PRACTICE EXAM 18 (60 QUESTIONS)

1. When transitioning from straight-and-level flight into a climb using instruments, what is the primary pitch instrument once the climb is established?

A. The altimeter, which shows the trend of altitude change in the climb

B. The attitude indicator, used as the sole reference during the climb

C. The vertical speed indicator, read directly for the exact pitch angle

D. The airspeed indicator, used to set the precise climb pitch attitude

2. What is the relationship between angle of attack and stall during instrument flight?

A. A stall occurs only when the airspeed drops below a fixed value

B. A stall occurs at the critical angle of attack regardless of airspeed

C. A stall can occur only in a nose-high attitude during a steep climb

D. A stall happens whenever the aircraft exceeds its maneuvering speed

3. During a constant-airspeed descent on instruments, what controls the rate of descent?

A. Power setting, with pitch used to hold the target airspeed constant

B. Pitch alone, with power left fixed throughout the entire descent

C. The trim setting, adjusted to fix the descent rate independently

D. The flap position, extended progressively to steepen the descent

4. What is "the leans" an example of in instrument flight?

A. A pitot-static instrument error caused by a blocked static port

B. A gyroscopic instrument failure during a prolonged steep turn

C. A vestibular illusion producing a false sensation of banking

D. An optical illusion caused by sloping cloud tops near the horizon

5. When recovering from a nose-high unusual attitude on instruments, what is the correct sequence?

A. Reduce power, lower the nose, and then level the wings smoothly

B. Add power, lower the nose, and level the wings to recover

C. Level the wings first, then raise the nose to regain altitude

D. Hold the attitude and wait for the airspeed to increase on its own

6. What instrument provides the most direct indication of pitch in level flight?

A. The vertical speed indicator showing the trend of altitude change

B. The altimeter, which integrates pitch over time into altitude

C. The attitude indicator, displaying pitch against the horizon line

D. The airspeed indicator, reflecting pitch through speed changes

7. During a standard-rate turn on instruments, what primarily controls the bank angle required?

A. The true airspeed, with higher speeds requiring a steeper bank

B. The aircraft weight, with heavier aircraft needing less bank

C. The altitude, with higher altitudes requiring a shallower bank

D. The flap setting, with extended flaps requiring a steeper bank

8. What is the effect of hypoxia on a pilot's color vision and judgment?

A. It sharpens color perception while slowing the reaction time

B. It degrades color vision and impairs judgment as it progresses

C. It affects only night vision and has no impact on judgment

D. It improves judgment briefly before any physical symptoms appear

9. When entering a constant-rate climb, what happens to airspeed if pitch is increased but power is unchanged?

A. The airspeed increases steadily as the nose is raised higher

B. The airspeed remains exactly constant regardless of the pitch

C. The airspeed decreases as more energy goes into the climb

D. The airspeed oscillates rapidly without settling on a value

10. What is the primary purpose of trim during instrument flight?

A. To increase the maximum airspeed achievable in level flight

B. To relieve control pressures and reduce the pilot's workload

C. To replace the need to scan the flight instruments regularly

D. To lock the controls in position during a coordinated turn

11. What does Bernoulli's principle help explain about a wing in flight?

A. Faster airflow over the curved upper surface lowers the pressure

B. The wing generates lift only through the downward deflection of air

C. Lift increases as the air density decreases at higher altitudes

D. Drag and lift are always equal in magnitude during level flight

12. During instrument flight, what is the danger of fixating on a single instrument?

A. It causes the gyroscopic instruments to precess more rapidly

B. It increases the electrical load on the instrument panel

C. It breaks down the scan and allows other parameters to deviate

D. It triggers an automatic disconnect of the engaged autopilot

13. What is the effect of increasing load factor in a level turn on stall speed?

A. The stall speed increases as the load factor rises in the turn

B. The stall speed decreases because the turn unloads the wing

C. The stall speed is unaffected by the bank angle in a level turn

D. The stall speed changes only if the airspeed is held constant

14. When the airspeed indicator becomes unreliable, what combination best maintains level flight?

A. The vertical speed indicator and the turn coordinator together

B. A known pitch attitude on the attitude indicator and a set power

C. The altimeter read alone while ignoring the other instruments

D. The magnetic compass and the heading indicator used together

15. What is "hyperventilation" and how does it typically resolve?

A. A lack of oxygen at altitude relieved by descending to lower air

B. Excessive breathing relieved by slowing the rate of breathing

C. A buildup of carbon monoxide relieved by ventilating the cabin

D. A middle-ear blockage relieved by equalizing pressure on descent

16. During a timed turn with a failed heading indicator, how does the pilot determine when to roll out?

A. By timing a standard-rate turn at three degrees per second

B. By watching the magnetic compass swing to the desired heading

C. By estimating the bank angle shown on the attitude indicator

D. By counting the deflections of the course deviation indicator

17. What does the term "adverse yaw" describe during a turn entry?

A. The nose pitching up as bank is applied during the turn entry

B. The nose yawing opposite to the intended direction of the turn

C. The aircraft rolling level without any rudder input being applied

D. The tendency to overbank steeply once the turn is established

18. What is the primary cause of the "graveyard spiral" illusion?

A. A blocked pitot tube giving a false low airspeed indication

B. Loss of the sensation of turning after a prolonged constant turn

C. A precessing attitude indicator showing a false level attitude

D. An optical illusion created by the sloping horizon at night

19. During instrument flight, what is the result of an uncoordinated skidding turn?

A. The ball in the inclinometer moves to the inside of the turn

B. The aircraft automatically rolls to a wings-level attitude

C. The turn coordinator shows a slower rate than is actually flown

D. The ball moves to the outside of the turn away from the center

20. What does the trend of the vertical speed indicator provide during pitch changes?

A. An early indication of a developing climb or descent rate

B. An exact and instantaneous reading of the aircraft pitch angle

C. A direct measurement of the aircraft's true airspeed change

D. A precise display of the aircraft's bank angle during turns

21. What is the effect of carrying excess airspeed into a level turn at a fixed bank?

A. The turn radius decreases and the rate of turn increases sharply

B. The aircraft will stall earlier due to the increased load factor

C. The turn radius increases and the rate of turn decreases

D. The bank angle automatically reduces to maintain the same radius

22. What physiological condition can result from a rapid ascent without proper pressurization?

A. Carbon monoxide poisoning from the engine exhaust gases

B. Spatial disorientation caused by conflicting visual cues

C. Hyperventilation from an involuntary increase in breathing rate

D. Hypoxia, as reduced pressure lowers oxygen available to the body

23. When making a constant-airspeed climb, what is the primary power instrument?

A. The manifold pressure gauge or tachometer indicating the power set

B. The airspeed indicator, which reflects the power through its reading

C. The attitude indicator, showing the pitch attitude during the climb

D. The vertical speed indicator, reflecting the climb performance

24. What is the purpose of the inclinometer (ball) on a turn coordinator?

A. To display the rate of turn in degrees per second precisely

B. To show the aircraft's pitch attitude relative to the horizon

C. To indicate the aircraft's heading change during the turn

D. To indicate whether the turn is coordinated, slipping, or skidding

25. What is the danger of spatial disorientation following a loss of the visual horizon?

A. The pitot-static instruments become progressively less accurate

B. The pilot may make control inputs based on false sensations

C. The gyroscopic instruments topple within seconds of cloud entry

D. The magnetic compass locks onto a fixed and incorrect heading

26. During a descent on instruments, what is the role of pitch when airspeed must be held constant?

A. Pitch is fixed while power alone holds the target airspeed

B. Pitch is irrelevant once the descent has been fully established

C. Pitch is adjusted to maintain the target airspeed during the descent

D. Pitch is used only to begin the descent and then it is neutralized

27. What does the "critical angle of attack" represent?

A. The angle at which the aircraft reaches its maximum level speed

B. The angle producing the least drag during a steady cruise

C. The angle of attack beyond which the wing stalls and loses lift

D. The angle at which the propeller produces its maximum thrust

28. What is the typical first physiological sign a pilot may notice with the onset of hypoxia?

A. A sudden sharp pain in the chest accompanied by dizziness

B. An immediate and complete loss of peripheral vision at once

C. A loud ringing in both ears that worsens steadily with altitude

D. A subtle euphoria or impaired judgment that often goes unnoticed

29. During a standard-rate turn, what happens to the required bank angle as true airspeed increases?

A. The required bank angle decreases as the airspeed increases

B. The required bank angle stays the same at any given airspeed

C. The required bank angle increases as the airspeed increases

D. The required bank angle depends only on the aircraft's weight

30. What is the recommended scan technique for instrument flight?

A. A continuous cross-check moving among the relevant instruments

B. Staring at the attitude indicator alone throughout the flight

C. Checking each instrument once and then relying on memory

D. Scanning only the navigation instruments during the en route phase

31. What does "load factor" express about an aircraft in flight?

A. The total weight of fuel and cargo carried aboard the aircraft

B. The ratio of available engine power to the aircraft's gross weight

C. The ratio of the lift produced to the aircraft's actual weight

D. The difference between the indicated and the true airspeed

32. What is the effect of a forward center of gravity on aircraft stability?

A. It reduces longitudinal stability and makes the aircraft tail-heavy

B. It causes the aircraft to become unstable in pitch at low speeds

C. It increases longitudinal stability but raises the stall speed slightly

D. It has no measurable effect on the aircraft's pitch stability

33. When recovering from a nose-low unusual attitude on instruments, what is the correct action?

A. Add power, raise the nose sharply, and then level the wings last

B. Reduce power, level the wings, and smoothly raise the nose

C. Maintain the descent and allow the airspeed to bleed off slowly

D. Pull back hard immediately to arrest the descent before banking

34. What is the purpose of supplemental oxygen requirements at altitude?

A. To prevent the formation of carbon monoxide in the cabin air

B. To improve night vision during high-altitude cruise operations

C. To reduce cabin condensation and prevent instrument fogging

D. To maintain adequate blood oxygen as ambient pressure decreases

35. What does "P-factor" cause during a climb at high power and high angle of attack?

A. A pitch-up tendency requiring forward elevator pressure to counter

B. A roll to the right requiring left aileron input to counteract it

C. A yawing tendency to the left requiring right rudder to counter

D. A reduction in available climb performance at all power settings

36. During level flight on instruments, how is a heading deviation best corrected?

A. With a large abrupt bank to return quickly to the heading

B. With a shallow coordinated turn back to the desired heading

C. By using rudder alone to yaw the aircraft onto the heading

D. By adjusting power to swing the nose back to the heading

37. What is the significance of maneuvering speed (Va) in turbulence?

A. It is the maximum speed at which full flaps may be extended safely

B. It is the speed providing the best rate of climb in smooth air

C. It is the lowest speed at which the aircraft can be safely flown

D. It is the speed below which abrupt full control inputs will not overstress the airframe

38. What does a coordinated turn require the pilot to balance?

A. Only the elevator and the throttle inputs during the turn

B. The flaps and the trim to maintain a constant airspeed

C. Aileron and rudder inputs so the inclinometer ball stays centered

D. The power and the pitch to hold a constant altitude only

39. What is the primary effect of increasing altitude on true airspeed for a fixed indicated airspeed?

A. True airspeed increases as air density decreases with altitude

B. True airspeed decreases as the air becomes thinner with altitude

C. True airspeed remains exactly equal to the indicated airspeed

D. True airspeed becomes unreliable and should be disregarded entirely

40. What is the recommended response to recognizing the onset of hypoxia in flight?

A. Continue the flight while monitoring the symptoms for changes

B. Slow the breathing rate to restore the proper gas balance

C. Increase engine power and maintain the current cruise altitude

D. Use supplemental oxygen and descend to a lower safe altitude

41. What is "longitudinal stability" in an aircraft?

A. Stability about the vertical axis, resisting yawing motion

B. Stability about the lateral axis, resisting pitching motion

C. Stability about the longitudinal axis, resisting rolling motion

D. The tendency to maintain a constant airspeed in level flight

42. During an instrument scan, when should the pilot return attention to the attitude indicator?

A. Only when initiating or completing a turn during the flight

B. Frequently, as it is the central reference in the cross-check

C. Only during the en route phase and not during the approach

D. Once at the start of the flight and then only if a problem arises

43. What does "torque effect" tend to do during a high-power climb?

A. It pitches the nose down requiring back elevator pressure to hold

B. It yaws the aircraft to the right requiring left rudder to correct

C. It rolls the aircraft to the left requiring right aileron to counter

D. It has no effect on single-engine propeller-driven aircraft at all

44. What is the effect of a tailwind component on an aircraft during cruise?

A. It reduces the true airspeed while increasing the indicated airspeed

B. It decreases the groundspeed and increases the fuel needed per leg

C. It has no effect on groundspeed since airspeed remains constant

D. It increases the groundspeed and reduces the time to fly a leg

45. What is the danger of "somatogravic illusion" during a missed approach acceleration?

A. A false sensation of rolling left, prompting a right correction

B. A false sensation of yawing right, prompting a left rudder input

C. A false sensation of descending, prompting an unneeded climb input

D. A false sensation of pitching up, prompting a dangerous nose-down input

46. What is the function of the elevator trim tab during a stabilized descent?

A. To relieve the control pressure needed to hold the descent attitude

B. To increase the rate of descent without changing the power setting

C. To replace the elevator's function entirely during the descent

D. To lock the elevator in a fixed position throughout the descent

47. During instrument flight, why is smooth control technique emphasized?

A. Abrupt inputs disturb the scan and can induce disorientation

B. Smooth inputs increase the aircraft's maximum cruise airspeed

C. Smooth inputs eliminate the need to trim the aircraft in flight

D. Abrupt inputs cause the gyroscopic instruments to fail outright

48. What does the term "angle of incidence" refer to?

A. The angle between the wing chord and the relative wind in flight

B. The angle of the flight path relative to the visible horizon

C. The angle the propeller blade makes with its plane of rotation

D. The fixed angle between the wing chord and the longitudinal axis

49. What is the primary benefit of maintaining a disciplined instrument cross-check?

A. It allows the pilot to ignore the less important flight instruments

B. It catches developing deviations early before they become large

C. It reduces the electrical load on the aircraft's instrument panel

D. It eliminates the need to trim the aircraft during cruise flight

50. What does "dihedral" in a wing design contribute to?

A. Lateral stability, helping the aircraft return to wings-level flight

B. Directional stability, resisting unwanted yawing about the vertical axis

C. Longitudinal stability, resisting pitching about the lateral axis

D. An increase in the maximum lift produced at low airspeeds

51. During a constant-rate descent, what does a deviation from the target vertical speed require?

A. A change in heading to realign the aircraft with the descent path

B. An immediate level-off followed by a fresh descent from the top

C. The use of rudder alone to adjust the rate of descent precisely

D. A small pitch adjustment to restore the desired descent rate

52. What is the effect of increased weight on an aircraft's climb performance?

A. Climb performance improves because of the added inertia in the climb

B. Climb performance is unaffected by changes in the aircraft weight

C. The aircraft climbs faster but covers less horizontal distance

D. Climb performance decreases because more lift and power are required

53. What is "spatial disorientation" fundamentally caused by?

A. A failure of the aircraft's gyroscopic instruments in cloud

B. A conflict between the body's senses and the actual flight situation

C. An error in the pitot-static system feeding the flight instruments

D. A magnetic disturbance affecting the compass and heading indicator

54. During a turn on instruments, how is altitude best maintained?

A. By increasing power substantially as soon as the bank is applied

B. By relying solely on the vertical speed indicator during the turn

C. By reducing the bank angle until the altitude stops changing

D. By a slight pitch increase and added power to offset the lost lift

55. What does the "region of reversed command" describe in flight?

A. The airspeed range where the aircraft cannot maintain level flight

B. The condition where the controls respond opposite to normal inputs

C. The low-speed regime where more power is needed to fly slower

D. The high-speed range where drag decreases as the airspeed rises

56. What is the recommended technique to recover if a stall is encountered in IMC?

A. Pull back on the yoke to climb away from the stalling condition

B. Maintain the back pressure and add full power to climb out

C. Reduce the angle of attack, add power, and minimize altitude loss

D. Bank steeply to convert the stall into a controlled descending turn

57. What does the attitude indicator directly display to the pilot?

A. The aircraft's pitch and bank attitude relative to the horizon

B. The aircraft's heading relative to magnetic north at all times

C. The aircraft's rate of turn and the quality of coordination

D. The aircraft's vertical speed during a climb or a descent

58. What is the effect of extending flaps during an approach on instruments?

A. It increases lift and drag, allowing a steeper, slower descent

B. It decreases both the lift and the drag produced by the wing

C. It raises the stall speed and requires a higher approach speed

D. It has no measurable effect on the aircraft's descent profile

59. What is the purpose of leveling the wings first when recovering from a nose-low spiral?

A. To increase the descent rate and bleed off the excess airspeed

B. To allow the autopilot to re-engage once the aircraft is stable

C. To raise the nose more quickly without unloading the wing first

D. To stop the turning descent before applying back pressure to recover

60. What does "trim for hands-off flight" help the pilot achieve during instrument flight?

A. A higher cruise airspeed by reducing the aircraft's total drag

B. The ability to lock the flight controls during the cruise phase

C. The elimination of the instrument cross-check during level flight

D. A stable attitude that reduces fatigue and frees attention for scanning

+ Answer Key

1. A — Once a climb is established, the altimeter becomes the primary pitch instrument because pitch is held to maintain the desired altitude trend, while the attitude indicator supports it. In steady-state flight the performance instruments take the primary role. The attitude indicator is the control instrument used to make adjustments.

2. B — A wing stalls at its critical angle of attack regardless of airspeed, attitude, or weight. Exceeding that angle causes airflow separation and loss of lift. This is why a stall can occur at any speed, including high speed in a steep turn.

3. A — In a constant-airspeed descent, power controls the rate of descent while pitch holds the target airspeed. Adjusting power changes how fast the aircraft descends at the fixed speed. This is the standard pitch-and-power relationship for instrument descents.

4. C — "The leans" is a vestibular illusion producing a false sensation of banking, often after a slow unnoticed roll is abruptly corrected. The inner ear misreports the aircraft's true attitude. The pilot must trust the attitude indicator over the sensation.

5. B — Recovery from a nose-high unusual attitude is to add power, lower the nose, and level the wings to regain a normal attitude and prevent a stall. Power and a lower pitch restore airspeed. Coordinated wing-leveling completes the recovery.

6. C — The attitude indicator most directly displays pitch by showing the miniature aircraft against the artificial horizon. It gives an immediate, integrated picture of pitch and bank. Other instruments indicate pitch only indirectly through performance.

7. A — In a standard-rate turn the required bank angle increases with true airspeed; faster aircraft need a steeper bank to maintain three degrees per second. The relationship is built into the turn coordinator's standard-rate index. Higher speeds therefore demand more bank for the same rate.

8. B — Hypoxia degrades color vision and progressively impairs judgment as oxygen deprivation worsens. These subtle effects can occur before the pilot recognizes a problem. The insidious nature makes altitude and oxygen discipline essential.

9. C — If pitch is increased while power stays constant, airspeed decreases because energy is diverted into the climb. Without added power the aircraft trades speed for altitude. Maintaining a target climb speed requires coordinating pitch with power.

10. B — Trim relieves control pressures, reducing pilot workload and helping maintain a stable attitude. Properly trimmed, the aircraft needs little control force. This frees attention for the instrument scan and other tasks.

11. A — Bernoulli's principle explains that faster airflow over the curved upper surface of a wing produces lower pressure there, contributing to lift. The pressure difference between upper and lower surfaces generates upward force. It works together with the downward deflection of air.

12. C — Fixating on one instrument breaks down the cross-check, allowing other parameters such as heading or altitude to deviate unnoticed. A continuous scan keeps all values in check. Fixation is a common cause of instrument-flight errors.

13. A — As load factor increases in a level turn, stall speed increases because the wing must produce more lift. Steeper banks raise the load factor and thus the speed at which the wing stalls. This is why steep turns demand higher airspeeds.

14. B — With an unreliable airspeed indicator, holding a known pitch attitude on the attitude indicator plus a set power yields predictable level flight. Pitch and power produce known performance without trusting the faulty instrument. This technique maintains control while troubleshooting.

15. B — Hyperventilation is excessive breathing that lowers carbon dioxide, causing lightheadedness and tingling, and it resolves by slowing the breathing rate. Restoring normal breathing rebalances blood chemistry. It is distinct from hypoxia though symptoms can overlap.

16. A — With a failed heading indicator the pilot uses a timed turn at the standard rate of three degrees per second to determine when to roll out. Time equals the heading change divided by three. The turn coordinator provides the rate reference.

17. B — Adverse yaw is the tendency of the nose to yaw opposite the intended turn direction as ailerons are applied, due to differential drag. Coordinated rudder counters it. It is most pronounced at low speed and high aileron deflection.

18. B — The graveyard spiral arises from the loss of the sensation of turning after a prolonged constant-rate turn. When the pilot levels, it feels like a turn the other way, prompting re-entry into the descending spiral. Trusting the instruments breaks the cycle.

19. D — In a skidding turn the inclinometer ball moves to the outside of the turn, indicating too much rudder for the bank. The pilot centers the ball by adjusting rudder and aileron. A slip moves the ball to the inside instead.

20. A — The vertical speed indicator's trend gives an early indication of a developing climb or descent rate before the needle settles. The trend leads the rate, aiding prompt pitch corrections. The instrument lags on the precise value but shows direction quickly.

21. C — Carrying excess airspeed into a level turn at a fixed bank increases the turn radius and decreases the rate of turn. Higher speed widens the turn for the same bank. To tighten the turn the pilot must increase bank or reduce speed.

22. D — A rapid ascent without pressurization can cause hypoxia, as reduced atmospheric pressure lowers the oxygen available to the body. The percentage of oxygen is unchanged, but its partial pressure falls. Supplemental oxygen and descent restore adequate levels.

23. A — In a constant-airspeed climb the manifold pressure gauge or tachometer is the primary power instrument because power is set and held while pitch controls airspeed. The power indication confirms the setting that drives climb performance. It is the reference for the power being applied.

24. D — The inclinometer ball indicates whether a turn is coordinated, slipping, or skidding. A centered ball confirms coordinated flight. Its position guides the rudder input needed to balance the turn.

25. B — Following loss of the visual horizon, the danger is that the pilot may make control inputs based on false vestibular sensations. The body's senses mislead without outside reference. Reliance on instruments prevents disorientation-driven errors.

26. C — When airspeed must be held constant in a descent, pitch is adjusted to maintain the target airspeed while power sets the descent rate. Pitch and power work together. This keeps the speed stable throughout the descent.

27. C — The critical angle of attack is the angle beyond which the wing stalls and loses lift. It is a fixed aerodynamic value for a given wing. Exceeding it at any airspeed produces a stall.

28. D — A common first sign of hypoxia is a subtle euphoria or impaired judgment that often goes unnoticed by the affected pilot. The lack of obvious warning makes it dangerous. Recognizing the insidious onset is key to timely response.

29. C — In a standard-rate turn the required bank angle increases as true airspeed increases. Maintaining three degrees per second at higher speed demands more bank. The relationship is fundamental to instrument turn performance.

30. A — The recommended scan is a continuous cross-check moving among the relevant instruments, centered on the attitude indicator. This catches deviations early and keeps all parameters controlled. Fixation or omission undermines the scan.

31. C — Load factor is the ratio of lift produced to the aircraft's actual weight, expressed in G. In level flight it equals one; in turns and pull-ups it increases. Higher load factors raise stall speed and structural stress.

32. C — A forward center of gravity increases longitudinal stability but slightly raises stall speed because the tail must produce more downforce. The aircraft is more stable but requires more elevator authority. An excessively forward CG can reduce control effectiveness.

33. B — Recovery from a nose-low unusual attitude is to reduce power, level the wings, and smoothly raise the nose to the level attitude. Reducing power and leveling first prevents overstressing the airframe. Raising the nose then arrests the descent.

34. D — Supplemental oxygen requirements exist to maintain adequate blood oxygen as ambient pressure decreases with altitude. Lower pressure reduces oxygen uptake even though its percentage is constant. Oxygen use prevents hypoxia at higher altitudes.

35. C — P-factor at high power and high angle of attack produces a yawing tendency to the left, requiring right rudder to counter. The descending propeller blade generates more thrust on one side. Right rudder keeps the aircraft coordinated in the climb.

36. B — A heading deviation in level flight is best corrected with a shallow coordinated turn back to the desired heading. Small, smooth corrections avoid disturbing altitude and the scan. Large abrupt banks risk overcorrection and disorientation.

37. D — Maneuvering speed (Va) is the speed below which abrupt, full control inputs will not overstress the airframe because the wing stalls before the limit load is exceeded. Slowing to Va protects the structure in turbulence. Above Va, full deflection can cause damage.

38. C — A coordinated turn requires balancing aileron and rudder so the inclinometer ball stays centered. Proper coordination prevents slips and skids. The ball's position confirms whether the inputs are balanced.

39. A — For a fixed indicated airspeed, true airspeed increases with altitude because the air density decreases. The aircraft must move faster to produce the same dynamic pressure. This is why TAS exceeds IAS at altitude.

40. D — The recommended response to hypoxia onset is to use supplemental oxygen and descend to a lower, safe altitude. Restoring oxygen and reducing altitude reverse the condition. Prompt action is critical before judgment degrades further.

41. B — Longitudinal stability is stability about the lateral axis, resisting pitching motion. It keeps the aircraft returning toward its trimmed pitch attitude. Center-of-gravity location strongly affects it.

42. B — The pilot returns attention to the attitude indicator frequently because it is the central reference in the cross-check. Most scan patterns radiate out from and back to it. This keeps pitch and bank continuously controlled.

43. C — Torque effect during a high-power climb tends to roll the aircraft to the left, requiring right aileron (and rudder) to counter. The engine's rotation produces an opposite reaction on the airframe. It is one of several left-turning tendencies.

44. D — A tailwind component increases groundspeed and reduces the time to fly a leg. Airspeed is unchanged, but progress over the ground is faster. This decreases fuel needed for that segment.

45. D — The somatogravic illusion during a missed-approach acceleration creates a false sensation of pitching up, tempting a dangerous nose-down input toward the ground. Forward acceleration is misread by the inner ear. Trusting the attitude indicator counters it.

46. A — During a stabilized descent the elevator trim tab relieves the control pressure needed to hold the descent attitude. Proper trim reduces workload and helps maintain a steady path. It does not replace or lock the elevator.

47. A — Smooth control technique is emphasized because abrupt inputs disturb the scan and can induce spatial disorientation. Gentle, deliberate corrections keep the instruments steady and readable. Smoothness supports precise instrument flight.

48. D — The angle of incidence is the fixed angle between the wing chord and the aircraft's longitudinal axis, set during design. It differs from angle of attack, which varies with the relative wind. It influences cruise attitude and visibility.

49. B — A disciplined cross-check catches developing deviations early, before they grow into large errors. Continuous comparison of related instruments keeps the aircraft on the intended flight path. Early detection makes corrections small and smooth.

50. A — Wing dihedral contributes to lateral stability, helping the aircraft return to wings-level flight after a disturbance. The upward wing angle creates a restoring rolling moment in a sideslip. It improves roll stability.

51. D — A deviation from the target vertical speed in a constant-rate descent requires a small pitch adjustment to restore the desired rate. Minor pitch changes fine-tune the descent. Power may be adjusted to hold airspeed as needed.

52. D — Increased weight decreases climb performance because more lift and power are required to support and raise the heavier aircraft. The climb rate and angle both suffer. This lengthens the distance and time needed to reach altitude.

53. B — Spatial disorientation is fundamentally a conflict between the body's senses and the actual flight situation. Without a visual horizon, the vestibular system provides false cues. Trusting the instruments resolves the conflict.

54. D — Altitude in a turn is best maintained with a slight pitch increase and added power to offset the lift lost to bank. As bank increases, more back pressure and power are needed. This keeps the aircraft level through the turn.

55. C — The region of reversed command is the low-speed regime where more power is required to fly slower because induced drag dominates. On the back side of the power curve, reducing speed increases drag. Approaches near this regime require careful power management.

56. C — Stall recovery in IMC is to reduce the angle of attack, add power, and minimize altitude loss. Lowering the nose breaks the stall while power aids recovery. Smooth, coordinated inputs prevent a secondary stall or spin.

57. A — The attitude indicator directly displays the aircraft's pitch and bank attitude relative to the artificial horizon. It is the central control instrument. All other instruments support the picture it provides.

58. A — Extending flaps increases both lift and drag, allowing a steeper and slower descent on approach. The added drag steepens the path and the added lift lowers stall speed. This helps configure for a stabilized approach.

59. D — In a nose-low spiral the wings are leveled first to stop the turning descent before applying back pressure. Pulling before leveling would tighten the spiral and increase load factor dangerously. Wings-level then smooth recovery is the correct order.

60. D — Trimming for hands-off flight achieves a stable attitude that reduces fatigue and frees the pilot's attention for the instrument scan. A well-trimmed aircraft holds its attitude with minimal input. This supports precise, low-workload instrument flying.