apply. It safely increases arrival capacity at busy airports.

56. B — An incorrect altimeter setting causes the aircraft to fly the wrong indicated altitude relative to true altitude, eroding obstacle clearance on the approach. Accurate altitude is essential to approach safety. The current local setting must be used.

57. D — VS mode commands a constant rate of climb or descent set by the pilot in feet per minute. The autopilot adjusts pitch to hold that rate. The pilot must monitor airspeed since VS prioritizes the rate over speed.

58. D — An "MEA change" symbol on an en route chart marks a point where the minimum en route altitude changes along the airway. It alerts the pilot to a required altitude adjustment. This ensures continued obstacle clearance and navaid reception.

59. C — The TO/FROM flag shows whether the selected course leads toward or away from the station, which is essential for correct VOR orientation. Misreading it can reverse the intended navigation. Proper interpretation prevents flying the wrong direction on a radial.

60. D — The course pointer on an HSI shows the selected course set against the rotating compass card, integrating heading and course in one display. It indicates the desired track relative to the aircraft heading. This reduces interpretation workload during navigation.