The FAA computer-assisted testing system is supported by a series of supplement publications. These publications, available through several aviation publishers, include the graphics, legends, and maps that are needed to successfully respond to certain test items. Use the following URL to download a complete list of associated supplement books: [http://www.faa.gov/pilots/testing/supplements/](http://www.faa.gov/pilots/testing/supplements/)

The Learning Statement Reference Guide for Airman Knowledge Testing contains listings of learning statements with their associated codes. It can be located at: [http://www.faa.gov/training_testing/testing/media/LearningStatementReferenceGuide.pdf](http://www.faa.gov/training_testing/testing/media/LearningStatementReferenceGuide.pdf)

<table>
<thead>
<tr>
<th>Question Number</th>
<th>Code</th>
<th>CFI</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>PLT238</td>
<td>CFI</td>
<td>At a constant velocity in airflow, a high aspect ratio wing will have (in comparison with a low aspect ratio wing) A) increased drag, especially at a low angle of attack. B) decreased drag, especially at a high angle of attack. C) increased drag, especially at a high angle of attack.</td>
</tr>
<tr>
<td>2.</td>
<td>PLT168</td>
<td>CFI</td>
<td>The angle of attack of a wing directly controls the A) angle of incidence of the wing. B) amount of airflow above and below the wing. C) distribution of positive and negative pressure acting on the wing.</td>
</tr>
<tr>
<td>3.</td>
<td>PLT245</td>
<td>CFI</td>
<td>What is the effect of center of gravity on the spin characteristics of a fixed-wing aircraft? If the CG is too far A) aft, a flat spin may develop. B) forward, spin entry will be difficult. C) aft, spins can become high-speed spirals.</td>
</tr>
<tr>
<td>4.</td>
<td>PLT018</td>
<td>CFI</td>
<td>(Refer to figure 18.) What is the stall speed of an airplane in a 30 degree bank turn if the level stall speed is 100 knots? A) 100 knots. B) 102 knots. C) 108 knots.</td>
</tr>
<tr>
<td>5.</td>
<td>PLT215</td>
<td>CFI</td>
<td>What should be the indication on the magnetic compass as you roll into a standard rate turn to the right from a south heading in the Northern Hemisphere?</td>
</tr>
</tbody>
</table>
A) The compass will initially indicate a turn to the left.
B) The compass will indicate a turn to the right, but at a faster rate than is actually occurring.
C) The compass will remain on south for a short time, then gradually catch up to the magnetic heading of the airplane.

6. PLT115 CFI
Detonation occurs in a reciprocating aircraft engine when
A) the spark plugs are fouled or shorted out or the wiring is defective.
B) hot spots in the combustion chamber ignite the fuel/air mixture in advance of normal ignition.
C) the unburned charge in the cylinders explodes instead of burning normally.

7. PLT478 CFI
If the ground wire between the magneto and the ignition switch becomes disconnected, the most noticeable result will be that the engine
A) will run very rough.
B) cannot be started with the switch in the ON position.
C) cannot be shut down by turning the switch to the OFF position.

8. PLT479 CFI
What should be the first action after starting an aircraft engine?
A) Adjust for proper RPM and check for desired indications on the engine gauges.
B) Place the magneto or ignition switch momentarily in the OFF position to check for proper grounding.
C) Test each brake and the parking brake.

9. PLT253 CFI
When the pilot leans the mixture control, what is being accomplished?
A) The volume of air entering the carburetor is being reduced.
B) The volume of air entering the carburetor is being increased.
C) The amount of fuel entering the combustion chamber is being reduced.

10. PLT324 CFI
An abnormally high engine oil temperature indication may be caused by
A) the oil level being too low.
B) operating with a too high viscosity oil.
C) operating with an excessively rich mixture.

11. PLT351 CFI
The reason for variations in geometric pitch (twisting) along a propeller blade is that it
A) prevents the portion of the blade near the hub to stall during cruising flight.
B) permits a relatively constant angle of attack along its length when in cruising flight.
C) permits a relatively constant angle of incidence along its length when in cruising flight.

12. PLT147 CFI
The visual glidepath of a 2-bar VASI provides safe obstruction clearance within plus or minus 10° of the
extended runway centerline and to a distance of how many miles from the runway threshold?
A) 4 NM.
B) 6 NM.
C) 10 NM.

13. PLT147 CFI
An on-glidepath indication from a tri-color VASI is
A) a green light signal.
B) a white light signal.
C) an amber light signal.

14. PLT141 CFI
The 'No Entry' sign identifies
A) paved area where aircraft entry is prohibited.
B) an area that does not continue beyond intersection.
C) the exit boundary for the runway protected area.

15. PLT141 CFI
What does a destination sign identify?
A) Entrance to the runway from a taxiway.
B) Direction to takeoff runways.
C) Runway on which an aircraft is located.

16. PLT141 CFI
What is the purpose of the runway hold position sign?
A) Denotes entrance to a runway from a taxiway.
B) Denotes area protected for an aircraft approaching or departing a runway.
C) Denotes taxiway location.

17. PLT150 CFI
The recommended entry position to an airport traffic pattern is
A) 45° to the base leg just below traffic pattern altitude.
B) to enter 45° at the midpoint of the downwind leg at traffic pattern altitude.
C) to cross directly over the airport at traffic pattern altitude and join the downwind leg.

18. PLT509 CFI
During a takeoff made behind a departing large jet airplane, the pilot can minimize the hazard of wingtip vortices by
A) remaining below the jet's flightpath until able to turn clear of its wake.
B) extending the takeoff roll and not rotating until well beyond the jet's rotation point.
C) being airborne prior to reaching the jet's flightpath until able to turn clear of its wake.

19. PLT393 CFI
Flight through a restricted area should not be accomplished unless the pilot has
A) filed an IFR flight plan.
B) received prior authorization from the controlling agency.
C) received prior permission from the commanding officer of the nearest military base.

20. PLT040 CFI
(Refer to figure 47.) Which altitude (box 1) is applicable to the vertical extent of the surface and shelf areas of this Class C airspace?
A) 3,000 feet AGL.
B) 3,000 feet above airport.
C) 4,000 feet above airport.

21. PLT161 CFI
What minimum avionics equipment is required for operation within Class C airspace?
A) Two-way communications.
B) Two-way communications and transponder with automatic altitude reporting capability.
C) Two-way communications, transponder with automatic altitude reporting capability, and VOR.

22. PLT064 CFI
(Refer to figure 46.) What is the ceiling of the Class C airspace surrounding San Jose International Airport (area 2)?
A) 2,500 feet AGL.
B) 4,000 feet MSL.
C) 6,000 feet MSL.

23. PLT161 CFI
Normally, the vertical limits of Class D airspace extend up to and including how many feet above the surface?
A) 2,500 feet.
B) 3,000 feet.
C) 4,000 feet.

24. PLT064 CFI
(Refer to figure 45.) The controlled airspace located at the Corpus Christi VORTAC (area 5) begins at
A) the surface.
B) 700 feet AGL.
C) 1,200 feet MSL.

25. PLT170 CFI
A go-around from a poor landing approach should
A) not be attempted unless circumstances make it absolutely necessary.
B) generally be preferable to last minute attempts to prevent a bad landing.
C) not be attempted after the landing flare has been initiated regardless of airspeed.

26. PLT195 CFI
Most midair collision accidents occur during
A) hazy days within the traffic pattern environment.
B) clear days in the vicinity of navigational aids.
C) night conditions during simulated instrument flight.

27. PLT112 CFI
To properly compensate for a crosswind during straight-and-level cruising flight, the pilot should
A) hold rudder pressure toward the wind.
B) establish a proper heading into the wind by coordinated use of the controls.
C) hold aileron pressure toward the wind and hold opposite rudder pressure to prevent a turn.

28. PLT006 CFI
(Refer to figure 29.) What is the approximate glide distance?
Height above terrain 5,500 ft
Tailwind 10 kts
A) 11 miles.
B) 12 miles.
C) 13 miles.

29. PLT244 CFI
If poor aircraft controllability is experienced during an emergency go-around with full flaps, the cause is most probably due to
A) excessive airspeed with full flaps extended.
B) the high-power, low-airspeed situation with the airplane trimmed for a full-flap configuration.
C) a reduction in the angle of attack with full flaps to the point where the aircraft control is greatly impaired.

30. PLT219 CFI
Two distinct flight situations should be covered when teaching slow flight. These are the establishment and maintenance of
A) airspeeds appropriate for landing approaches, and flight at reduced airspeeds.
B) an airspeed which gives a stall warning indication, and an airspeed at which complete recovery can be made from stalls.
C) an airspeed at which the airplane is operating on the back side of the power curve, and an airspeed at which the elevator control can be held full-back with no further loss of control.

31. PLT103 CFI
Hazardous attitudes occur to every pilot to some degree at some time. What are some of these hazardous attitudes?
A) Poor risk management and lack of stress management.
B) Antiauthority, impulsivity, macho, resignation, and invulnerability.
C) Poor situational awareness, snap judgments, and lack of a decision making process.

32. PLT022 CFI
In the aeronautical decision making (ADM) process, what is the first step in neutralizing a hazardous
attitude?
A) Making a rational judgment.
B) Recognizing hazardous thoughts.
C) Recognizing the invulnerability of the situation.

33. PLT232 CFI
All experienced pilots have fallen prey to, or have been tempted by, one or more of these dangerous tendencies or behavior problems at some time in their career. Select the answer that best describes these tendencies.
A) Deficiencies in instrument skills and knowledge of aircraft systems or limitations.
B) Peer pressure, loss of situational awareness, and operating with inadequate fuel reserves.
C) Performance deficiencies due to stress from human factors, such as fatigue, illness, or emotional problems.

34. PLT022 CFI
Risk management, as part of the aeronautical decision making (ADM) process, relies on which features to reduce the risks associated with each flight?
A) Application of stress management and risk element procedures.
B) Situational awareness, problem recognition, and good judgment.
C) The mental process of analyzing all information in a particular situation and making a timely decision on what action to take.

35. PLT194 CFI
Which technique should a student be taught to scan for traffic to the right and left during straight-and-level flight?
A) Continuous sweeping of the windshield from right to left.
B) Concentrate on relative movement detected in the peripheral vision area.
C) Systematically focus on different segments of the sky for short intervals.

36. PLT334 CFI
A rapid acceleration can create the illusion of being in a
A) left turn.
B) noseup attitude.
C) nosedown attitude.

37. PLT320 CFI
The angular difference between true north and magnetic north is
A) magnetic deviation.
B) magnetic variation.
C) compass acceleration error.

38. PLT012 CFI
On a cross-country flight, point A is crossed at 1500 hours and the plan is to reach point B at 1530 hours. Use the following information to determine the indicated airspeed required to reach point B on schedule.
Distance between A and B 70 NM
Forecast wind 310° at 15 kts
Pressure altitude 8,000 ft
Ambient temperature -10 °C
True course 270°
The required indicated airspeed would be approximately
A) 126 knots.
B) 137 knots.
C) 152 knots.

39. PLT012 CFI
(Refer to figure 40.) The line from point A to point B of the wind triangle represents
A) true heading and airspeed.
B) true course and groundspeed.
C) groundspeed and true heading.

40. PLT012 CFI
If a true heading of 135° results in a ground track of 130° and a true airspeed of 135 knots results in a
groundspeed of 140 knots, the wind would be from
A) 019° and 12 knots.
B) 200° and 13 knots.
C) 246° and 13 knots.

41. PLT078 CFI
Information concerning parachute jumping sites may be found in the
A) NOTAM's.
B) Airport/Facility Directory.
C) Graphic Notices and Supplemental Data.

42. PLT508 CFI
If an ATC transponder installed in an aircraft has not been tested, inspected, and found to comply with
regulations within a specified period, what is the limitation on its use?
A) Its use is not permitted.
B) It may be used anywhere except in Class A and B airspace.
C) It may be used for VFR flight but not for IFR flight.

43. PLT052 CFI
What is the correct departure procedure at a noncontrolled airport?
A) The FAA-approved departure procedure for that airport.
B) Make all left turns, except a 45° right turn on the first crosswind leg.
C) Departure in any direction consistent with safety, after crossing the airport boundary.

44. PLT430 CFI
What is the minimum altitude and flight visibility required for aerobatic flight?
A) 1,500 feet AGL and 5 miles.
45. PLT290 CFI
Which in-flight advisory would contain information on severe icing?
A) PIREP.
B) SIGMET.
C) CONVETIVE SIGMET.

46. PLT081 CFI
What is the meaning of MVFR, as used in the categorical outlook portion of an Aviation Area Forecast?
A) A ceiling less than 1,000 feet and/or visibility less than 3 miles.
B) A ceiling less than 1,000 feet and/or visibility less than 1 mile.
C) A ceiling of 1,000 to 3,000 feet and/or visibility of 3 to 5 miles.

47. PLT051 CFI
Regarding Convective Outlook Charts, when well-organized severe thunderstorms are expected, but in small numbers and/or low coverage, the risk is referred to as
A) SLGT.
B) POSSIBLE.
C) MDT.

48. PLT344 CFI
You may anticipate fog when the temperature-dew point spread is
A) 15 °F or less and decreasing.
B) 15 °F or more and increasing.
C) 5 °F or less and decreasing.

49. PLT253 CFI
What effect, if any, does ambient temperature have on propane tank pressure?
A) It has no effect.
B) As temperature decreases, propane tank pressure decreases.
C) As temperature decreases, propane tank pressure increases.

50. PLT473 CFI
One characteristic of nylon rope is that it
A) is flexible.
B) does not stretch.
C) splinters easily.

51. PLT253 CFI
The purpose of the preheating coil as used in hot air balloons is to
A) prevent ice from forming in the fuel lines.
B) warm the fuel tanks for more efficient fuel flow.
C) vaporize the fuel for more efficient burner operation.

52. PLT253 CFI
The best way to determine burner BTU availability is the
A) burner sound.
B) tank quantity.
C) fuel pressure gauge.

53. PLT253 CFI
Why should methanol be added to propane fuel?
A) Helps detect leaks in the fuel system.
B) Helps prevent moisture from forming in the fuel system.
C) Increases pressure and boiling temperature for operations in colder climates.

54. PLT064 CFI
(Refer to figure 46.) What is the height of the Class D airspace over Livermore Airport (area 5)?
A) 2,900 feet MSL.
B) 3,000 feet AGL.
C) Base of the overlying Class B airspace.

55. PLT184 CFI
If you are over a heavily-wooded area with no open fields in the vicinity and have only about 10 minutes of fuel remaining, you should
A) stay low and keep flying in hope that you will find an open field.
B) climb as high as possible to see where the nearest landing field is.
C) land in the trees while you have sufficient fuel for a controlled landing.

56. PLT373 CFI
What should a pilot do if a small hole is seen in the fabric of a balloon during inflation?
A) Continue the inflation and make a mental note of the location of the hole for later repair.
B) Instruct a ground crew member to inspect the hole and, if under 5 inches in length, continue the inflation.
C) Consult the flight manual to determine if the hole is within acceptable damage limits established for the balloon being flown.

57. PLT404 CFI
When must each occupant of an aircraft wear an approved parachute?
A) When flying over water beyond gliding distance to the shore.
B) When practicing spins or other flight maneuvers for any certificate or rating.
C) When an intentional maneuver that exceeds 30° noseup or nosedown relative to the horizon is made.

58. PLT291 CFI
For a brief summary of the location and movement of fronts, pressure systems, and circulation patterns, the pilot should refer to
A) a Radar Summary Chart.
B) an Aviation Area Forecast.
C) a Significant Weather Prognostic Chart.

59. PLT068 CFI
(Refer to figure 14.) Interpret the weather symbol depicted in Utah on the 12 hour Significant Weather Prognostic Chart.
A) Moderate turbulence, surface to 18,000 feet.
B) Thunderstorm tops at 18,000 feet.
C) Base of clear air turbulence, 18,000 feet.

60. PLT470 CFI
Rotor blade flapping action is
A) an undesirable reaction to changes in airspeed and blade angle of attack.
B) an aerodynamic reaction to high speed flight and cannot be controlled by the pilot.
C) a design feature permitting continual changes in the rotor blade angle of attack, compensating for dissymmetry of lift.

61. PLT023 CFI
Under what condition is indicated altitude the same as true altitude?
A) If the altimeter has no mechanical error.
B) When at sea level under standard conditions.
C) When at 18,000 feet MSL with the altimeter set at 29.92.

62. PLT141 CFI
What is the purpose for the runway hold position markings on the taxiway?
A) Identifies area where aircraft are prohibited.
B) Holds aircraft short of the runway.
C) Allows an aircraft permission onto the runway.

63. PLT304 CFI
During a ground launch, how is the airspeed of a glider increased?
A) Raise the nose.
B) Lower the nose.
C) Increase speed of vehicle or winch.

64. PLT257 CFI
When flying into a strong headwind on a long glide back to the airport, the recommended speed to use is the
A) best glide speed.
B) minimum sink speed.
C) best lift/drag speed plus half the estimated windspeed at the glider's flight altitude.

65. PLT012 CFI
How far will an aircraft travel in 3-1/2 minutes if its groundspeed is 55 knots?
A) 3.2 NM.
B) 3.6 NM.
C) 4.2 NM.

66. PLT249 CFI
Fuel/air ratio is the ratio between the
A) volume of fuel and volume of air entering the cylinder.
B) weight of fuel and weight of air entering the cylinder.
C) weight of fuel and weight of air entering the carburetor.

67. PLT253 CFI
The best power mixture is that fuel/air ratio at which
A) cylinder head temperatures are the coolest.
B) the most power can be obtained for any given throttle setting.
C) a given power can be obtained with the highest manifold pressure or throttle setting.

68. PLT478 CFI
Fouling of spark plugs is more apt to occur if the aircraft
A) gains altitude with no mixture adjustment.
B) descends from altitude with no mixture adjustment.
C) throttle is advanced very abruptly.

69. PLT249 CFI
The pilot controls the air/fuel ratio with the
A) throttle.
B) manifold pressure.
C) mixture control.

70. PLT081 CFI
(Refer to figure 5.) What is the valid period for the TAF for KMEM?
A) 1200Z to 1200Z.
B) 1200Z to 1800Z.
C) 1800Z to 1800Z.

71. PLT121 CFI
What constitutes the payload of a balloon?
A) Total gross weight.
B) Total weight of passengers, cargo, and baggage.
C) Weight of the aircraft and equipment.

72. PLT125 CFI
During flight, advancing thrust will
A) increase airspeed.
B) cause the aircraft to climb.
C) cause the aircraft to increase airspeed and climb.

73. PLT253 CFI
A standby source of fuel to an engine in a powered parachute is typically
A) from an electrically powered pump.
B) through gravity feed.
C) from a pressurized fuel tank.

74. PLT190 CFI
Carburetor ice
A) occurs mostly as a function of temperature.
B) can only form when the outside air temperature is near freezing with high relative humidity.
C) is more likely to form when outside air temperatures are below 70 degrees F and relative humidity is above 80%.

75. PLT343 CFI
Air cooled engines dissipate heat
A) through cooling fins on the cylinder and head.
B) by air flowing through the radiator fins.
C) through the cylinder head temperature probe.

76. PLT342 CFI
Coolant in a liquid cooled engine is normally circulated by
A) capillary attraction.
B) an electric pump.
C) an engine driven pump.

77. PLT278 CFI
High EGT on a 2-cycle engine could be caused by
A) high oil temperature and low oil pressure.
B) pre-ignition, detonation or a air intake leak.
C) improper engine operation.

78. PLT343 CFI
2-cycle engine thrust and fuel efficiency can be greatly compromised when
A) exhaust systems are installed that are not specifically tuned for an engine.
B) carbon deposits build up on exhaust valves.
C) intake valves fail to pressurize and provide adequate fuel to the combustion chamber.

79. PLT324 CFI
Many 4-cycle engines utilize what type of lubrication system?
A) Forced.
B) Gravity.
C) Fuel/oil mixture.

80. PLT251 CFI
Adding more oil to the fuel than specified by the manufacturer of a 2-cycle engine will result in
A) increased engine performance.
B) increased carbon buildup and engine fouling.
C) increased engine lubrication and optimal performance.

81. PLT114 CFI
The center of gravity tube is
A) lengthened for heavier pilots.
B) shortened for lighter pilots.
C) lengthened for lighter pilots.

82. PLT119 CFI
Pilots are encouraged to turn on their landing lights when operating below 10,000 feet, day or night, and when operating within
A) Class B airspace.
B) 10 miles of any airport.
C) 5 miles of a controlled airport.

83. PLT280 CFI
An illusion, that the aircraft is at a higher altitude than it actually is, is produced by
A) atmospheric haze.
B) upsloping terrain.
C) downsloping terrain.

84. PLT328 CFI
With respect to using the weight information given in a typical aircraft owner’s manual for computing gross weight, it is important to know that if items have been installed in the aircraft in addition to the original equipment, the
A) allowable useful load is decreased.
B) allowable useful load remains unchanged.
C) maximum allowable gross weight is increased.

85. PLT114 CFI
The crosstube is positioned by
A) a quick release pin.
B) self-locking bolts.
C) restraining cables attached to the rear of the keel.

86. PLT114 CFI
The keel pocket’s purpose is to
A) act as a longitudinal stabilizer, keeping the wing from wandering left and right.
B) act as a roll stabilizer, keeping the wing from wandering left and right.
C) act as a yaw stabilizer, keeping the wing from wandering left and right.

87. PLT470 CFI
Gyroplanes that use small wings will cause rotor drag to do what at higher cruise airspeeds?
A) Increase.
B) Decrease.
C) Remain the same.

88. PLT470 CFI
Rotor torque is a concern in gyroplanes only during
A) prerotation or clutch engagement.
B) maneuvers requiring high rotor rpm.
C) maximum performance climbs and go-arounds requiring higher engine rpm.

89. PLT149 CFI
Which is true concerning taxi procedures in a gyroplane?
A) In ideal conditions, taxi speed should be limited to no faster than a brisk walk.
B) Cyclic stick should be positioned slightly aft of neutral when taxiing.
C) Rotor blades should not be turning when taxiing over a rough surface.

90. PLT222 CFI
In order to maintain level flight (laterally) as airspeed increases on climbout after takeoff in a gyroplane, the pilot will need to increase
A) rudder pressure to the left.
B) cyclic pressure to the right.
C) rudder and cyclic pressure to the left.

91. PLT291 CFI
(Refer to figure 6.) What sky condition and type obstructions to vision are forecast for upper Michigan in the western portions from 0200Z until 0500Z?
A) Ceiling becoming 1,000 feet overcast with visibility 3 to 5 statute miles in mist.
B) Ceiling becoming 1,000 feet overcast with visibility 3 to 5 nautical miles in mist.
C) Ceiling becoming 100 feet overcast with visibility 3 to 5 statute miles in mist.