PRACTICE EXAM 19 (60 QUESTIONS)

1. A pilot plans an IFR flight to an airport forecasting a 1,200-foot ceiling and 2 SM visibility at ETA. The chosen alternate has only a non-precision approach and forecasts 900 feet and 2.5 SM. Considering both the alternate requirement and the alternate's qualification, is this plan legal?

A. No, because the destination ceiling is above 2,000 feet, no alternate is needed

B. Yes, an alternate is required and the alternate meets the 800-2 non-precision minimums

C. No, because the alternate visibility is below 3 SM

D. Yes, but only because the destination has a precision approach

2. A pilot at 9,000 feet on a westbound IFR airway loses the vacuum pump. The attitude and heading indicators degrade. ATC then asks the pilot to "turn left heading 250 and descend to 7,000." How should the pilot accomplish the turn?

A. Use the failed attitude indicator carefully while descending

B. Use a timed turn at standard rate on the turn coordinator, with the compass and clock

C. Request radar vectors and refuse to turn

D. Use the magnetic compass alone throughout the turn

3. A pilot computes total fuel for an IFR flight: 2.0 hours to destination, 0.7 hours to alternate, plus the required reserve, at 12 gallons per hour. What minimum fuel is required?

A. 36.0 gallons

B. 41.4 gallons

C. 45.0 gallons

D. 50.4 gallons

4. A pilot on an ILS approach reaches the DA of 250 feet in heavy rain. Only the approach lights are visible — no runway, threshold, or touchdown zone. Under 91.175, what may the pilot do?

A. Land immediately since approach lights are a sufficient reference for landing

B. Execute a missed approach because approach lights never permit continuing

C. Descend to 100 feet above TDZE, and below that only if the red terminating or side row bars are visible

D. Circle to another runway at the DA

5. A pilot holding at 12,000 feet receives an EFC time of 1845Z. At 1840Z the pilot loses two-way communication in IMC, with the holding fix as the clearance limit. What should the pilot do?

A. Depart the fix immediately and proceed to the destination

B. Leave the holding fix at 1845Z and proceed per the lost-comm route and altitude rules

C. Hold indefinitely until communication is restored

D. Squawk 7700 and descend below the clouds

6. A pilot reads that the destination forecast at ETA is exactly a 2,000-foot ceiling and 3 SM visibility, holding steady through the window. The destination has an ILS. Considering the 1-2-3 rule, what is required?

A. An alternate is required because an ILS airport always needs one

B. An alternate is required because the values must exceed the thresholds

C. No alternate is required because the forecast meets the 2,000-and-3 condition

D. The flight is illegal regardless of the alternate

7. A pilot encounters moderate rime icing in cruise at 8,000 feet in a non-FIKI aircraft. The freezing level is reported at 6,000 feet, and tops are reported at 10,000 feet with clear air above. What is the best action?

A. Descend to 4,000 feet into colder air to freeze out the moisture

B. Maintain altitude and increase speed to shed the ice

C. Climb to 11,000 feet to exit the tops into clear air above the moisture

D. Continue at 8,000 feet since rime ice is harmless

8. A pilot is cleared "direct ABC, then as filed" and the GPS database expired yesterday. The route uses RNAV waypoints and an RNAV approach at the destination. What is the regulatory issue?

A. RNAV enroute navigation is permitted with an expired database, only approaches are affected

B. The expired database makes the RNAV approach unusable, and database-dependent RNAV operations are compromised

C. There is no issue; GPS does not require a current database

D. Only the missed approach is affected by the expired database

9. A pilot computes the descent profile to cross a fix at 4,000 feet from 10,000 feet, 20 NM away, at a groundspeed of 120 knots (2 NM/min). What constant rate of descent achieves the crossing?

A. 750 feet per minute

B. 1,000 feet per minute

C. 600 feet per minute

D. 500 feet per minute

10. A pilot's attitude indicator slowly rolls toward a right bank while the turn coordinator, altimeter, VSI, and compass all confirm straight-and-level flight, and the vacuum gauge reads low. What is the correct response?

A. Disregard the attitude indicator, transition to partial panel, and continue on the supporting instruments

B. Bank left to correct the indicated right bank on the attitude indicator

C. Declare an emergency and squawk 7700 immediately

D. Realign the heading indicator to stop the bank indication

11. A pilot is assigned "maintain 5,000, expect 9,000 in 10 minutes" then loses communication in IMC. On a segment with an MEA of 7,000, ten minutes after the failure, what altitude applies?

A. 5,000 feet, the assigned altitude only

B. 7,000 feet, the MEA only

C. 9,000 feet, the highest of assigned, MEA, and expected

D. 5,000 feet until reaching the destination

12. A pilot flying an RNAV (GPS) approach with baro-VNAV to LNAV/VNAV minimums notes the reported temperature is −20°C, below the charted minimum temperature for the procedure. What is the concern?

A. The lateral LNAV guidance becomes unusable

B. The approach speed must be increased

C. The baro-VNAV path will be lower than indicated, reducing obstacle clearance

D. The GPS will lose satellite lock in cold air

13. A pilot must determine the time to a VOR. Flying perpendicular to the radial, the bearing changes 8 degrees in 2 minutes. What is the approximate time to the station?

A. 8 minutes

B. 15 minutes

C. 16 minutes

D. 20 minutes

14. A pilot files an alternate that has only a GPS (RNAV) approach with LNAV minimums. The alternate forecasts a 700-foot ceiling and 2 SM visibility. Treating LNAV as a non-precision approach, does the alternate qualify?

A. Yes, because any GPS approach lowers minimums to 600-2

B. No, because the 700-foot ceiling is below the 800-2 non-precision standard

C. Yes, because the visibility meets 2 SM

D. No, because GPS approaches cannot be used for alternates

15. A pilot encounters a building cumulonimbus on the route, depicted on datalink NEXRAD as 18 NM ahead. The pilot considers deviating 5 NM around it. What is the safest decision?

A. Fly directly through, since the cell is weak on the display

B. Deviate exactly 5 NM, trusting the NEXRAD position

C. Maintain course since 18 NM is a safe distance

D. Deviate to maintain at least 20 NM, recognizing NEXRAD latency and hazard spread

16. A pilot computes the climb rate needed for a departure requiring 360 ft/NM at a groundspeed of 90 knots (1.5 NM/min). What rate is required?

A. 400 feet per minute

B. 450 feet per minute

C. 540 feet per minute

D. 600 feet per minute

17. A pilot on a non-precision approach with a stepdown fix descends to the MDA. The runway is not in sight at the visual descent point. What should the pilot do?

A. Descend below the MDA to search for the runway

B. Climb immediately at the VDP

C. Continue at the MDA to the missed approach point, then go around if the runway is not in sight

D. Circle at the VDP until the runway appears

18. A pilot loses communication after radar vectors toward a fix with instructions to "expect the ILS approach." Under 91.185, after proceeding to the fix, what should the pilot do at the destination?

A. Hold at the fix until communication returns

B. Land VFR regardless of conditions

C. Fly the expected ILS approach, beginning at the EFC time or flight-plan ETA

D. Request a contact approach by light signals

19. A pilot flying single-pilot IFR in IMC feels increasing pressure to descend below minimums at the destination to make a connection, with fuel adequate to divert. Which decision reflects sound SRM?

A. Descend slightly below MDA briefly to look for the runway

B. Continue the approach past the MAP hoping conditions improve

C. Ask ATC to lower the minimums for this approach

D. Execute the missed approach and divert to the alternate, honoring personal minimums

20. A pilot computes groundspeed and time. With a true airspeed of 120 knots and a 30-knot headwind component, what is the time to fly a 45 NM leg?

A. 20 minutes

B. 25 minutes

C. 30 minutes

D. 22.5 minutes

21. A pilot at a non-towered airport receives an IFR clearance with a void time of 2010Z and a release. At 2008Z the engine runs rough on runup. The pilot cannot depart by 2010Z. What is required?

A. Notify ATC as soon as possible, since the clearance is void and the airspace may be reassigned

B. Depart anyway within 30 minutes of the void time

C. Hold on the ground and depart when ready, the void time auto-extends

D. Cancel the IFR flight plan and depart VFR into IMC

22. A pilot reviewing required reports must report which item to ATC even in radar contact while on an IFR flight?

A. Crossing each named intersection

B. A revised estimate of two minutes for the next fix

C. A missed approach

D. Reaching a VFR-on-top altitude

23. A pilot flying a holding pattern at 6,000 feet must not exceed the maximum holding speed. For altitudes from 6,001 through 14,000 feet, what is the maximum holding indicated airspeed for a typical civil aircraft?

A. 175 knots

B. 230 knots

C. 200 knots

D. 265 knots

24. A pilot determines that a procedure turn is charted but the aircraft is being radar-vectored to the final approach course. Should the procedure turn be flown?

A. Yes, the procedure turn is always mandatory when charted

B. No, radar vectors to final make the course reversal unnecessary

C. Yes, but only if the glide slope is inoperative

D. No, because procedure turns apply only to GPS approaches

25. A pilot computes the wind correction angle for a leg. With a 25-knot crosswind component and a true airspeed of 150 knots, using WCA ≈ crosswind ÷ (TAS ÷ 60), what is the approximate WCA?

A. 5 degrees

B. 15 degrees

C. 10 degrees

D. 25 degrees

26. A pilot must select a holding entry. Crossing the fix, the aircraft is positioned such that turning to follow the pattern's turn direction immediately aligns it with the outbound leg on the holding side. This describes which entry?

A. Parallel entry

B. Teardrop entry

C. A non-standard entry requiring ATC approval

D. Direct entry

27. A pilot on an IFR flight at 7,000 feet experiences an alternator failure at night in IMC, 40 minutes from the destination, with a battery estimated to last 25 minutes. What is the best decision?

A. Continue to the destination to complete the flight plan

B. Turn off all electrical equipment immediately to save the battery

C. Climb higher to extend gliding range

D. Divert to a suitable airport within the battery endurance and shed nonessential loads

28. A pilot reviewing the lost-communication route rules is vectored off the airway with "expect to rejoin V123 at DELTA." Communication is lost. What route should be flown?

A. Proceed directly to DELTA, then via V123 as expected

B. Continue on the vector heading until reaching the destination

C. Return to the departure airport

D. Climb to the MEA and hold at the present position

29. A pilot computes the descent to lose 6,000 feet at a groundspeed of 180 knots (3 NM/min) using a 3-degree path (rate ≈ groundspeed × 5). What is the descent rate, and how far out must descent begin?

A. 900 fpm, beginning about 20 NM from the target

B. 600 fpm, beginning about 10 NM from the target

C. 540 fpm, beginning about 15 NM from the target

D. 750 fpm, beginning about 12 NM from the target

30. A pilot flying an approach loses the glide slope at the FAF due to a ground equipment NOTAM. The localizer remains. What approach and minimums now apply?

A. The full ILS to Category I DA

B. An LPV approach using the localizer

C. No approach is possible

D. The localizer (LOC) approach flown to the localizer MDA

31. A pilot on a STAR is cleared to "descend via the BRDGE arrival." A fix shows "cross at or above 8,000, 250 KT." How should the pilot comply?

A. Maintain the last assigned altitude and ignore the crossing

B. Descend immediately to 8,000 regardless of position

C. Cross the fix at exactly 8,000 and 250 knots

D. Descend at pilot's discretion to cross the fix at or above 8,000 while complying with the speed

32. A pilot reviewing aircraft approach categories flies a Category A aircraft but, due to a wind additive, will fly the final approach at 125 knots. Which minimums apply?

A. Category A, because the aircraft is certificated Category A

B. Category C, because the actual approach speed of 125 knots falls in that range

C. Category B, regardless of the actual speed

D. The lowest minimums published on the chart

33. A pilot's pitot tube and its drain become blocked by ice during a climb. What will the airspeed indicator show as the climb continues?

A. An increasing airspeed as the aircraft climbs

B. A decreasing airspeed toward zero

C. The correct airspeed throughout

D. A frozen value that never changes

34. A pilot must compute the magnetic bearing TO an NDB. With a magnetic heading of 300° and a relative bearing of 120°, what is the magnetic bearing to the station?

A. 120 degrees

B. 300 degrees

C. 180 degrees

D. 060 degrees

35. A pilot reviewing personal minimums sets a 1,000-foot ceiling and 3 SM visibility floor, higher than the approach minimums. Approaching the destination, the weather is at the published 200-and-1/2 ILS minimums but above the pilot's personal floor only at the alternate. What is the sound decision?

A. Divert to the alternate, where conditions meet the pilot's personal minimums

B. Fly the approach to the published minimums since they are legal

C. Descend below minimums briefly to assess the runway

D. Cancel IFR and continue VFR to the destination

36. A pilot flying a DME arc at 16 DME observes the distance decreasing to 15.6 DME. What correction maintains the arc?

A. Turn toward the station to tighten the arc

B. Turn away from the station to widen the arc back to 16 DME

C. Descend to correct the slant-range error

D. Increase airspeed to regain the arc

37. A pilot computes the time from the FAF to the MAP. The distance is 6 NM and the groundspeed is 120 knots (2 NM/min). What is the time?

A. 2 minutes

B. 3 minutes

C. 4 minutes

D. 6 minutes

38. A pilot encounters the somatogravic illusion on a dark IMC departure as the aircraft accelerates. What is the correct response?

A. Trust the attitude indicator and maintain the indicated climb attitude

B. Push the nose down to counter the climb sensation

C. Reduce power to stop the perceived climb

D. Bank to relieve the sensation

39. A pilot at FL230 must use which altimeter setting, and why?

A. 29.92 inches Hg, because all flight levels operate on standard pressure altitude

B. The nearest station's local setting, for accuracy

C. The destination forecast setting

D. 30.00 inches Hg, the high-altitude standard

40. A pilot reviewing the missed approach on a non-precision approach must initiate it where?

A. At the final approach fix if the runway is not visible

B. At the visual descent point

C. At the missed approach point if the required visual references are not in sight

D. Only when ATC issues a go-around

41. A pilot computes that an aircraft with a V_SO of 65 knots has a 1.3 × V_SO of 84.5 knots. Into which approach category does this place the aircraft?

A. Category C

B. Category A

C. Category B

D. Category D

42. A pilot flying partial panel after a vacuum failure must hold altitude. Which instruments serve as the primary pitch references?

A. The attitude indicator and heading indicator

B. The turn coordinator and magnetic compass

C. The altimeter and vertical speed indicator

D. The tachometer and the clock

43. A pilot reviewing an enroute chart finds an airway with an MEA of 10,000 and a MOCA of 7,000. The pilot wishes to fly at 7,000 within 22 NM of the VOR. What limitation must be understood?

A. Obstacle clearance is not assured at the MOCA

B. The MOCA may only be flown above 18,000 feet

C. ATC radar monitoring is required at the MOCA

D. Navigation signal is guaranteed only within 22 NM of the VOR at the MOCA

44. A pilot using an autopilot coupled to a localizer notices the flight mode annunciator shows "LOC armed" but the aircraft is not turning to capture as it crosses the localizer. What has likely happened, and what should the pilot do?

A. The autopilot has captured; no action needed

B. The capture did not occur; the pilot should monitor, and be ready to hand-fly or re-arm the mode

C. The localizer frequency is correct, so wait indefinitely

D. The autopilot has failed entirely and must be shut off

45. A pilot must compute fuel for a flight with no alternate required: 2.0 hours to destination at 11 gallons per hour, plus the required reserve. What minimum fuel is needed (rounded up to the next whole gallon)?

A. 25.2 gallons

B. 30.0 gallons

C. 31.0 gallons

D. 35.7 gallons

46. A pilot flying an ILS intercepts the glide slope from below at the published glideslope intercept altitude. Why is this the correct technique?

A. Intercepting from below provides a steeper descent

B. The glide slope is only usable above the intercept altitude

C. Intercepting from below eliminates the need for the localizer

D. False glide slope signals exist above the true path, and intercepting from below avoids capturing them

47. A pilot reviewing weather sees a deep low-pressure system along the route. What general weather and circulation should be anticipated in the Northern Hemisphere?

A. Clockwise, outward flow with descending air and fair weather

B. Counterclockwise, inward flow with rising air, clouds, and precipitation

C. Straight isobaric flow with no weather change

D. Clockwise, inward flow with stable, clear conditions

48. A pilot encounters AIRMET Sierra and AIRMET Zulu both in effect along the route. What hazards do these advise, respectively?

A. IFR/mountain obscuration (Sierra) and icing/freezing levels (Zulu)

B. Turbulence (Sierra) and icing (Zulu)

C. Icing (Sierra) and turbulence (Zulu)

D. Convective activity (Sierra) and wind shear (Zulu)

49. A pilot flying an approach must descend below the DA to land. Which combination of conditions satisfies 14 CFR 91.175?

A. A landing clearance from the tower alone

B. The pilot's familiarity with the airport

C. WAAS equipment aboard

D. The aircraft in a position to land, required flight visibility, and a required visual reference in sight

50. A pilot's instrument currency lapsed seven calendar months ago. The pilot has not flown the required tasks within the grace period. What is now required to act as PIC under IFR?

A. An instrument proficiency check

B. Six approaches flown with a safety pilot in VMC

C. A flight review only

D. A new instrument rating practical test

51. A pilot must determine the rate of descent to maintain a 3-degree glide path at 140 knots groundspeed using the rule of thumb (groundspeed × 5). What is the rate?

A. 700 feet per minute

B. 500 feet per minute

C. 600 feet per minute

D. 420 feet per minute

52. A pilot reviewing the cold-temperature-correction requirement at a restricted airport must do what to published altitudes?

A. Subtract a correction because cold air is denser

B. Make no correction; altimeters self-compensate

C. Use pressure altitude only

D. Add an altitude correction to preserve obstacle clearance in cold air

53. A pilot flying a back-course localizer with only a conventional CDI (no HSI) must remember what about the needle?

A. The glide slope must be followed in reverse

B. The DME counts upward on the back course

C. The needle indications are reversed; correct by flying away from the needle

D. The frequency must be re-tuned for the back course

54. A pilot computes the descent gradient to lose 5,000 feet over 25 NM. What gradient is required?

A. 200 feet per NM

B. 250 feet per NM

C. 150 feet per NM

D. 300 feet per NM

55. A pilot encounters radiation fog forming at dawn. Which conditions favored its formation?

A. Strong winds and a warm front passage

B. Clear skies, calm wind, and a small temperature-dewpoint spread

C. Warm moist air moving over a cool surface

D. Cold air moving over warmer water

56. A pilot reviewing an ILS approach must know where the missed approach begins. On a precision approach, this is where?

A. At the decision altitude

B. At the final approach fix

C. At the visual descent point

D. At a separate missed approach point beyond the runway

57. A pilot flying in severe turbulence near a thunderstorm should adjust airspeed how, and why?

A. Increase to cruise speed to exit quickly and reduce exposure

B. Slow to just above stall to minimize structural load

C. Maintain current speed because turbulence does not affect structure

D. Slow to or below maneuvering speed so the aircraft stalls before exceeding structural limits

58. A pilot must report to ATC, when not in radar contact, upon reaching which of the following — a report not required in radar contact?

A. A loss of communication capability

B. A missed approach

C. An inability to maintain 500 fpm climb

D. A compulsory reporting point

59. A pilot reviewing the GRABCARD requirements is asked which item is required for IFR but not day VFR. Which qualifies?

A. A rate-of-turn indicator (turn coordinator)

B. An airspeed indicator

C. A magnetic compass

D. An altimeter

60. A pilot flying single-pilot IFR engages the autopilot and FMS to manage workload during a busy arrival. What remains the pilot's responsibility?

A. To rely fully on the automation without monitoring

B. To monitor the flight mode annunciations and verify the automation performs as intended

C. To disengage all automation during the arrival

D. To avoid using the FMS in terminal airspace

+ Answer Key

1. B — The destination ceiling of 1,200 feet is below 2,000 feet, so an alternate is required under the 1-2-3 rule. The alternate, with a non-precision approach, must meet the 800-2 standard; its 900-foot ceiling and 2.5 SM visibility exceed that, so the plan is legal.

2. B — With the vacuum-driven attitude and heading indicators degraded, the turn to heading 250 is flown as a timed turn at standard rate on the electric turn coordinator, using the compass and clock. The compass is unreliable during the turn itself, so timing provides the accurate reference.

3. B — Fuel = 2.0 hr + 0.7 hr + 0.75 hr (45-min reserve) = 3.45 hr × 12 gph = 41.4 gallons. The 45-minute IFR reserve is added after destination and alternate before applying the burn rate.

4. C — Under 91.175, with only the approach lights in sight at the DA, the pilot may descend to 100 feet above TDZE, and below that only if the red terminating or red side row bars are distinctly visible. This is the specific approach-light exception to the visual-reference requirement.

5. B — With the holding fix as the clearance limit and an EFC issued, the lost-comm pilot leaves the fix at the EFC time (1845Z) and proceeds per the 91.185 route and altitude rules. The EFC governs departure from the clearance limit so ATC can protect the airspace.

6. C — The forecast meets the 2,000-and-3 condition exactly, and meeting the values satisfies "at least," so no alternate is required. The thresholds are minimums to meet, not values that must be exceeded.

7. C — With tops at 10,000 feet and clear air above, climbing to 11,000 feet exits the visible moisture, stopping ice accumulation in a non-FIKI aircraft. Removing either icing ingredient—here the moisture—is the escape; descending to 4,000 would stay in moisture near the freezing level.

8. B — An expired database makes the RNAV approach unusable, and database-dependent RNAV operations are compromised because waypoints and procedures may have changed. A current database is required for IFR procedures that rely on it.

9. C — The descent is 6,000 feet over 20 NM; at 2 NM/min the 20 NM takes 10 minutes, so 6,000 ÷ 10 = 600 feet per minute. Matching descent rate to distance and groundspeed achieves the crossing.

10. A — A slowly banking attitude indicator contradicted by the turn coordinator, altimeter, VSI, and compass, with a low vacuum gauge, indicates a failing vacuum-driven attitude indicator; the pilot disregards it and flies partial panel. Following the failing instrument would lead toward a spiral.

11. C — Ten minutes after the failure the expected altitude (9,000) becomes applicable, and as the highest of assigned (5,000), MEA (7,000), and expected (9,000), 9,000 is flown. The lost-comm altitude rule selects the highest applicable value.

12. C — At a temperature below the charted minimum, baro-VNAV computes a path lower than indicated, reducing obstacle clearance. Cold-temperature limits exist because barometric vertical guidance is distorted by nonstandard cold air.

13. B — Time to station = 60 × minutes ÷ degrees of change = 60 × 2 ÷ 8 = 15 minutes. The rate of bearing change abeam the station yields the time to it.

14. B — Treating LNAV as a non-precision approach, the alternate must meet the 800-2 standard; the 700-foot ceiling is below 800 feet, so it does not qualify. Both ceiling and visibility must meet the standard for the available approach type.

15. D — The pilot should deviate to maintain at least 20 NM, because NEXRAD imagery is delayed and hazards such as hail and turbulence extend beyond the visible cell. A 5-NM deviation based on a latent image is unsafe.

16. C — At 90 knots groundspeed (1.5 NM/min), a 360 ft/NM gradient requires 360 × 1.5 = 540 feet per minute. The gradient is multiplied by groundspeed in nautical miles per minute.

17. C — At the MDA with the runway not in sight at the VDP, the pilot continues at the MDA to the missed approach point, then goes around if the runway is still not in sight. Descending below the MDA or climbing at the VDP would be incorrect.

18. C — After proceeding to the fix, the lost-comm pilot flies the expected ILS approach, beginning at the EFC time or the flight-plan ETA if no EFC. The "expected" approach and the timing rules govern the arrival.

19. D — Sound SRM is to execute the missed approach and divert to the alternate, honoring personal minimums, since fuel is adequate. Descending below minimums, continuing past the MAP, or asking ATC to lower minimums are all unsafe or impossible.

20. C — Groundspeed = 120 − 30 = 90 knots; 45 NM at 90 knots takes 45 ÷ 90 × 60 = 30 minutes. The headwind reduces groundspeed, lengthening the time.

21. A — If unable to depart by the void time, the pilot must notify ATC as soon as possible, because the clearance is void and the airspace may be reassigned. Departing after the void time without a new clearance is illegal and unsafe.

22. C — A missed approach must be reported to ATC at all times, even in radar contact. Intersection crossings, small estimate changes, and VFR-on-top altitudes are not always-required reports.

23. C — From 6,001 through 14,000 feet, the maximum holding airspeed for a typical civil aircraft is 200 knots indicated. Holding speed limits keep the pattern within protected airspace.

24. B — Radar vectors to the final approach course make the course-reversal purpose of a procedure turn unnecessary, so it is not flown. Flying one anyway could conflict with ATC's sequencing.

25. C — WCA ≈ crosswind ÷ (TAS ÷ 60) = 25 ÷ (150 ÷ 60) = 25 ÷ 2.5 = 10 degrees. The rule estimates the crab angle for the crosswind component.

26. D — Crossing the fix and turning directly to follow the pattern onto the holding side describes a direct entry. It is the simplest entry, used when the arrival aligns with the pattern's turn direction.

27. D — With a 25-minute battery and the destination 40 minutes away, the pilot diverts to a suitable airport within the battery endurance and sheds nonessential loads. Continuing to the destination would exhaust the battery before landing.

28. A — Under 91.185, after a vector the lost-comm pilot proceeds directly to the fix (DELTA) specified in the vector clearance, then continues via the route to be expected (V123). This is the "vectored then expected" route priority.

29. A — At 180 knots (3 NM/min) the 3° rule gives 180 × 5 = 900 fpm; 6,000 feet at 900 fpm takes about 6.7 minutes, covering about 20 NM, so descent begins about 20 NM out. The rate-and-distance pairing matches the keyed values.

30. D — With the glide slope NOTAMed out and the localizer remaining, a localizer (LOC) approach is flown to the localizer MDA. Losing vertical guidance downgrades the ILS to a non-precision approach.

31. D — A "descend via" clearance authorizes descent at pilot's discretion to cross the fix at or above 8,000 while complying with the 250-knot speed. The charted crossing and speed restrictions are binding under the descend-via clearance.

32. B — Because the actual final approach speed of 125 knots falls in the Category C range (121–140), Category C minimums apply even though the aircraft is normally Category A. Minimums follow the speed actually flown, which sets the protected area.

33. A — With both the pitot tube and drain blocked, trapped pressure is compared against falling static pressure, so the airspeed indicator reads increasing as the aircraft climbs. This is the classic dual-blockage behavior, mimicking an altimeter.

34. D — Magnetic bearing TO the station = heading + relative bearing = 300° + 120° = 420°, minus 360° = 060°. When the sum exceeds 360°, subtract 360°.

35. A — The sound decision is to divert to the alternate, where conditions meet the pilot's personal minimums, even though the published ILS minimums are legal at the destination. Personal minimums above the legal floor are honored to preserve a safety margin.

36. B — When the DME distance decreases below the arc value, the pilot turns away from the station to widen the arc back to 16 DME. Small corrections away from or toward the station maintain the constant distance.

37. B — At 120 knots (2 NM/min), 6 NM takes 6 ÷ 2 = 3 minutes to the MAP. Timing from the FAF identifies the MAP when no fix or waypoint defines it.

38. A — The correct response to the somatogravic illusion is to trust the attitude indicator and maintain the indicated climb attitude, resisting the false pitch-up sensation. Pushing the nose down would fly the aircraft toward the ground.

39. A — At FL230 the pilot uses 29.92 inches Hg, because all flight levels (at and above 18,000 feet MSL) operate on standard pressure altitude. This common reference places all high-altitude traffic on the same datum.

40. C — On a non-precision approach, the missed approach is initiated at the missed approach point if the required visual references are not in sight. Starting at the FAF or VDP would be incorrect.

41. B — A 1.3 × V_SO of 84.5 knots is below 91 knots, placing the aircraft in Category A. The approach category is set by this computed approach speed.

42. C — In partial-panel level flight, the altimeter and vertical speed indicator are the primary pitch references, with the airspeed indicator confirming trends. The failed attitude indicator is disregarded.

43. D — At the MOCA, navigation signal is guaranteed only within 22 NM of the VOR, though obstacle clearance is assured for the whole segment. This navigation limitation distinguishes the MOCA from the MEA.

44. B — "LOC armed" without capture as the aircraft crosses the localizer means capture did not occur; the pilot monitors, and is ready to hand-fly or re-arm the mode. Monitoring the annunciator catches the failed capture before a deviation develops.

45. C — With no alternate required, fuel = 2.0 hr + 0.75 hr (45-min reserve) = 2.75 hr × 11 gph = 30.25 gallons, which rounds up to 31 gallons. The 45-minute IFR reserve is added to the time enroute before applying the burn rate.

46. D — Intercepting the glide slope from below at the published intercept altitude avoids false glide slope signals that exist above the true path. A "dive and drive" from above risks capturing an erroneous higher-angle lobe.

47. B — A deep Northern Hemisphere low produces counterclockwise, inward flow with rising air, clouds, and precipitation. The inflow lifts air, generating the poor weather associated with lows.

48. A — AIRMET Sierra advises IFR conditions and mountain obscuration, while Zulu advises icing and freezing levels. Tango, not listed here, covers turbulence.

49. D — Under 91.175, descending below the DA to land requires the aircraft in a position to land, the required flight visibility, and a required visual reference in sight. A landing clearance, familiarity, or equipment alone does not satisfy the rule.

50. A — With currency lapsed seven calendar months and the grace period (through the sixth month) passed without regaining it, an instrument proficiency check is required. Beyond the grace window the pilot can no longer self-certify currency.

51. A — Using groundspeed × 5, a 3° path at 140 knots requires 140 × 5 = 700 feet per minute. This rule of thumb approximates the descent rate to hold the glide path.

52. D — At a cold-temperature-restricted airport, the pilot adds an altitude correction to published altitudes to preserve obstacle clearance, because true altitude is lower than indicated in cold air. The correction compensates for the cold-air altimetry error.

53. C — On a back-course localizer with only a conventional CDI, the needle indications are reversed, so the pilot corrects by flying away from the needle. An HSI would eliminate this reverse sensing.

54. A — The gradient is 5,000 feet over 25 NM = 5,000 ÷ 25 = 200 feet per NM. Descent gradient equals altitude loss divided by distance.

55. B — Radiation fog forms under clear skies, calm wind, and a small temperature-dewpoint spread, as the ground radiates heat and cools the air to saturation. These are the classic dawn conditions for radiation fog.

56. A — On a precision approach, the missed approach begins at the decision altitude, where the continuous vertical guidance makes the go/no-go decision at that altitude. A non-precision approach uses a missed approach point instead.

57. D — In severe turbulence near a thunderstorm, the pilot slows to or below maneuvering speed so the aircraft stalls before aerodynamic loads exceed structural limits. This protects the airframe from a gust-induced overstress.

58. D — Reaching a compulsory reporting point must be reported when not in radar contact but is not required in radar contact, where radar shows ATC the position. Loss of communication, a missed approach, and inability to maintain 500 fpm are required at all times.

59. A — The rate-of-turn indicator (turn coordinator) is required for IFR under the GRABCARD list but not for day VFR. The airspeed indicator, magnetic compass, and altimeter are all required for day VFR as well.

60. B — Engaging the autopilot and FMS does not relieve the pilot of monitoring the flight mode annunciations and verifying the automation performs as intended. The pilot manages the automation and remains responsible for the flight.