

PRACTICE EXAM 15 (60 QS)

1. A private pilot wants to fly three friends to a sporting event and split fuel costs. This is permissible only if the pilot:

- A. Accepts full reimbursement from the passengers
- B. Limits the flight to under 25 nautical miles
- C. Pays at least a pro rata share of the operating expenses

2. Private pilot privileges require at least which class of medical certificate?

- A. Third-class medical, or operation under BasicMed
- B. Second-class medical renewed annually
- C. First-class medical for any passenger flight

3. In steady, unaccelerated, straight-and-level flight, the four forces are related such that:

- A. Lift equals weight and thrust equals drag
- B. Lift exceeds weight and thrust exceeds drag
- C. Thrust exceeds drag while lift is less than weight

4. A wing will stall whenever it exceeds its:

- A. Maximum structural cruising speed
- B. Never-exceed speed
- C. Critical angle of attack

5. Carburetor ice is most likely to form at outside temperatures of:

- A. 20°F to 70°F with high humidity
- B. Below 0°F with any humidity
- C. Above 90°F only

6. A vacuum pump failure will render unreliable the:

- A. Airspeed indicator and altimeter
- B. Attitude indicator and heading indicator
- C. Magnetic compass and tachometer

7. Setting the altimeter to 29.92 in. Hg makes it display:

- A. True altitude
- B. Absolute altitude
- C. Pressure altitude

8. In the Northern Hemisphere, air around a high-pressure system:

- A. Rises and converges, forming clouds
- B. Moves straight inward without rotation
- C. Sinks and diverges, producing fair weather

9. A small temperature/dew-point spread most strongly indicates:

- A. Gusty, clearing winds
- B. Likely fog or low clouds
- C. Severe high-altitude turbulence

10. Structural icing requires visible moisture together with:

- A. A temperature at or below freezing
- B. Clear, cloud-free skies
- C. High humidity above freezing

11. AIRMET Tango provides information about:

- A. Icing and freezing levels
- B. Turbulence and strong surface winds
- C. IFR ceilings and mountain obscuration

12. A ceiling is defined as the lowest cloud layer reported as:

- A. Few or scattered
- B. Broken or overcast
- C. Any visible cloud layer

13. Entry into Class C airspace requires:

- A. A specific "cleared to enter" instruction
- B. An IFR flight plan
- C. Two-way radio communication established with ATC

14. A runway holding position marking consists of:

- A. A single solid white line
- B. Four dashed red lines

C. Two solid and two dashed yellow lines

15. A transponder code of 7700 indicates:

A. A radio communication failure

B. A general emergency

C. A hijacking

16. A VOR radial is a magnetic bearing measured:

A. Toward the station

B. Relative to the aircraft's heading

C. From the station

17. One minute of latitude equals what distance?

A. One statute mile

B. One kilometer

C. One nautical mile

18. Converting a true heading to magnetic with westerly variation requires the pilot to:

A. Add the variation

B. Subtract the variation

C. Disregard variation

19. Density altitude is best defined as:

- A. The altitude shown with the local altimeter setting
- B. Height above the nearest terrain
- C. Pressure altitude corrected for nonstandard temperature

20. The best angle of climb speed (V_X) provides the greatest altitude gain per unit of:

- A. Time
- B. Fuel
- C. Horizontal distance

21. The center of gravity is found by:

- A. Dividing total moment by total weight
- B. Multiplying weight by the datum
- C. Subtracting empty weight from gross weight

22. An early and insidious symptom of hypoxia is:

- A. Euphoria and impaired judgment
- B. Sudden sharp chest pain
- C. Immediate unconsciousness

23. At night, to best see a dim object, a pilot should:

- A. Stare directly at it
- B. Scan rapidly across it
- C. Use off-center viewing

24. The "IM SAFE" checklist assesses the:

- A. Aircraft's airworthiness
- B. Pilot's personal fitness for flight
- C. Fuel and weather planning

25. The night VFR fuel reserve requires the destination fuel plus:

- A. 45 minutes at normal cruise
- B. 30 minutes at normal cruise
- C. 20 minutes at best glide

26. Upon engine failure, the pilot's first action is to:

- A. Transmit a MAYDAY immediately
- B. Establish best glide speed
- C. Engage the starter at full power

27. Aircraft position lights are arranged as:

- A. White on both wingtips, red on the tail
- B. Red on the left wing, green on the right wing, white on the tail
- C. Green on the left, red on the right, white on the nose

28. A VFR flight plan's primary purpose is to provide:

- A. ATC separation from traffic
- B. Authorization for Class B entry

C. Search-and-rescue protection

29. A private pilot certificate generally does NOT permit:

A. Carrying passengers on a personal flight

B. Acting as PIC for compensation or hire

C. Sharing pro rata expenses

30. A flight review must be completed within the preceding:

A. 24 calendar months

B. 12 calendar months

C. 36 calendar months

31. When two aircraft converge at the same altitude, right-of-way belongs to the aircraft:

A. At the higher altitude

B. To the other's right

C. Traveling faster

32. Maneuvering speed (V_A) as aircraft weight decreases:

A. Increases

B. Stays constant

C. Decreases

33. Wake turbulence is most severe behind an aircraft that is:

- A. Heavy, clean, and slow
- B. Light, dirty, and fast
- C. Idling on the ground

34. A cold front is characterized by:

- A. A narrow band of intense weather and rapid clearing
- B. Widespread layered clouds and steady drizzle
- C. No significant weather change

35. The dew point is the temperature to which air must be:

- A. Heated to evaporate moisture
- B. Cooled to become saturated
- C. Compressed to release heat

36. A steady green light gun signal to an aircraft in flight means:

- A. Return for landing
- B. Give way and continue circling
- C. Cleared to land

37. Supplemental oxygen must be used continuously by the required crew above:

- A. 10,000 feet MSL
- B. 14,000 feet MSL
- C. 12,500 feet MSL

38. The color of 100LL aviation fuel is:

- A. Green
- B. Blue
- C. Red

39. Spatial disorientation is best counteracted by:

- A. Trusting the flight instruments
- B. Relying on inner-ear sensations
- C. Making rapid head movements

40. A magneto allows the engine to keep running during a complete electrical failure because it:

- A. Generates its own electrical current independently
- B. Draws current from the battery
- C. Is powered by the alternator

41. An annual inspection is required for all aircraft within the preceding:

- A. 24 calendar months
- B. 100 hours
- C. 12 calendar months

42. A forward center of gravity makes an airplane:

- A. Less stable with a lower stall speed
- B. More stable with a higher stall speed

C. Unaffected in stability or stall speed

43. The standard traffic pattern uses which direction of turns unless otherwise indicated?

A. Right turns

B. Straight-in approaches

C. Left turns

44. The mature stage of a thunderstorm is most hazardous because it contains:

A. Both updrafts and downdrafts with heavy precipitation

B. Only gentle updrafts

C. No precipitation at all

45. A VFR flight plan must be closed by:

A. Air traffic control automatically

B. The destination airport manager

C. The pilot

46. Induced drag is greatest at:

A. High airspeed in cruise

B. The never-exceed speed

C. Low airspeed and high angle of attack

47. The required documents aboard for a domestic flight do NOT include the:

- A. Airworthiness certificate
- B. Radio station license
- C. Registration certificate

48. A pilot leans the mixture at altitude primarily to:

- A. Restore the proper fuel-air ratio as air density decreases
- B. Increase fuel flow for more power
- C. Cool the engine by adding fuel

49. The minimum safe altitude over a congested area is 1,000 feet above the highest obstacle within a horizontal radius of:

- A. 2,000 feet
- B. 1,000 feet
- C. 500 feet

50. A temperature inversion typically produces:

- A. Strong convective turbulence
- B. Smooth, stable air with restricted visibility
- C. Rapid clearing and unlimited visibility

51. Lift increases with the square of which variable?

- A. Aircraft weight
- B. Air temperature
- C. Airspeed

52. A "hot" Restricted Area may be entered only:

- A. With permission from the controlling agency
- B. By squawking 1200
- C. At night when activity ceases

53. The hazardous attitude of invulnerability ("It won't happen to me") is countered by:

- A. "Follow the rules"
- B. "Taking chances is foolish"
- C. "It could happen to me"

54. An ELT transmits on which frequencies for search and rescue?

- A. 121.5 MHz and 406 MHz
- B. 122.8 MHz and 123.0 MHz
- C. 118.0 MHz and 136.0 MHz

55. The standard temperature lapse rate is approximately:

- A. 5°C per 1,000 feet
- B. 2°C per 1,000 feet
- C. 3.5°C per 1,000 feet

56. A blocked pitot tube (ram and drain) causes the airspeed indicator to:

- A. Drop immediately to zero
- B. Behave like an altimeter, rising in a climb

C. Read correctly with no error

57. Currency differs from proficiency in that currency refers to:

- A. Meeting the legal minimum recency requirements
- B. Genuine, demonstrated piloting skill
- C. The aircraft's inspection status

58. A standard weather briefing should be requested when a pilot:

- A. Has received no prior weather information for the flight
- B. Needs only to update a previous briefing
- C. Is departing more than 6 hours later

59. Stall speed increases with all of the following EXCEPT:

- A. An increase in aircraft weight
- B. A decrease in load factor
- C. Wing contamination by ice

60. A pilot should realign the heading indicator with the magnetic compass during:

- A. A standard-rate turn
- B. Straight-and-level, unaccelerated flight
- C. Acceleration on takeoff

Answer Key

1. C — A private pilot may share operating expenses only if the pilot pays at least a pro rata share. Accepting full reimbursement would amount to flying for compensation, which private privileges prohibit.
2. A — Private pilot privileges require at least a third-class medical certificate, or operation under BasicMed for qualifying pilots and aircraft. Higher-class medicals also satisfy the requirement.
3. A — In steady, unaccelerated, straight-and-level flight, lift equals weight and thrust equals drag. This equilibrium defines unaccelerated flight; the relationships change in climbs, descents, and turns.
4. C — A wing stalls whenever it exceeds its critical angle of attack, at which airflow separates from the upper surface. This can occur at any airspeed or attitude.
5. A — Carburetor ice is most likely at outside temperatures of 20°F to 70°F with high humidity, even on warm days. Fuel vaporization and venturi expansion can drop the internal temperature below freezing.
6. B — A vacuum pump failure renders unreliable the vacuum-driven attitude indicator and heading indicator. The electric turn coordinator remains available as a backup.
7. C — Setting the altimeter to the standard datum of 29.92 in. Hg makes it display pressure altitude. Correcting that for temperature yields density altitude.
8. C — Around a Northern Hemisphere high, air sinks and diverges, producing fair weather. A low, by contrast, has rising, converging air that forms clouds and precipitation.
9. B — A small temperature/dew-point spread means the air is near saturation, indicating likely fog or low clouds. As the spread narrows toward zero, visible moisture becomes likely.
10. A — Structural icing requires both visible moisture and a temperature at or below freezing. Without both conditions present, ice will not accumulate on the airframe.

11. B — AIRMET Tango provides information about turbulence and strong surface winds. Sierra covers IFR and mountain obscuration, and Zulu covers icing.

12. B — A ceiling is the height of the lowest cloud layer reported as broken or overcast. Few and scattered layers do not constitute a ceiling.

13. C — Entry into Class C airspace requires two-way radio communication established with ATC, meaning the controller responds using the aircraft's call sign. Class B, by contrast, requires an explicit clearance.

14. C — A runway holding position marking consists of two solid and two dashed yellow lines, and the pilot holds short on the solid-line side. It is the primary safeguard against runway incursions.

15. B — A transponder code of 7700 indicates a general emergency—"seven-seven, going to heaven." The other codes are 7600 for lost comms and 7500 for hijacking.

16. C — A VOR radial is a magnetic bearing measured from the station, with 360 radials radiating outward. The CDI shows displacement from the selected radial.

17. C — One minute of latitude equals one nautical mile, a convenient relationship for measuring distance. Pilots use the latitude scale on a sectional's edge as a distance ruler.

18. A — Converting a true heading to magnetic with westerly variation requires adding the variation, per "west is best." Easterly variation, by contrast, is subtracted.

19. C — Density altitude is pressure altitude corrected for nonstandard temperature, representing air density as an altitude. Aircraft performance corresponds to density altitude, not field elevation.

20. C — The best angle of climb speed (V_X) provides the greatest altitude gain per unit of horizontal distance, used for obstacle clearance. Best rate (V_Y) gives the most altitude per unit of time.

21. A — The center of gravity is found by dividing total moment by total weight. Each item's moment is its weight multiplied by its arm from the datum.

22. A — An early and insidious symptom of hypoxia is euphoria and impaired judgment, which mask the danger. The victim often feels fine and fails to recognize the need for oxygen.

23. C — At night, off-center viewing—looking slightly to the side of an object—places the image on the rod-rich periphery, avoiding the central night blind spot. Staring directly can make a dim object disappear.

24. B — The IM SAFE checklist assesses the pilot's personal fitness for flight, covering Illness, Medication, Stress, Alcohol, Fatigue, and Emotion. It is a self-assessment as important as the aircraft checklist.

25. A — Night VFR fuel rules require enough fuel to reach the destination plus 45 minutes at normal cruise power. The extra reserve over the day requirement reflects the reduced landing options in darkness.

26. B — Upon engine failure, the pilot's first action is to establish best glide speed, maximizing the distance and time available to reach a landing site. Only then does the pilot select a site and attempt a restart.

27. B — Aircraft position lights are red on the left wingtip, green on the right wingtip, and white on the tail. This arrangement lets a pilot determine another aircraft's direction of travel at night.

28. C — A VFR flight plan's primary purpose is to provide search-and-rescue protection. It provides no ATC separation and does not authorize airspace entry.

29. B — A private pilot certificate generally does not permit acting as PIC for compensation or hire. It does allow carrying passengers on personal flights and sharing pro rata expenses.

30. A — A flight review must be completed within the preceding 24 calendar months to act as pilot-in-command. It consists of at least one hour of ground and one hour of flight training.

31. B — When converging at the same altitude, the aircraft to the other's right has the right-of-way. The pilot who sees converging traffic on the left must give way.

32. C — Maneuvering speed decreases as aircraft weight decreases, because a lighter airplane reaches its limiting load factor at a lower speed. The appropriate V_A is therefore lower when lightly loaded.

33. A — Wake turbulence is most severe behind a heavy, clean, and slow aircraft, the configuration of a large jet on takeoff or approach. This combination generates the most intense wingtip vortices.

34. A — A cold front is characterized by a narrow band of intense weather and rapid clearing behind it. A warm front, by contrast, brings widespread layered clouds and prolonged precipitation.

35. B — The dew point is the temperature to which air must be cooled to become saturated, at which moisture condenses. A small temperature/dew-point spread signals air near saturation.

36. C — A steady green light gun signal to an aircraft in flight means cleared to land. The same steady green on the ground means cleared for takeoff.

37. B — Above 14,000 feet MSL, the required minimum flight crew must use supplemental oxygen continuously. Between 12,500 and 14,000 feet, oxygen is required only after 30 minutes.

38. B — The color of 100LL aviation fuel is blue. Grade 80 is red and grade 100 is green, and using the wrong fuel can be catastrophic.

39. A — Spatial disorientation is best counteracted by trusting the flight instruments rather than misleading inner-ear sensations. Believing the instruments is essential when outside references are lost.

40. A — A magneto generates its own electrical current independently of the battery and alternator, so the engine continues running through a complete electrical failure. This self-powered design is a key safety feature.

41. C — An annual inspection is required for all aircraft within the preceding 12 calendar months. Unlike the 100-hour inspection, the annual applies regardless of how the aircraft is operated.
42. B — A forward center of gravity makes the airplane more stable but raises the stall speed, because the tail must produce more downforce. It also increases approach and landing speeds.
43. C — The standard traffic pattern uses left turns unless otherwise indicated by charts or a segmented circle. A right-hand pattern is used where terrain, obstacles, or noise abatement require it.
44. A — The mature stage is most hazardous because it contains both updrafts and downdrafts with heavy precipitation, lightning, and the greatest turbulence. The onset of rain reaching the surface marks this phase.
45. C — A VFR flight plan must be closed by the pilot upon arrival; ATC does not close it automatically. Failing to close it triggers an unnecessary search.
46. C — Induced drag is greatest at low airspeed and high angle of attack, where the wingtip vortices are strongest. It decreases as airspeed increases.
47. B — The radio station license is not required for a domestic flight, only for international operations. The airworthiness certificate, registration, operating limitations, and weight-and-balance data must always be aboard.
48. A — Leaning the mixture at altitude restores the proper fuel-air ratio as air density decreases. Without leaning, the mixture becomes excessively rich, causing roughness and plug fouling.
49. A — The minimum safe altitude over a congested area is 1,000 feet above the highest obstacle within a horizontal radius of 2,000 feet. This provides margin for an emergency landing clear of people and property.
50. B — A temperature inversion traps moisture and pollutants beneath a warm layer, producing smooth but stable air with restricted visibility. The stable layer suppresses turbulence and convective clouds.

51. C — Lift increases with the square of airspeed, so doubling speed roughly quadruples lift. This squared relationship explains why small airspeed changes have large effects.

52. A — A "hot" Restricted Area may be entered only with permission from the controlling agency. Hazardous activity such as live fire makes unauthorized entry dangerous.

53. C — The invulnerability attitude ("It won't happen to me") is countered by the antidote "It could happen to me." Recognizing the attitude allows the pilot to apply the antidote.

54. A — An ELT transmits on 121.5 MHz (older units) and 406 MHz (modern, satellite-monitored) to aid search and rescue. The 406 MHz signal provides far better detection and positioning.

55. B — The standard temperature lapse rate is approximately 2°C per 1,000 feet of altitude gained. This baseline underlies density-altitude calculations and performance planning.

56. B — A blocked pitot tube (ram and drain) makes the airspeed indicator behave like an altimeter, rising in a climb and falling in a descent. The trapped pressure responds to ambient changes rather than airspeed.

57. A — Currency refers to meeting the legal minimum recency requirements to exercise a privilege. Proficiency, by contrast, is genuine, demonstrated piloting skill.

58. A — A standard weather briefing should be requested when the pilot has received no prior weather information for the flight. It provides the complete picture for a go/no-go decision.

59. B — Stall speed increases with greater weight, higher load factor, and wing contamination, but a decrease in load factor lowers stall speed. Reducing load factor reduces the speed at which the critical angle is reached.

60. B — The heading indicator should be realigned with the magnetic compass during straight-and-level, unaccelerated flight, when the compass reads accurately. Turning or accelerating introduces compass errors.