PRACTICE EXAM 19 SIMULATION

1. A destination TAF forecasts a 1,200-foot ceiling and 2 miles visibility at the ETA, and the only suitable alternate has just a non-precision approach forecasting 700 feet and 2 miles. What does this combination require of the pilot's planning?

A. No alternate, since the destination ceiling exceeds 1,000 feet

B. An alternate is required, and this airport qualifies at 700-2

C. An alternate is required, but this airport does not qualify because it fails the 800-2 non-precision minimum

D. The flight must be filed VFR to avoid the alternate rule

2. A pilot loses the vacuum system in IMC and, several minutes later, also begins to suspect spatial disorientation as the aircraft feels banked. Which combined response is correct?

A. Trust the seat-of-the-pants sensation and level by feel

B. Re-engage the failed attitude indicator and follow it

C. Fly partial panel using the turn coordinator and pitot-static instruments, trusting them over sensation

D. Initiate an immediate steep descent to regain visual conditions

3. A winds-aloft forecast shows a strong headwind that will reduce groundspeed and lengthen the flight. What is the most direct downstream consequence for fuel planning?

A. More fuel is required because longer time en route increases burn

B. Less fuel is required because headwinds improve efficiency

C. The 45-minute reserve may be reduced proportionally

D. The alternate requirement is automatically waived

4. A pilot finds the forecast freezing level is well below the planned cruising altitude along a route with forecast visible moisture, in an aircraft not approved for known icing. What is the sound decision chain?

A. The combination implies likely structural icing, so the pilot must alter altitude/route or not go

B. Visible moisture alone is harmless, so the flight may proceed as planned

C. The aircraft may climb through the icing layer once airborne with no concern

D. Freezing level is irrelevant unless precipitation is forecast

5. A pilot is assigned a hold at 16,000 feet and must both set holding speed and time the legs. Which pairing is correct for this altitude?

A. Maximum 230 knots and a 1-minute inbound leg

B. Maximum 200 knots and a 1.5-minute inbound leg

C. Maximum 265 knots and a 1.5-minute inbound leg

D. Maximum 265 knots and a 1-minute inbound leg

6. A pilot copying a clearance receives an "expect 9,000 in 10 minutes" instruction, then loses communication before reaching 9,000 after the 10 minutes elapse, with the segment MEA at 6,000 and assigned altitude 5,000. What altitude applies?

A. 9,000 feet, the highest of the minimum, expected, and assigned altitudes

B. 5,000 feet, the last assigned altitude only

C. 6,000 feet, the MEA only, ignoring the expected altitude

D. Any altitude with favorable winds

7. A pilot flying a GPS approach with a non-WAAS receiver wants vertical guidance to the lowest minimums. What is the realistic consequence of the equipment limitation?

A. The pilot may fly LPV minimums regardless of WAAS

B. The pilot may fly LNAV/VNAV using WAAS vertical guidance

C. The receiver eliminates the need for any approach mode

D. The pilot is generally limited to lateral (LNAV) minimums and may need a RAIM check

8. A pilot recognizes the temperature–dew point spread is converging rapidly at the destination while the ceiling is lowering on successive METARs. What does this trend imply for the approach?

A. Conditions are deteriorating and may fall below minimums by arrival

B. Conditions are improving and the approach will be straightforward

C. The trend has no bearing on the approach decision

D. The convergence guarantees the runway will remain in sight

9. A pilot on a non-precision approach is using the chart's timing table to identify the missed approach point and notices a strong tailwind on final. What is the consequence for the timing?

A. The timing is unaffected because the table uses airspeed

B. The pilot should add time because the tailwind slows the aircraft

C. The higher groundspeed shortens the time from the FAF to the MAP

D. The MAP can be ignored when a tailwind is present

10. A pilot's instrument currency lapsed 7 months ago, and the pilot now wants to fly an IFR cross-country in IMC. What is the consequence and required remedy?

A. An instrument proficiency check is required before flying IFR

B. Six approaches may simply be logged on this IMC flight to regain currency

C. The flight is legal because the rating itself never expires

D. Currency is automatically restored after 6 months of lapse

11. A pilot is being radar vectored toward the final approach course of an ILS that has a charted procedure turn, and is then cleared for the approach. What is the consequence for the procedure turn, and why?

A. Fly it, because it is charted and therefore mandatory

B. Fly it only above the charted procedure-turn altitude

C. Request a hold to perform the reversal first

D. Do not fly it, because vectors position the aircraft to intercept final directly

12. A pilot notes a Convective SIGMET with embedded thunderstorms along the route and is relying on datalink NEXRAD in the cockpit. What is the correct integrated response?

A. Use datalink radar to thread between the embedded cells

B. Treat the datalink image as real-time for close-in avoidance

C. Descend below the cells using the radar mosaic for guidance

D. Avoid the area strategically with a wide margin, since embedded cells are unseen and datalink lags

13. A pilot must explain why losing the vacuum system is more dangerous in IMC than in VMC. What is the underlying reason?

A. The vacuum system powers the radios needed for IMC

B. In IMC there is no outside horizon, so the lost attitude reference cannot be replaced visually

C. The vacuum system is required only in VMC

D. IMC increases the electrical load, draining the battery faster

14. A pilot computes that an IFR flight requires fuel to the destination (1.5 hours), to the alternate (0.5 hours), plus reserve, at 12 gph. What is the minimum fuel?

A. About 33 gallons

B. About 24 gallons

C. About 27 gallons

D. About 40 gallons

15. A pilot is cleared "descend via" a STAR with several crossing restrictions and simultaneously must manage airspeed restrictions at certain fixes. What is the integrated responsibility?

A. Meet only the altitude restrictions and disregard speeds

B. Wait for ATC to assign each altitude and speed individually

C. Manage the descent and speed to satisfy all published restrictions in sequence

D. Treat all restrictions as advisory under a descend-via clearance

16. A pilot reasons about why a temperature inversion and a converging dew point spread together strongly suggest fog. What is the integrated reasoning?

A. The inversion creates convective lifting that produces fog

B. The inversion increases the spread, drying the air

C. Fog requires an unstable lapse rate, which the inversion provides

D. The inversion traps moisture near the surface while the narrowing spread nears saturation

17. A pilot loses two-way communication in VFR conditions during an IFR flight, then the weather ahead appears to be lowering toward IMC. What governs the pilot's action?

A. Climb into the IMC and proceed under the IFR clearance

B. Remain in VFR conditions and land as soon as practical

C. Squawk 7700 and hold until contacted

D. Continue to the destination at the assigned IFR altitude regardless

18. A pilot flying an ILS has a centered glide slope but a localizer needle deflected right; meanwhile the aircraft is nearing the runway where the localizer is most sensitive. What is the correct, consequence-aware response?

A. Make a large correction to the left to recenter quickly

B. Disregard the localizer and rely on the glide slope

C. Make a small, smooth correction to the right, since sensitivity is high near the runway

D. Initiate a missed approach due to the deflection

19. A pilot notes the destination forecast meets the 1-2-3 rule comfortably but the only nearby airports are mountainous with AIRMET Sierra active. What is the integrated planning consequence?

A. No alternate is required, but the pilot should weigh mountain obscuration in the overall risk picture

B. An alternate is mandatory despite meeting the 1-2-3 rule

C. AIRMET Sierra prohibits the flight entirely

D. The 1-2-3 rule is overridden by the AIRMET

20. A pilot must explain why a slowly failing attitude indicator combined with the leans is especially deadly. What is the integrated mechanism?

A. The leans corrects the false attitude automatically

B. The failing instrument restores the correct horizon

C. The two effects cancel, producing safe flight

D. The drooping instrument and the false bodily sensation reinforce each other toward a graveyard spiral

21. A pilot at a non-towered airport in low IMC must depart over rising terrain and also remember to obtain and comply with the clearance void time. What two actions integrate here?

A. File a STAR and ignore the void time

B. Rely on radar vectors and skip the ODP

C. Close the flight plan before departure and disregard terrain

D. Review and fly the ODP for terrain, and depart before the clearance void time

22. A pilot reasons that because GPS gives direct routing, the VOR check is unnecessary for a flight that will use GPS but carries a VOR as backup. What is the correct consequence?

A. If the VOR may be used for IFR navigation, it still requires a current 30-day check

B. The VOR check is never required when GPS is aboard

C. The GPS RAIM check replaces the VOR check entirely

D. The VOR may be used unchecked as long as it is only a backup

23. A pilot computes a top-of-descent: needing to lose 9,000 feet at 600 feet per minute while covering 3 nautical miles per minute. How far before level-off should the descent begin?

A. 30 nautical miles

B. 36 nautical miles

C. 45 nautical miles

D. 54 nautical miles

24. A pilot must integrate the fact that the airspeed indicator uses both pressure sources with the symptom of a pitot blockage. What behavior confirms a pitot (not static) blockage?

A. The altimeter freezes while airspeed stays normal

B. All three pitot-static instruments fail together

C. The airspeed behaves like an altimeter while altitude and VSI remain normal

D. The VSI pegs at maximum climb

25. A pilot recognizes the hazardous attitude "I can do it" while deciding whether to attempt an approach below personal minimums. What integrated response applies?

A. Proceed, since confidence improves performance

B. Apply the antidote "Taking chances is foolish" and honor the personal minimum

C. Apply the antidote "It could happen to me" for invulnerability

D. Apply the antidote "Follow the rules" for anti-authority

26. A pilot must explain why the inbound leg is timed and wind-corrected while the outbound leg is adjusted, in terms of staying within protected airspace. What is the integrated reason?

A. A consistent inbound leg keeps the pattern within protected airspace, so it is the controlled, timed leg

B. The outbound leg is unaffected by wind and never adjusted

C. Timing the outbound leg is prohibited by regulation

D. The inbound leg needs no wind correction in any condition

27. A pilot decodes a winds-aloft group "751945" after applying conventions. What is the wind and temperature?

A. From 075 at 19 knots, temperature +45

B. From 250 at 119 knots, temperature −45

C. From 075 at 119 knots, temperature +45

D. From 250 at 19 knots, temperature −45

28. A pilot must integrate the difference between a DA and an MDA with the decision required at each. Which statement is correct?

A. At the DA the pilot levels off and continues to the MAP

B. At the MDA the pilot decides and may descend below on the glide path

C. At the DA the pilot decides to land or go missed; at the MDA the pilot levels off and may not descend without references

D. Both require an immediate missed approach regardless of references

29. A pilot reasons that exceeding holding speed at altitude with a strong wind compounds the risk. What is the integrated consequence?

A. The transponder resets and timing doubles

B. The aircraft is more likely to exit protected airspace, especially in the wind-affected turns

C. The hold becomes a precision approach

D. The EFC time is automatically extended

30. A pilot must explain why a Convective SIGMET implies more than the thunderstorms it names. What downstream hazards are implied?

A. Severe turbulence, severe icing, and low-level wind shear

B. Only light rime icing for small aircraft

C. Only mountain obscuration and marginal ceilings

D. Only routine terminal wind shifts

31. A pilot integrates that the 1-2-3 rule uses the destination forecast while alternate minimums use the alternate forecast, applying them to a flight with a marginal destination. Which sequence is correct?

A. Test the alternate first, then the destination

B. Apply 600-2 to the destination to decide if an alternate is needed

C. Test the destination with 1-2-3; if it fails, test the alternate against 600-2 or 800-2

D. Apply the 1-2-3 rule to both airports identically

32. A pilot must explain why the heading indicator must be reset to the compass in steady flight, integrating gyro drift with compass error. What is the reason?

A. The compass drifts and must be reset to the heading indicator

B. The heading indicator drifts over time, and the compass is reliable in steady flight for resetting it

C. Neither instrument needs adjustment in flight

D. The heading indicator is reset only after landing

33. A pilot computes a crosswind: wind 40 degrees off the runway at 20 knots (sine of 40 degrees ≈ 0.64). What is the crosswind component?

A. About 10 knots

B. About 13 knots

C. About 17 knots

D. About 20 knots

34. A pilot must integrate the purpose of the EFC time with the lost-communication scenario while holding. What does the EFC dictate?

A. The maximum holding airspeed for the pattern

B. The inbound leg length in miles

C. The transponder code while holding

D. When to leave the holding fix if communication is lost

35. A pilot flying partial panel after a vacuum failure must integrate bank and pitch control without the attitude indicator. Which combination is correct?

A. Bank with the heading indicator; pitch with the attitude indicator

B. Bank with the altimeter; pitch with the compass

C. Bank with the turn coordinator; pitch with the altimeter, airspeed, and VSI

D. Bank with the tachometer; pitch with the OBS

36. A pilot reasons about why aviate precedes communicate when an instrument fails in IMC, integrating control priority with the disorientation risk. What is the rationale?

A. Communicating restores the failed instrument

B. ATC must be told before the pilot may fly the aircraft

C. Maintaining control prevents loss of the aircraft while the pilot is most vulnerable to disorientation

D. Navigation must precede control of the aircraft

37. A pilot must integrate the standard alternate minimums with the type of approach available, for an alternate with a precision approach. What minimums apply?

A. A ceiling of 800 feet and visibility of 2 statute miles

B. A ceiling of 1,000 feet and visibility of 3 statute miles

C. A ceiling of 400 feet and visibility of 1 statute mile

D. A ceiling of 600 feet and visibility of 2 statute miles

38. A pilot integrates the fact that LPV requires WAAS with the goal of the lowest RNAV minimums. What is the consequence for a WAAS-equipped aircraft?

A. The aircraft may fly LPV minimums, the lowest RNAV minimums with vertical guidance

B. The aircraft is limited to LNAV minimums only

C. The aircraft cannot fly any RNAV approach

D. WAAS forces the use of circling minimums

39. A pilot must explain why declaring an emergency and squawking 7700 is encouraged when a serious failure occurs in IMC. What is the integrated benefit?

A. It cancels the IFR flight plan automatically

B. It transfers command to the controller

C. It brings ATC's full assistance and priority while the pilot manages the failure

D. It forces an immediate landing at the nearest airport

40. A pilot integrates the effect of selecting the alternate static source after a static blockage. What combined indication change should be anticipated?

A. Altimeter and airspeed read slightly high, and the VSI momentarily shows a climb

B. All instruments freeze permanently

C. The altimeter reads slightly low while airspeed reads high

D. No change occurs in any instrument

41. A pilot must integrate the role of the synopsis with the rest of the briefing to interpret the weather. What does the synopsis contribute?

A. The exact landing minimums for the destination

B. The big-picture causes — fronts, pressure systems, air masses — that explain the conditions

C. The assigned transponder code

D. The required fuel reserve

42. A pilot computes time to a fix 54 nautical miles away at a groundspeed of 108 knots. How long will it take?

A. 30 minutes

B. 25 minutes

C. 20 minutes

D. 45 minutes

43. A pilot must integrate why a cold front's weather differs from a warm front's, then anticipate the flight consequence of crossing a cold front. What should the pilot expect?

A. A long stretch of steady, layered precipitation well ahead

B. No significant weather at the boundary

C. A narrow band of intense showers or thunderstorms with rapid clearing behind

D. Gradually lowering ceilings over hundreds of miles

44. A pilot integrates the GRABCARD requirement with an inoperative attitude indicator before an IFR flight. What is the consequence?

A. The flight is legal if the weather is forecast VMC

B. The flight is legal if the item is merely logged

C. The aircraft is not legal for IFR unless the item is addressed under the MEL or deactivate-and-placard process

D. GRABCARD does not include the attitude indicator

45. A pilot must integrate the maximum holding airspeed at 5,000 feet with the need to slow before the fix. What speed governs, and when must it be met?

A. 200 knots, met before reaching the holding fix

B. 230 knots, met only after entering the hold

C. 265 knots, met at any point during the hold

D. 175 knots, met after the first inbound leg

46. A pilot integrates the meaning of "NoPT" on a feeder route with the decision to fly a course reversal. What is the consequence?

A. The pilot must fly the procedure turn anyway

B. No course reversal is flown on a NoPT route

C. A course reversal is flown only above a certain altitude

D. NoPT requires a holding-pattern entry first

47. A pilot must integrate why datalink NEXRAD is strategic-only with the latency mechanism. What is the core reason?

A. The radar detects only turbulence, not precipitation

B. The radar is available only above 18,000 feet

C. The image refreshes too quickly to read

D. Processing and transmission delay make the image lag the storms' real positions

48. A pilot integrates that the airspeed indicator uses both sources with the consequence of a static blockage. What happens to the airspeed indication?

A. It behaves normally because it uses the pitot source

B. It pegs at maximum

C. It reads inaccurately because the static input is corrupted

D. It freezes at zero

49. A pilot must integrate currency with proficiency before a demanding IMC flight after a long layoff while technically current. What is the sound conclusion?

A. Being current guarantees the flight will be safe

B. Currency makes proficiency irrelevant

C. The flight is automatically prohibited despite currency

D. The pilot may be current yet not proficient, and should weigh personal minimums and recent practice

50. A pilot integrates the standard briefing sequence to find the element that flags hazards that might cancel the flight. Which is it and where does it appear?

A. The winds aloft, appearing last

B. The adverse conditions, appearing first

C. The NOTAMs, appearing first

D. The synopsis, appearing last

51. A pilot must integrate the localizer's increasing sensitivity near the runway with the correction technique. What is the consequence for control inputs?

A. Larger corrections are needed close to the runway

B. The localizer becomes less sensitive near the runway

C. Lateral control should be abandoned inside the FAF

D. Corrections must become progressively smaller and smoother near the runway

52. A pilot integrates the reason a procedure turn is omitted on a NoPT route with the reason it is omitted under radar vectors. What common principle links them?

A. Both occur only on precision approaches

B. Both require a holding-pattern entry instead

C. Both are prohibited by regulation in all cases

D. In both cases the aircraft is already positioned to join final without a reversal

53. A pilot must integrate the fuel reserve rule with a flight that requires no alternate. What reserve still applies?

A. A 45-minute reserve at normal cruising speed still applies

B. No reserve applies when no alternate is required

C. A 30-minute reserve applies in good weather

D. A 60-minute reserve applies without an alternate

54. A pilot integrates the effect of an unrecognized gradual bank with the graveyard spiral mechanism. What is the deadly sequence?

A. The bank is always felt and corrected immediately

B. The unnoticed bank causes a descending turn; pulling back tightens the spiral

C. The spiral resolves itself without input

D. The bank only occurs in visual conditions

55. A pilot must integrate the maximum holding airspeed tiers with an altitude of 12,500 feet. What limit applies?

A. 200 knots indicated airspeed

B. 265 knots indicated airspeed

C. 175 knots indicated airspeed

D. 230 knots indicated airspeed

56. A pilot integrates the requirement to verify the localizer identifier with the consequence of skipping it. What is the risk if the identifier is not verified?

A. The decision altitude is set incorrectly

B. The pilot may follow guidance from a wrong or off-air facility

C. The glide slope angle changes

D. The runway length cannot be determined

57. A pilot integrates the 1-2-3 rule outcome with a destination forecasting exactly a 2,000-foot ceiling and 3 statute miles visibility for the window. What is the result?

A. An alternate is required because the values only just meet the threshold

B. No alternate is required because both thresholds are met

C. An alternate meeting precision minimums is mandatory

D. The flight must be delayed until conditions improve

58. A pilot must integrate the consequence of "ducking under" the MDA with the obstacle protection it provides. What is the hazard?

A. The transponder code changes automatically

B. The maximum holding airspeed is exceeded

C. The hold becomes nonstandard

D. The aircraft descends below the altitude that guarantees obstacle clearance

59. A pilot integrates the AIRMET types with an advisory for turbulence and strong surface winds along the route. Which type is active?

A. AIRMET Sierra

B. AIRMET Tango

C. AIRMET Zulu

D. AIRMET Romeo

60. A pilot must integrate several factors before departure: a marginal forecast, mounting fatigue, passenger pressure to arrive, and forecast icing in a non-known-ice aircraft. What does sound ADM most likely indicate?

A. Departing is justified because the aircraft is legally equipped

B. The combined PAVE risks may exceed prudent limits, favoring delay or cancellation

C. The passenger's urgency should determine the decision

D. Climbing above the icing once airborne removes the risk

Answer Key

1. C — The destination forecast (1,200 ft / 2 SM) fails the 1-2-3 rule, so an alternate is required; but the candidate alternate has only a non-precision approach and must meet 800-2, which a 700-foot ceiling fails. The airport therefore does not qualify as an alternate. Both the destination test and the alternate's own minimums must be satisfied.

2. C — After a vacuum failure with suspected disorientation, the correct response is to fly partial panel using the turn coordinator and pitot-static instruments, trusting them over bodily sensation. The seat of the pants and the failed attitude indicator cannot be trusted, and a steep descent in IMC is dangerous. Disciplined trust in the working instruments is the defense.

3. A — A headwind reduces groundspeed and lengthens time en route, so more fuel is required because burn is a function of time aloft. Headwinds do not improve efficiency or reduce the required reserve, and they do not waive the alternate requirement. Longer time means more fuel.

4. A — A freezing level below the cruising altitude combined with forecast visible moisture implies likely structural icing, so a pilot in a non-known-ice aircraft must alter altitude or route, or not go.

Visible moisture with freezing temperatures is precisely the icing condition, climbing through it is hazardous, and the freezing level is highly relevant. The combination drives the decision.

5. C — At 16,000 feet (above 14,000 feet), the maximum holding airspeed is 265 knots and the standard inbound leg is 1.5 minutes. Both the speed and timing tiers break at 14,000 feet. This altitude is in the highest tier for both.

6. A — On a lost-communication segment, the pilot flies the highest of the minimum, expected, and assigned altitudes; with an expected 9,000 (time elapsed), an MEA of 6,000, and an assigned 5,000, 9,000 governs. The "highest of" rule keeps the aircraft predictable. The expected altitude becomes effective once its time has passed.

7. D — A non-WAAS receiver is generally limited to lateral (LNAV) minimums and may require a RAIM availability check, because it lacks the WAAS corrections that enable vertical guidance. It cannot fly LPV, and WAAS-based LNAV/VNAV vertical guidance is unavailable without WAAS. The equipment limitation constrains the achievable minimums.

8. A — A rapidly converging temperature–dew point spread with a lowering ceiling on successive METARs indicates deteriorating conditions that may fall below minimums by arrival. It does not signal improvement or guarantee the runway will be visible. The trend warns the pilot to plan for worse conditions and protect options.

9. C — A strong tailwind on final produces a higher groundspeed, which shortens the time from the FAF to the missed approach point on the timing table. The table is based on groundspeed, so the pilot uses the higher-groundspeed (shorter) time. The MAP cannot be ignored; the timing simply changes.

10. A — Currency lapsed 7 months ago is past the 6-month grace window, so an instrument proficiency check is required before flying IFR in IMC. Simply logging approaches is no longer sufficient, the rating not expiring does not restore currency, and currency is not automatically restored. The IPC is the required remedy.

11. D — Being radar vectored to the final approach course means the procedure turn is not flown, because the vectors position the aircraft to intercept final directly. A charted procedure turn is not mandatory under vectors. Flying an unneeded reversal could conflict with traffic.

12. D — With embedded thunderstorms and datalink's latency, the correct response is to avoid the area strategically with a wide margin, since embedded cells are unseen and the datalink image lags. Threading between cells, treating the image as real-time, or descending using the mosaic are all unsafe. Embedded plus latent equals avoid widely.

13. B — A vacuum failure is more dangerous in IMC because there is no outside horizon to replace the lost attitude reference, leaving the pilot vulnerable to disorientation. The vacuum system does not power radios, is not VMC-only, and does not drive the electrical load. The absence of a visual horizon is the key reason.

14. A — The IFR fuel rule stacks destination, alternate, and reserve: 1.5 + 0.5 + 0.75 = 2.75 hours × 12 gph = 33 gallons. The 45-minute (0.75-hour) reserve is mandatory under IFR. About 33 gallons is the minimum covering all three components.

15. C — Under a descend-via clearance, the pilot must manage both the descent and the airspeed to satisfy all published altitude and speed restrictions in sequence. Altitudes are not the only constraint, ATC does not assign each individually, and the restrictions are not advisory. The pilot is responsible for the entire published profile.

16. D — A temperature inversion traps moisture near the surface while a narrowing temperature–dew point spread approaches saturation, together strongly favoring fog. The inversion does not create lifting, dry the air, or provide an unstable lapse rate. Trapped moisture plus near-saturation is the fog-forming combination.

17. B — Losing communication in VFR conditions during an IFR flight invokes the overriding rule to remain in VFR conditions and land as soon as practical, even if IMC appears ahead. The pilot does not climb into IMC, hold indefinitely, or press to the destination at altitude. Staying VFR and landing removes the conflict.

18. C — With a centered glide slope and a localizer needle deflected right near the runway, the pilot makes a small, smooth correction to the right, because localizer sensitivity is high close in. A large correction would overshoot, disregarding the localizer is wrong, and a deflection alone does not require a missed approach. Small corrections suit high sensitivity.

19. A — Meeting the 1-2-3 rule means no alternate is required, but active AIRMET Sierra for mountain obscuration is a real risk the pilot should weigh in the overall picture. The AIRMET does not mandate

an alternate, prohibit the flight, or override the rule. Legal sufficiency and prudent risk assessment are distinct.

20. D — A slowly drooping attitude indicator and the leans reinforce each other: the false instrument and the false bodily sensation both suggest a wrong attitude, leading toward a graveyard spiral. Neither effect corrects the other, and they do not cancel. Mutual reinforcement toward the spiral is the deadly mechanism.

21. D — At a non-towered airport in low IMC over rising terrain, the pilot reviews and flies the published ODP for obstacle clearance and departs before the clearance void time. Filing a STAR, relying on unavailable vectors, or disregarding terrain are incorrect, and the flight plan is not closed before departure. The two integrated actions are the ODP and the void time.

22. A — If the VOR may be used for IFR navigation, even as a backup, it still requires a current 30-day accuracy check. The check is not waived by carrying GPS, the RAIM check does not replace it, and an unchecked VOR may not be used for IFR. Backup status does not exempt the VOR check.

23. C — Time to lose 9,000 feet at 600 ft/min is 15 minutes, and at 3 NM/min that is 45 nautical miles. The descent must begin 45 NM before level-off. Top-of-descent planning prevents rushed descents.

24. C — A pitot (not static) blockage is confirmed when the airspeed behaves like an altimeter while altitude and VSI remain normal, because the static source is still clear. A frozen altimeter with normal airspeed indicates a static problem, and not all instruments fail together. The isolated airspeed anomaly points to the pitot.

25. B — "I can do it" is the macho hazardous attitude, countered by "Taking chances is foolish," and the pilot should honor the personal minimum. Confidence is not a substitute for limits, and the invulnerability and anti-authority antidotes apply to different attitudes. The macho antidote plus respect for personal minimums is correct.

26. A — A consistent inbound leg keeps the pattern within protected airspace, so it is the controlled, timed leg, with the outbound leg adjusted to compensate. The outbound leg is affected by wind, timing it is not prohibited, and the inbound leg does need wind correction. Controlling the inbound leg protects the airspace.

27. B — Direction digits exceeding 36 trigger the high-speed convention: 75 − 50 = 25 (250°) and 19 + 100 = 119 knots; the trailing 45 is temperature, negative at altitude, so −45. The decode is from 250° at 119 knots, temperature −45°C. The convention encodes winds of 100–199 knots.

28. C — At the DA the pilot decides to land or go missed, while at the MDA the pilot levels off and may not descend below without the required visual references. The DA does not involve leveling off, and the MDA does not permit a glide-path descent below it. Neither requires an automatic missed approach regardless of references.

29. B — Exceeding holding speed at altitude with a strong wind makes the aircraft more likely to exit protected airspace, especially in the wind-affected turns. It does not reset the transponder, double timing, become a precision approach, or extend the EFC. Loss of protected airspace is the compounded risk.

30. A — A Convective SIGMET implies severe turbulence, severe icing, and low-level wind shear in addition to the thunderstorms it names. It is significant to all aircraft, not just light ones, and implies more than mountain obscuration or terminal wind shifts. Its implications are the most serious of the advisories.

31. C — The correct sequence is to test the destination with the 1-2-3 rule, and if it fails, test the alternate against 600-2 (precision) or 800-2 (non-precision). The alternate is not tested first, 600-2 is not applied to the destination, and the two airports are not tested identically. Destination first, then alternate.

32. B — The heading indicator drifts over time and must be reset to the magnetic compass, which is reliable in steady, unaccelerated flight. The compass does not drift in that sense, both do need attention, and the reset is done in flight, not only after landing. Gyro drift plus compass reliability in steady flight is the integrated reason.

33. B — Crosswind component equals wind speed times the sine of the angle: 20 knots × 0.64 ≈ 13 knots. The 40-degree angle yields about two-thirds of the wind as crosswind. This computation supports runway and limitation decisions.

34. D — The EFC time tells the pilot when to leave the holding fix if two-way communication is lost. It does not set the holding airspeed, leg length, or transponder code. Its lost-communication role is the integrated purpose.

35. C — On partial panel after a vacuum failure, bank is controlled with the turn coordinator and pitch with the altimeter, airspeed, and VSI, since the attitude and heading indicators are lost. The other combinations misassign the instruments. The turn coordinator handles bank; the pitot-static instruments reconstruct pitch.

36. C — Aviate precedes communicate because maintaining control prevents loss of the aircraft while the pilot is most vulnerable to disorientation after a failure in IMC. Communicating does not restore the instrument, ATC need not be told before flying, and navigation does not precede control. Control first protects against the disorientation risk.

37. D — The standard alternate minimums for an airport with a precision approach are a ceiling of 600 feet and visibility of 2 statute miles (600-2). The 800-2 figure applies to non-precision-only alternates. These standard values apply unless non-standard minimums are published.

38. A — A WAAS-equipped aircraft may fly LPV minimums, the lowest RNAV minimums with vertical guidance, because WAAS provides the required accuracy and integrity. It is not limited to LNAV, can fly RNAV approaches, and is not forced to circling minimums. WAAS unlocks LPV.

39. C — Declaring an emergency and squawking 7700 brings ATC's full assistance and priority handling while the pilot manages the failure. It does not cancel the flight plan, transfer command, or force an immediate landing at the nearest airport. The benefit is support and priority during the emergency.

40. A — Selecting the alternate static source in an unpressurized cabin causes the altimeter and airspeed to read slightly high and the VSI to momentarily show a climb, because cabin static pressure is slightly lower than outside. The instruments do not freeze or behave oppositely. These predictable errors should be anticipated.

41. B — The synopsis contributes the big-picture causes — fronts, pressure systems, and air masses — that explain the conditions in the rest of the briefing. It does not provide minimums, the transponder code, or the fuel reserve. The synopsis sets the weather context.

42. A — Time equals distance divided by groundspeed: 54 NM ÷ 108 knots = 0.5 hour = 30 minutes. At 108 knots the aircraft covers 1.8 NM per minute, so 54 NM takes 30 minutes. Forecast groundspeed already accounts for wind.

43. C — Crossing a cold front, the pilot should expect a narrow band of intense showers or thunderstorms with rapid clearing behind, because the cold front forces warm air up steeply. The steady, layered, gradually lowering signature describes a warm front. The cold front is a fast, violent punch.

44. C — With an inoperative attitude indicator (a GRABCARD item), the aircraft is not legal for IFR unless the item is addressed under the MEL or the deactivate-and-placard process. Forecast VMC or merely logging it does not legalize the flight, and GRABCARD does include the attitude indicator. The required equipment must be addressed.

45. A — At 5,000 feet (up to 6,000 feet tier), the maximum holding airspeed is 200 knots, and it must be met before reaching the holding fix. Slowing before the fix keeps the aircraft within protected airspace from the start. The speed is not met only after entering the hold or at any later point.

46. B — "NoPT" means no course reversal is flown on that route, so the pilot does not fly the procedure turn. It is not flown anyway, only above an altitude, or preceded by a holding entry. NoPT removes the reversal.

47. D — Datalink NEXRAD is strategic-only because processing and transmission delay make the image lag the storms' real positions. It detects precipitation, is not altitude-limited, and the issue is staleness, not refresh speed. Latency is the core reason.

48. C — A static blockage corrupts the static input the airspeed indicator uses, so the airspeed reads inaccurately. It does not behave normally, peg at maximum, or freeze at zero from a static blockage. Because the airspeed uses both sources, a static fault affects it.

49. D — A pilot may be legally current yet not proficient after a long layoff, so the sound conclusion is to weigh personal minimums and recent practice before a demanding IMC flight. Currency does not guarantee safety or make proficiency irrelevant, and the flight is not automatically prohibited. Currency and proficiency are distinct.

50. B — The adverse conditions element flags hazards that might cancel the flight and appears first in the standard briefing sequence. Winds aloft and NOTAMs come later, and the synopsis is not last. Leading with adverse conditions ensures the most critical information is delivered first.

51. D — Because the localizer's sensitivity increases near the runway, control inputs must become progressively smaller and smoother close in. Larger corrections would overshoot, the localizer does not become less sensitive, and lateral control is not abandoned inside the FAF. High sensitivity demands fine corrections.

52. D — A procedure turn is omitted on a NoPT route and under radar vectors because, in both cases, the aircraft is already positioned to join final without a reversal. Neither is limited to precision approaches, requires a holding entry, nor is universally prohibited. Being already positioned to intercept is the common principle.

53. A — A 45-minute reserve at normal cruising speed still applies even when no alternate is required, because the reserve is mandatory under IFR. It does not disappear, drop to 30 minutes, or rise to 60 minutes based on the alternate. The reserve is independent of the alternate requirement.

54. B — An unnoticed gradual bank causes a descending turn, and pulling back to arrest the descent only tightens the spiral — the graveyard spiral mechanism. The bank is not always felt, the spiral does not resolve itself, and it occurs in IMC without a horizon. The unrecognized bank plus back-pressure is the deadly sequence.

55. D — At 12,500 feet (in the 6,001–14,000 foot tier), the maximum holding airspeed is 230 knots. The tiers are 200 up to 6,000, 230 from 6,001 to 14,000, and 265 above 14,000. This altitude falls in the middle tier.

56. B — If the localizer identifier is not verified, the pilot may follow guidance from a wrong or off-air facility, which could be dangerously misleading. Skipping it does not change the DA, glide slope angle, or runway length. Positive identification confirms the correct, operating facility.

57. B — A forecast of exactly a 2,000-foot ceiling and 3 statute miles visibility for the window meets both 1-2-3 thresholds, so no alternate is required. Meeting the thresholds exactly satisfies the rule, and no precision-minimum alternate or delay is mandated. Both conditions are met.

58. D — "Ducking under" the MDA descends the aircraft below the altitude that guarantees obstacle clearance on a non-precision approach. It does not change the transponder, exceed holding speed, or create a nonstandard hold. The hazard is loss of obstacle protection.

59. B — AIRMET Tango advises of turbulence and strong surface winds. Sierra covers IFR conditions and mountain obscuration, and Zulu covers icing and freezing levels. The phonetic initial is the memory aid.

60. B — The combined PAVE risks — marginal forecast, fatigue, passenger pressure, and forecast icing in a non-known-ice aircraft — may exceed prudent limits, favoring delay or cancellation. Legal equipment alone, passenger urgency, and climbing through icing do not resolve the aggregated risk. Recognizing when combined risks exceed prudent limits is the essence of aeronautical decision-making.