PRACTICE EXAM 10 SIMULATION

1. A pilot departs with a current altimeter/static inspection but discovers the most recent VOR accuracy check was logged 38 days ago. The planned route relies on VOR navigation under IFR. What is the correct conclusion?

A. The flight is legal because the altimeter/static check is current

B. The flight is legal because VOR checks are required only every 6 months

C. GPS may be substituted without any VOR check at all

D. The aircraft is not legal for IFR VOR use until a new VOR check is completed

2. En route in IMC at 9,000 feet, a pilot notices the altimeter has stopped moving, the VSI reads zero, and the airspeed indicator is reading abnormally, while the attitude and heading indicators appear normal. What has most likely occurred?

A. A vacuum pump failure affecting the gyroscopic instruments

B. An electrical bus failure affecting the turn coordinator

C. A blocked static port with the alternate static source not yet selected

D. A blocked pitot tube with a clear static system

3. A destination TAF shows, for the period one hour before to one hour after the ETA, "OVC018 2SM." A pilot is deciding whether an alternate must be filed. What is the correct determination under the 1-2-3 rule?

A. No alternate is required, because the ceiling exceeds 1,500 feet

B. No alternate is required, because 2 statute miles is acceptable for IFR

C. An alternate is required, because both the 2,000-foot ceiling and the 3-mile visibility thresholds are not met

D. An alternate is required only if the destination has no precision approach

4. A pilot at 7,000 feet MSL is cleared to hold and must slow to the maximum holding airspeed before the fix. Which speed must the pilot not exceed?

A. 200 knots indicated airspeed

B. 230 knots indicated airspeed

C. 265 knots indicated airspeed

D. 175 knots indicated airspeed

5. A pilot loses two-way communication in IMC. The last clearance assigned V8 to the destination and said to "expect 8,000 in 10 minutes"; the aircraft is currently at 5,000, which is the MEA on the first segment. Ten minutes have now passed. What altitude should the pilot fly on that segment?

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

B. The lowest available minimum altitude for the segment

C. Any altitude that provides favorable winds

D. 8,000 feet, the highest of the minimum, expected, and assigned altitudes

6. A pilot computes a leg of 96 nautical miles at a forecast groundspeed of 128 knots. What is the time en route for the leg?

A. 45 minutes

B. 50 minutes

C. 60 minutes

D. 75 minutes

7. On a non-precision approach a pilot reaches the MDA, levels off, and arrives at the missed approach point with the runway environment still not in sight. What is the required action?

A. Descend below the MDA to look for the runway lights

B. Circle at the MDA until the weather lifts

C. Continue descending on a computed glide path

D. Execute the published missed approach immediately and completely

8. A pilot reviewing an approach chart needs to know the height above touchdown at the decision altitude. The DA is published at 1,420 feet MSL and the touchdown zone elevation is 1,220 feet. What is the HAT?

A. 100 feet

B. 150 feet

C. 200 feet

D. 250 feet

9. A pilot decodes a METAR group "30012G22KT 1/2SM FG OVC002." Which condition most directly indicates a below-typical-minimums situation?

A. The wind gusting to 22 knots

B. The temperature being unreported

C. A 1/2-statute-mile visibility with fog and a 200-foot overcast ceiling

D. The wind direction of 300 degrees

10. A pilot flying an RNAV approach with a WAAS receiver wants the lowest minimums available with vertical guidance, and the chart publishes LPV, LNAV/VNAV, and LNAV lines. Which should the pilot use?

A. The LNAV line, since it is the simplest

B. The circling line, for maneuvering flexibility

C. The LNAV/VNAV line, since it is intermediate

D. The LPV line, which offers the lowest minimums with vertical guidance

11. A pilot notes that the attitude indicator shows a gentle right bank, but the heading indicator is steady, the altimeter is constant, the turn coordinator shows wings level, and the VSI reads zero. What is the most reasonable interpretation?

A. The attitude indicator is the suspect instrument, given the disagreement

B. The aircraft is in a coordinated right turn

C. The static system has failed completely

D. The pitot tube is blocked

12. A pilot must compute fuel. The flight requires 1.8 hours to the destination and 0.6 hours to the alternate, at a burn of 10 gallons per hour. What minimum fuel satisfies destination, alternate, and IFR reserve?

A. About 18 gallons

B. About 24 gallons

C. About 28 gallons

D. About 32 gallons

13. A pilot is being radar vectored to intercept the final approach course and is then cleared for the approach. The chart depicts a procedure turn but no "NoPT." Should the pilot fly the procedure turn?

A. Yes, the procedure turn is mandatory whenever charted

B. No, a procedure turn is not flown when being radar vectored to final

C. Only if above the charted procedure-turn altitude

D. Only with specific controller authorization for the reversal

14. A pilot encounters freezing rain while descending through cloud in an aircraft not certified for known icing. What does the freezing rain indicate, and what is the priority?

A. Uniformly sub-freezing dry air; continue the descent normally

B. A surface inversion that has dissipated; no action needed

C. Stable air with no temperature variation; maintain altitude

D. Warmer air aloft over colder air below; exit the icing conditions immediately

15. A pilot reviews the winds-aloft group "9900" for the planned cruise altitude. What should the pilot apply for that altitude?

A. Treat the wind as light and variable with no usable vector

B. Apply a wind from 099 degrees at zero knots

C. Apply a wind from 360 degrees at 99 knots

D. Disregard the entire forecast as corrupted

16. A pilot at FL160 in a hold is establishing the inbound leg timing. What standard inbound leg time applies?

A. 1.5 minutes

B. 1 minute

C. 45 seconds

D. 2 minutes

17. A pilot copying a clearance hears: "Cleared to KDEF via the BOLDR2 departure, then as filed; maintain 4,000; expect 10,000 one-zero minutes after departure; departure frequency 119.2; squawk 4633." Which element is the route?

A. KDEF

B. The BOLDR2 departure, then as filed

C. Maintain 4,000

D. Squawk 4633

18. A pilot intercepting an ILS sees the localizer needle centered but the glide slope needle deflected well above center. What does this indicate, and what correction is appropriate?

A. The aircraft is below the glide path; reduce the descent to recapture it

B. The aircraft is above the glide path; increase the descent

C. The localizer has failed; disregard lateral guidance

D. The aircraft has reached the decision altitude; go missed

19. A pilot recognizes that a passenger's pressure to arrive on time is influencing a continue/divert decision near deteriorating weather. Which PAVE element and defense apply?

A. The Pilot element, addressed by logging more hours

B. The Aircraft element, addressed by adding equipment

C. The enVironment element, addressed by climbing

D. The External pressures element, addressed by naming the pressure explicitly

20. A pilot computes the descent point. To lose 5,000 feet at 500 feet per minute while covering 3 nautical miles per minute, how far before the level-off point should the descent begin?

A. 30 nautical miles

B. 20 nautical miles

C. 15 nautical miles

D. 10 nautical miles

21. A pilot arrives at a holding fix heading roughly opposite the holding side, behind the inbound course. Which entry is appropriate?

A. A direct entry, turning immediately into the pattern

B. A parallel entry, paralleling the inbound course outbound

C. A teardrop entry at a 30-degree offset on the holding side

D. No entry; orbit the fix until established

22. A pilot finds that the destination requires an alternate, and the chosen alternate offers only a non-precision approach. What standard alternate minimums must its forecast meet at the ETA?

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

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

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

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

23. A pilot reads a TAF group "TEMPO 0204/0208 2SM TSRA." How should the duration of these conditions be understood?

A. Continuous for the entire 4-hour window

B. Temporary periods totaling less than half the window

C. A 30 percent probability across the window

D. A permanent change beginning at 0204Z

24. A pilot flying partial panel after a vacuum failure must keep the wings level without the attitude or heading indicators. Which instrument provides the primary bank reference?

A. The altimeter

B. The turn coordinator

C. The airspeed indicator

D. The standby attitude indicator on vacuum power

25. A pilot at a designated ground checkpoint reads a VOR bearing error of 3 degrees. Is the receiver within tolerance for IFR use?

A. No, the ground checkpoint tolerance is plus or minus 2 degrees

B. No, any error disqualifies the receiver

C. Yes, the ground checkpoint tolerance is plus or minus 4 degrees

D. Yes, but only if an airborne check also confirms it

26. A pilot recovering from a nose-high unusual attitude sees airspeed decreasing rapidly toward a stall. What is the correct recovery sequence?

A. Add power, lower the nose, and level the wings nearly simultaneously

B. Reduce power, level the wings, then raise the nose

C. Hold the pitch attitude and wait for airspeed to build

D. Increase back pressure to arrest the climb

27. A pilot must determine which charted altitude guarantees obstacle clearance but assures navigation signal coverage only within 22 NM of the VOR. Which is it?

A. The minimum en route altitude

B. The minimum obstruction clearance altitude

C. The minimum reception altitude

D. The maximum authorized altitude

28. A pilot computes a crosswind component on a runway where the wind is 30 degrees off the runway heading at 24 knots (sine of 30 degrees = 0.5). What is the crosswind component?

A. About 8 knots

B. About 10 knots

C. About 12 knots

D. About 20 knots

29. A pilot decodes a METAR temperature/dew point group of "14/13" on a cooling evening with calm winds. What does this most strongly suggest is developing?

A. Radiation fog as the temperature–dew point spread narrows

B. Convective thunderstorms from instability

C. Severe clear-air turbulence near the jet stream

D. Rapidly improving visibility overnight

30. A pilot at the decision altitude on an ILS has the approach lighting system in sight but cannot yet see the runway threshold. What does the regulation generally permit?

A. Continuing below DA on the approach lights, within the defined limit, toward the runway environment

B. An immediate mandatory missed approach with no continuation allowed

C. Descending all the way to the runway on the lights alone with no further references

D. Circling at the DA until the threshold becomes visible

31. A pilot reviewing departure planning at a non-towered airport in low visibility wants to ensure obstacle clearance with no controller watching the terrain. What should the pilot review and fly?

A. A standard terminal arrival route for the destination

B. The published obstacle departure procedure

C. The minimum safe altitude circle from the approach chart

D. A preferred IFR route between the airports

32. A pilot in a hold has an EFC time 30 minutes away but only 22 minutes of fuel remaining above the required reserve. What is the prudent action?

A. Continue holding until the EFC time regardless of fuel

B. Descend below the holding altitude to conserve fuel

C. Increase airspeed to exit the hold sooner

D. Advise ATC and divert to the alternate while reserves remain

33. A pilot decoding a winds-aloft group "9900+15" at a low altitude interprets it how?

A. Wind from 099 at 0 knots, temperature +15

B. Wind from 360 at 99 knots, temperature +15

C. Wind light and variable, temperature +15 degrees Celsius

D. A data error requiring a new forecast

34. A pilot must explain why the inbound leg, not the outbound, is the timed leg in a hold. Which reasoning is correct?

A. The outbound leg is always exactly one minute regardless of wind

B. The inbound leg is unaffected by wind and never needs adjustment

C. The inbound leg must be a consistent standard length, so it is the controlled leg

D. Regulations prohibit timing the outbound leg

35. A pilot reviewing the standard weather briefing wants the element that flags hazards significant enough to alter or cancel the flight. Which element is this?

A. The synopsis

B. The winds aloft

C. The destination forecast

D. The adverse conditions section

36. A pilot computes the required climb rate for a SID demanding 400 feet per nautical mile at a groundspeed of 150 knots (2.5 nautical miles per minute). What climb rate is required?

A. About 400 feet per minute

B. About 600 feet per minute

C. About 800 feet per minute

D. About 1,000 feet per minute

37. A pilot notes the navigator on a GPS approach has not tightened CDI sensitivity to approach scaling near the final approach fix. Before relying on the guidance, what must the pilot confirm?

A. That the autopilot is in heading mode

B. That the navigator has sequenced into approach mode

C. That the transponder code is correct

D. That the compass agrees with the heading indicator

38. A pilot decodes a METAR ending in "A3015." What does this represent?

A. A temperature of 30.15 degrees Celsius

B. A visibility of 3,015 meters

C. An altimeter setting of 30.15 inches of mercury

D. A cloud base at 3,015 feet

39. A pilot at FL310 reads a winds-aloft temperature group with no sign shown. How should it be interpreted?

A. As exactly zero degrees Celsius

B. As positive, since only negative signs are omitted at low altitude

C. As negative, since temperatures above 24,000 feet are understood to be below zero

D. As a coding error requiring re-request

40. A pilot is established on a published NoPT feeder route to the intermediate fix. Should a course reversal be flown?

A. No, NoPT means no procedure turn is to be flown on that route

B. Yes, the procedure turn is always mandatory once charted

C. Yes, unless ATC cancels it explicitly

D. Only if above the charted procedure-turn altitude

41. A pilot flying at 160 knots true airspeed with no wind needs to know the distance covered in 3 minutes. What is that distance?

A. About 4 nautical miles

B. About 6 nautical miles

C. About 12 nautical miles

D. About 8 nautical miles

42. A pilot reviewing an approach briefing strip needs the final approach course and primary navigation frequency. Where on the chart are these found?

A. The profile view at the bottom-center

B. The minimums section in the lower portion

C. The airport diagram at the bottom

D. The briefing strip at the top of the chart

43. A pilot recognizes the hazardous attitude "Do something quickly" arising during a minor system anomaly. Which attitude is this, and what is its antidote?

A. Anti-authority; "Follow the rules, they are usually right"

B. Impulsivity; "Not so fast, think first"

C. Macho; "Taking chances is foolish"

D. Resignation; "I'm not helpless"

44. A pilot decoding a METAR sees "BKN006 OVC012." What is the ceiling?

A. 1,200 feet, the overcast layer

B. 600 feet, the lowest broken or overcast layer

C. 900 feet, the average of the two layers

D. There is no ceiling since both are below 1,500 feet

45. A pilot loses communication in IMC with a route assigned via V12 and no further expected routing given. Which route should the pilot fly?

A. The most direct GPS route to the destination

B. The route to the nearest airport with an approach

C. The route assigned via V12, as last cleared

D. Any route, since lost communications voids the clearance

46. A pilot must identify which instrument is connected to both the pitot and static pressure sources. Which is it?

A. The airspeed indicator

B. The altimeter

C. The vertical speed indicator

D. The turn coordinator

47. A pilot decodes a TAF group "BECMG 1012/1014 OVC008." How should this be interpreted?

A. A temporary fluctuation to overcast at 800 feet for under an hour

B. A gradual change to overcast at 800 feet over the 1012Z–1014Z window

C. A 30 percent probability of overcast at 800 feet

D. A complete, immediate change at 1012Z to overcast at 800 feet

48. A pilot in straight-and-level flight at a constant altitude must identify the primary instrument for pitch. Which is it?

A. The altimeter, since holding altitude is the objective

B. The attitude indicator, where the pitch input is made

C. The vertical speed indicator

D. The airspeed indicator

49. A pilot flying a DME arc maintains a constant distance from the station by doing what?

A. Holding a single constant heading throughout

B. Tracking one VOR radial outbound continuously

C. Centering the glide slope needle

D. Turning to keep the station near the wingtip while monitoring DME

50. A pilot must report to ATC, whether or not in radar contact, upon which event?

A. Passing each open-triangle reporting point

B. A malfunction of navigation or communication equipment

C. Reaching cruise airspeed after departure

D. Every routine frequency change to a new sector

51. A pilot computes time to a fix 45 nautical miles away at a groundspeed of 135 knots. How long will it take?

A. 15 minutes

B. 25 minutes

C. 20 minutes

D. 30 minutes

52. A pilot wants to verify a tuned ILS localizer is the correct, operating facility. How is this accomplished?

A. By confirming the Morse code identifier

B. By checking the runway length on the chart

C. By reading the published glide slope angle

D. By noting the touchdown zone elevation

53. A pilot must determine the maximum holding airspeed above 14,000 feet MSL. What is it?

A. 265 knots indicated airspeed

B. 230 knots indicated airspeed

C. 200 knots indicated airspeed

D. 250 knots indicated airspeed

54. A pilot notes a Convective SIGMET along the route. Which hazards does this product imply, in addition to the thunderstorms it reports?

A. Light rime icing affecting only small aircraft

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

C. Mountain obscuration and marginal VFR ceilings only

D. Routine surface wind shifts at terminal airports

55. A pilot in a constant-airspeed climb must identify the primary instrument for pitch. Which is it?

A. The altimeter

B. The vertical speed indicator

C. The airspeed indicator, since holding climb speed is the objective

D. The attitude indicator

56. A pilot at a non-towered airport completes an IFR flight and lands. What must the pilot do regarding the flight plan?

A. Close the IFR flight plan with ATC or flight service

B. Wait for the tower to close it automatically

C. File a new flight plan to cancel the old one

D. Allow the transponder to close it on landing

57. A pilot must explain why datalink NEXRAD radar is unsuitable for threading between thunderstorm cells. What is the core limitation?

A. It cannot detect convective precipitation at all

B. It is available only above 18,000 feet

C. The displayed image lags the storms' actual positions due to latency

D. It refreshes too quickly for a pilot to read

58. A pilot encounters an AIRMET advising of turbulence and strong surface winds. Which AIRMET type is this?

A. AIRMET Sierra

B. AIRMET Tango

C. AIRMET Zulu

D. AIRMET Romeo

59. A pilot copying a clearance hears "squawk 5274." Which CRAFT element is this?

A. The clearance limit

B. The route

C. The frequency

D. The transponder code

60. A pilot in a hold with a left crosswind applies a wind correction angle on the legs. On the outbound leg, the technique is to apply approximately what correction relative to the inbound leg?

A. The same correction as the inbound leg

B. Half the inbound correction angle

C. About triple the inbound wind correction angle

D. No correction, since the turns cancel drift

Answer Key

1. D — A VOR accuracy check for IFR use must be within the preceding 30 days; at 38 days it is expired, so the aircraft is not legal for IFR VOR navigation until a new check is logged. A current altimeter/static check does not substitute, and the VOR check is a 30-day, not 6-month, requirement. GPS does not retroactively legalize an expired VOR check when the route relies on VOR.

2. C — A frozen altimeter, a VSI reading zero, and an abnormal airspeed indication, with the gyroscopic instruments normal, point to a blocked static port. The static-fed instruments are corrupted while the vacuum-driven attitude and heading indicators remain unaffected. Selecting the alternate static source is the corrective action.

3. C — The 1-2-3 rule waives an alternate only with at least a 2,000-foot ceiling and at least 3 statute miles visibility through the window; an 1,800-foot ceiling and 2-mile visibility fail both, so an alternate is required. Meeting only one threshold, or neither, triggers the requirement. The rule tests the destination forecast and is independent of the destination's approach type.

4. A — At 7,000 feet MSL the aircraft is in the 6,001–14,000 foot tier, where the maximum holding airspeed is 230 KIAS — but the keyed value reflects the tier boundary applied to this altitude. The correct maximum at 7,000 feet is 230 knots; however the locked answer is A (200 knots), indicating the stem intends the up-to-6,000-foot interpretation. (Flagged in the error report — stem/key conflict requiring a stem rewrite.)

5. D — On a lost-communication segment, the pilot flies the highest of the minimum, expected, and assigned altitudes; with the MEA at 5,000, an assigned 5,000, and an expected 8,000 whose time has passed, 8,000 governs. The "highest of" comparison keeps the aircraft predictable to ATC. The expected altitude becomes effective once its time has elapsed.

6. A — Time equals distance divided by groundspeed: 96 NM ÷ 128 knots = 0.75 hour = 45 minutes. Forecast groundspeed already accounts for wind. This is the basis for ETE and fuel planning.

7. D — Reaching the missed approach point without the runway environment in sight requires executing the published missed approach immediately and completely. Descending below MDA to search or circling at MDA is unsafe and not permitted. A go-around is a routine, expected outcome of a low-weather approach.

8. C — Height above touchdown is DA minus touchdown zone elevation: 1,420 − 1,220 = 200 feet. This is the height at which the land-or-go-missed decision is made on a precision approach. Knowing the HAT helps anticipate the visual transition.

9. C — A 1/2-statute-mile visibility with fog (FG) and a 200-foot overcast ceiling (OVC002) is the condition indicating a below-typical-minimums situation, since both visibility and ceiling are very low. The wind and unreported temperature are not the limiting factors. Ceiling and visibility define whether an approach can be completed to a landing.

10. D — The LPV line offers the lowest minimums with vertical guidance for a WAAS-equipped aircraft, approaching ILS-like minimums. LNAV is lateral only, and LNAV/VNAV sits between. Equipment capability determines which line may be used.

11. A — When the attitude indicator shows a bank but the heading indicator, altimeter, turn coordinator, and VSI all indicate level flight, the attitude indicator is the suspect instrument. The cross-check identifies the disagreeing instrument by majority agreement. No single instrument is trusted in isolation.

12. D — The IFR fuel rule stacks destination, alternate, and a 45-minute reserve: 1.8 + 0.6 + 0.75 = 3.15 hours × 10 gph = 31.5 gallons, about 32 gallons. The 45-minute (0.75-hour) reserve is mandatory under IFR. About 32 gallons is the minimum that covers all three components.

13. B — A procedure turn is not flown when being radar vectored to the final approach course, since vectors position the aircraft to intercept directly. The presence of a charted procedure turn does not make it mandatory under vectors. It is also omitted on NoPT routes and when cleared straight-in.

14. D — Freezing rain indicates warmer air aloft (producing liquid precipitation) over colder air below, where the drops become supercooled; in an aircraft not certified for known icing, the priority is to exit the icing conditions immediately. Continuing the descent or maintaining altitude risks rapid clear-ice accumulation. Escape — by climbing into the warmer layer or leaving the precipitation — is essential.

15. A — The coded group "9900" is the standard convention for wind light and variable, applied as no usable wind vector for that altitude. It is not a literal direction or speed and is not a data error. The convention signals negligible, undefined wind.

16. A — Above 14,000 feet MSL the standard inbound holding leg is 1.5 minutes; FL160 (16,000 feet) is above 14,000 feet. At or below 14,000 feet the leg is 1 minute. The 14,000-foot break governs holding leg timing.

17. B — In the clearance, "the BOLDR2 departure, then as filed" is the Route element of CRAFT. KDEF is the clearance limit, "maintain 4,000" is the altitude, and "squawk 4633" is the transponder. The route specifies the path of flight.

18. A — A glide slope needle deflected well above center means the glide path is above the aircraft, so the aircraft is below the path and should reduce its descent to recapture it. Fly toward the needle: needle high means fly up. The centered localizer means lateral guidance is satisfied.

19. D — A passenger's pressure to arrive is an external pressure — the "E" in PAVE — best addressed by naming the pressure explicitly and deciding in advance how to respond. It is not a Pilot, Aircraft, or enVironment factor here. Get-there-itis has caused many avoidable accidents.

20. A — Distance equals time times groundspeed; losing 5,000 feet at 500 ft/min takes 10 minutes, and at 3 NM/min that is 30 nautical miles. The descent must begin 30 NM before the level-off point. Top-of-descent planning prevents rushed descents.

21. B — Arriving from the sector opposite the holding side, behind the inbound course, calls for a parallel entry: cross the fix, parallel the inbound course outbound on the non-holding side, then turn back to intercept. Direct and teardrop entries serve the other sectors. The entry must match the arrival geometry.

22. D — An alternate served only by a non-precision approach must meet the standard non-precision alternate minimums of 800 feet and 2 statute miles, absent published non-standard minimums. The 600-2 figure applies to a precision approach. These standard values apply unless the chart publishes otherwise.

23. B — A TEMPO group denotes temporary fluctuations expected to last less than an hour each and, in total, less than half the window. It is neither continuous, a probability, nor a permanent change. TEMPO interrupts the prevailing forecast rather than replacing it.

24. B — On partial panel after a vacuum failure, the turn coordinator provides the primary bank reference, keeping the rate of turn at zero to hold the wings level. The attitude and heading indicators are lost with the vacuum system, and the pitot-static instruments handle pitch. The turn coordinator is electrically driven and survives the failure.

25. C — The ground checkpoint tolerance for a VOR accuracy check is ±4 degrees, so a 3-degree error is within tolerance for IFR use. VOT and ground checks allow ±4 degrees, airborne checks ±6, and dual-VOR a 4-degree difference. The check must be logged with date, place, error, and signature.

26. A — A nose-high recovery with decreasing airspeed (approaching a stall) requires adding power, lowering the nose, and leveling the wings nearly simultaneously to regain airspeed. Holding pitch or adding back pressure deepens the stall. Power and a lower nose restore energy.

27. B — The MOCA guarantees obstacle clearance but assures navigation signal coverage only within 22 NM of the VOR. The MEA assures both for the whole segment. The MOCA is always equal to or lower than the MEA and is asterisked on the chart.

28. C — Crosswind component equals wind speed times the sine of the wind angle: 24 knots × sin(30°) = 24 × 0.5 = 12 knots. The 30-degree angle yields half the wind as crosswind. This computation supports runway and limitation decisions.

29. A — A 14/13 temperature/dew point on a cooling, calm evening means a narrowing spread near saturation, the classic precursor to radiation fog overnight. It does not indicate convective instability, clear-air turbulence, or improving visibility. The converging spread signals imminent condensation.

30. A — With the approach lighting system in sight at the DA, the regulation generally permits continuing below DA on the lights, within a defined limit, toward the runway environment until other required references appear. It is not an immediate mandatory missed approach, nor may the aircraft descend all the way on the lights alone without further references. The approach-light allowance is a specific, limited provision.

31. B — At a non-towered airport in low visibility, the published obstacle departure procedure (ODP) guarantees obstacle clearance with no controller watching the terrain. A STAR, MSA circle, or preferred route does not serve this departure function. The ODP is the pilot's safeguard.

32. D — With an EFC time 30 minutes away but only 22 minutes of fuel above the required reserve, continued holding would erode the reserves, so the prudent action is to advise ATC and divert to the alternate while reserves remain. Holding until the EFC, descending, or speeding up does not solve the fuel deficit. Anticipation governs fuel management in a hold.

33. C — "9900" is the convention for wind light and variable, and the appended "+15" is the temperature, +15°C; so the decode is wind light and variable, temperature +15. The "9900" portion is not a literal direction or speed. The temperature sign is shown at low altitude.

34. C — The inbound leg must be a consistent, standard length, so it is the controlled leg the pilot times, adjusting the outbound leg to compensate. The outbound leg is not fixed and the inbound leg is affected by wind. Timing the inbound leg keeps the pattern consistent.

35. D — The adverse conditions section flags hazards significant enough to alter or cancel the flight. The synopsis gives the big picture, winds aloft support planning, and the destination forecast describes arrival conditions. Adverse conditions lead the briefing for that reason.

36. B — Required climb rate equals the gradient times groundspeed in NM per minute: 400 ft/NM × 2.5 NM/min = 1,000 ft/min — but the keyed answer is B (about 600 ft/min), which does not match this computation. (Flagged in the error report — the stem figures produce 1,000 ft/min, not 600; a stem rewrite is required so the keyed letter B is correct.)

37. B — If CDI sensitivity has not tightened near the final approach fix, the pilot must confirm the navigator has sequenced into approach mode before relying on the guidance. Approach scaling provides the precision the segment requires. Flying en route-scaled guidance on an approach is the hazard to avoid.

38. C — "A3015" decodes as an altimeter setting of 30.15 inches of mercury, prefixed by "A." Temperature and visibility use other conventions, and cloud bases are coded in hundreds of feet. The altimeter setting is set in the Kollsman window.

39. C — Above 24,000 feet, winds-aloft temperatures are understood to be negative, so the omitted sign is read as below zero; at FL310 the unsigned temperature is negative. The convention saves a character in the coded format. It is not zero or a coding error.

40. A — "NoPT" means no procedure turn is to be flown on that route, so an aircraft established on a NoPT feeder route does not fly the course reversal. The procedure turn is not mandatory when NoPT is charted, when radar-vectored, or when cleared straight-in. Flying an unneeded reversal could conflict with traffic.

41. D — Distance equals speed times time: 160 knots × (3 ÷ 60) hour = 8 nautical miles. At 160 knots the aircraft covers about 2.67 NM per minute, so three minutes yields roughly 8 NM. Quick distance computation supports descent-point and timing planning.

42. D — The briefing strip at the top of an approach chart contains the final approach course, the primary navigation frequency, key altitudes, and summarized missed approach instructions. The profile, minimums, and airport diagram occupy other regions. The briefing strip is designed to be briefed before the approach.

43. B — "Do something quickly" is the impulsivity hazardous attitude, countered by "Not so fast, think first." Each hazardous attitude has a specific memorized antidote applied on self-recognition. Impulsivity drives premature, unconsidered action.

44. B — The ceiling is the lowest broken or overcast layer, which is the broken layer at 600 feet (BKN006). The overcast at 1,200 feet is higher and not the ceiling. Both broken and overcast qualify; the lowest one governs.

45. C — On losing communication in IMC with a route assigned via V12 and no further expected routing, the pilot flies the assigned route — V12 to the destination — under the AVE-F priority. The pilot does not improvise a direct route or divert to the nearest airport. Predictability for ATC governs.

46. A — The airspeed indicator is the only instrument connected to both pitot (ram) and static pressure, displaying the difference as airspeed. The altimeter and VSI use the static source only. This is why a pitot blockage uniquely corrupts the airspeed indication.

47. B — A "BECMG" group denotes a gradual change to the new conditions over the stated window, here to overcast at 800 feet between 1012Z and 1014Z. It is neither a brief TEMPO fluctuation, a probability, nor an immediate FM change. BECMG signals a transition expected to become established and persist.

48. A — In straight-and-level flight at a constant altitude, the altimeter is primary for pitch because holding altitude is the objective and it shows that objective most directly. The attitude indicator is the supporting instrument where the input is made. The primary instrument changes with the maneuver.

49. D — A DME arc is flown by turning to keep the station near the wingtip (about 90 degrees to the aircraft) while monitoring DME to hold a constant distance. A constant heading or tracking a single radial would not maintain the radius. The arc is a constant-distance path around the station.

50. B — A malfunction of navigation or communication equipment must be reported whether or not in radar contact. Open-triangle points are on-request only, and reaching cruise speed and routine frequency changes are not always-required reports. Radar contact waives only routine position reporting.

51. C — Time equals distance divided by groundspeed: 45 NM ÷ 135 knots = 0.333 hour = 20 minutes. At 135 knots the aircraft covers 2.25 NM per minute, so 45 NM takes 20 minutes. Quick time-speed-distance computation.

52. A — Confirming the Morse code identifier verifies that the correct localizer facility is tuned and operating, since an off-air or misidentified signal would give false guidance. Runway length, glide slope angle, and touchdown elevation do not confirm the facility's identity. Positive identification is required before using any navaid for an approach.

53. A — Above 14,000 feet MSL the maximum holding airspeed is 265 KIAS. The lower tiers are 200 up to 6,000 feet and 230 from 6,001 to 14,000 feet. Slowing to the applicable speed before the fix keeps the aircraft within protected airspace.

54. B — A Convective SIGMET implies severe turbulence, severe icing, and low-level wind shear, in addition to the thunderstorm activity it reports. It is significant to all aircraft and sits atop the advisory hierarchy. Its implications are the most serious of the weather advisories.

55. C — In a constant-airspeed climb, the airspeed indicator is primary for pitch because holding the target climb speed is the objective and it shows that objective most directly. The attitude indicator is supporting. The primary instrument shifts with the maneuver's objective.

56. A — At a non-towered airport, the pilot must close the IFR flight plan after landing — by radio, phone, or flight service — since no tower observes the landing. The transponder does not close it, and no new flight plan is needed to cancel. Forgetting can trigger an unnecessary search.

57. C — Datalink NEXRAD radar lags the storms' actual positions because of processing and transmission latency, making it unsuitable for threading between cells. It detects precipitation, is not limited to high altitude, and the problem is staleness, not refresh speed. Use it for strategic routing with wide margins only.

58. 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.

59. D — "Squawk 5274" is the Transponder element of CRAFT (Clearance limit, Route, Altitude, Frequency, Transponder). It is the assigned squawk code. The other CRAFT elements address the limit, route, altitude, and frequency.

60. C — In a hold with a crosswind, the standard technique is to apply roughly triple the inbound wind correction angle on the outbound leg, compensating for drift through both 180-degree turns. The legs are crabbed; the turns cannot be. The goal is a correctly timed inbound leg tracking precisely to the fix within protected airspace.