Pre-Solo Written Test

Student:_____

Date: _____

1. Which preflight action is specifically required of the pilot prior to each flight?
   A. Check the aircraft logbooks for appropriate entries.
   B. Become Familiar with all available information concerning the flight.
   C. Review wake turbulence avoidance procedures.

2. Flight crewmembers are required to keep their shoulder harnesses fastened during:
   A. All flight conditions.
   B. Takeoffs and landings.
   C. Flight in turbulent.

3. Who is responsible for determining if the aircraft is in condition for safe flight?
   A. A certified aircraft mechanic.
   B. The owner or operator.
   C. The pilot in command.

4. If an altimeter setting is not available before flight, to which altitude should the pilot adjust the altimeter?
   A. The elevation of the nearest airport corrected to mean sea level.
   B. The elevation of the departure area.
   C. Pressure altitude corrected for nonstandard temperature.

5. Excessively high engine temperatures will:
   A. Cause damage to heat-conducting hoses and warping of the cylinder cooling fins.
   B. Cause loss of power, excessive oil consumption, and possible permanent engine damage.
   C. Not appreciably affect an aircraft engine.

6. Which instrument will become inoperative if the pitot tube becomes clogged?
   A. Altimeter.
   B. Vertical speed indicator.
   C. Airspeed indicator.

7. When taxiing with strong quartering tailwinds, which aileron positions should be used?
   A. Aileron down on the downwind side.
   B. Ailerons neutral.
   C. Aileron down on the side from which the wind is blowing.

8. Why is the use of a written checklist recommended for preflight inspection and engine start?
   A. To ensure that all necessary items are checked in a logical sequence.
   B. For memorizing the procedures in an orderly sequence.
   C. To instill confidence in the passengers.

9. During straight and level, unaccelerated flight, lift is equal to:
   A. Drag.
   B. Weight.
   C. Thrust.

10. What is the purpose of a rudder on an airplane?
   A. To control yaw.
   B. To control overbanking tendency.
   C. To control roll

11. What force makes an airplane turn?
    A. The horizontal component of lift.
    B. The vertical component of lift.
    C. Centrifugal force.

12. What basic flight maneuver increases the load factor on an airplane as compared to straight and level flight?
    A. Climbs.
    B. Turns.
    C. Stalls.

13. What is the one purpose of wing flaps?
    A. To enable the pilot to make steeper approaches to a landing without increasing the approach speed.
    B. To relieve the pilot of maintaining continuous pressure on the controls.
    C. To decrease wing area to vary the lift.

14. Which color on the airspeed indicator identifies the power-off stalling speed with wing flaps and landing gear in the landing configuration?
    A. Upper limit of the green arc.
    B. Upper limit of the white arc.
    C. Lower limit of the white arc.

15. In what flight position must the airplane be placed in order to spin?
    A. Partially stalled with one wing low.
    B. In a steep diving spiral.
    C. Stalled.

16. During the approach to a stall, an increased load factor will cause the airplane to:
    A. Stall at a higher airspeed.
    B. Have a tendency to spin.
    C. Be more difficult to control.

17. Minimum controllable airspeed is defined as:
    A. The speed at which the wings are no longer capable of supporting the weight of the aircraft.
    B. Any speed below normal cruising range.
    C. The speed at which an additional increase in load factor or angle attack, or a power reduction, will result in a stall.

18. During turns around a point, the maximum angle of bank will be reached:
    A. While flying upwind.
    B. While flying downwind.
    C. While flying crosswind.

19. If an in-flight emergency requires immediate action, a pilot in command may:
    A. Deviate from the FARs to the extent required to meet the emergency, but must submit a written report to the Administrator within 24 hours.
    B. Not deviate from the FARs unless, prior to the deviation, approval is granted by the Administrator.
    C. Deviate from the FARs to the extent required to meet that emergency

20. Except when necessary for takeoff or landing, what is the minimum safe altitude for a pilot to operate an aircraft anywhere?
    A. An altitude allowing, if a power unit fails, and emergency landing without undue hazard to persons or property on the surface.
    B. An altitude of 500 feet above the surface and no closer than 500 feet to any person, vessel, vehicle, or structure
    C. An altitude 500 feet above the highest obstacle within a horizontal radius of 1,000 feet

21. If an aircraft is equipped with a fixed-pitch propeller and a float-type carburetor, the first indication of carburetor ice would most likely be:
    A. A drop in oil temperature and cylinder head temperature.
    B. Engine roughness.

C. Loss of RPM

22. If an aircraft's radio fails, what is the recommended procedure when landing at a controlled airport?
A. Observe the traffic flow, enter the pattern, and look for a signal from the tower.
B. Enter a crosswind leg and rock the wings.
C. Flash the landing lights and cycle the landing gear while circling the airport.

23. A student pilot is required to have a valid student pilot certificate and current medical certificate in his/her personal possession:
A. At all times.
B. When acting as pilot-in-control during solo flight.
C. Only if specifically required by the flight instructor who endorses the student for solo.

24. A third class medical certificate issued on July 1, 2006 to a student under 40 years of age, would expire:
A. July 1, 2008
B. July 31, 2009
C. July 31, 2011

25. In order to conduct a solo flight, a student pilot's logbook must have been endorsed by an authorized flight instructor within the preceding:
A. 14 days.
B. 90 days.
C. 12 months.

26. In the event of a total electrical system failure, which of the following items or systems will become inoperative in the aircraft you currently fly? (check all that apply)
A. Flap extension/retraction system.
B. Attitude indicator.
C. Turn coordinator.
D. Engine Ignition System.
E. Fuel Quantity Indicators.
F. Rotating beacon.
G. Fuel selector.
H. Tachometer.

27. Which aircraft has the right of way over all other aircraft?
A. Balloon
B. An aircraft in distress
C. An aircraft on final approach to land

28. When two or more aircraft are approaching to an airport for the purpose of landing, the right of way belongs to the aircraft:
A. That has the other to it's right
B. That is the least maneuverable
C. At the lower altitude, but it shall not take advantage of this rule to cut in front or overtake another

29. An alternating red and green light signal directed from the control tower to your aircraft in flight is a signal to:
A. Hold your position
B. Exercise extreme caution
C. Do not land; the airport is unsafe

30. Unless otherwise authorized, two-way radio communications with Air Traffic Control are required for landings or takeoffs:
A. At all tower controlled airports regardless of weather conditions
B. At all tower controlled airports only when weather conditions are less than VFR
C. Within class E airspace when weather conditions are less than VFR

31. Which is the correct traffic pattern departure procedure to use at a non-towered airport?

A. Depart in any direction consistent with safety after crossing the airport boundary
B. Make all turns to the left
C. Comply with FAA traffic pattern established for that airport

32. The basic VFR weather minimums for operating in class D airspace are:
A. 500 foot ceiling and one mile visibility
B. 1,000 foot ceiling and three miles visibility
C. Clear of clouds and two miles visibility

33. After landing at a tower-controlled airport, when should the pilot contact ground control?
A. When advised by the tower to do so
B. Prior to turning off the runway
C. After reaching a taxiway leading directly to a parking area

34. The wind condition that requires maximum caution when avoiding wake turbulence is:
A. Light, quartering headwind
B. Light, quartering tailwind
C. Strong headwind

35. The most effective method of scanning for other traffic for collision avoidance during daylight hours is to use:
A. Regularly spaced concentration on the 3, 9, 12 o'clock positions
B. A series of short, regularly spaced eye movements to search each 10 degree sector
C. Peripheral vision by scanning small sectors and utilizing off center viewing

36. Which would provide the greatest gain in altitude in the shortest distance during climb after takeoff.
A. Vy
B. Va
C. Vx

37. Each pilot of an aircraft approaching to land on an airport served by a visual approach slope indicator (VASI) shall:
A. Maintain a three degree glide to the runway
B. Maintain an altitude at or above the glide slope until a lower altitude is necessary for a safe landing
C. Stay high until the runway can be reached in a power-off landing.

38. Which combination of atmospheric conditions will reduce aircraft takeoff and climb performance?
A. Low temperature, low relative humidity, and low density altitude
B. High temperature, low relative humidity, and low density altitude
C. High temperature, high relative humidity, and high density altitude

39. What is ground effect?
A. The result of the interference of the surface of the earth with the airflow patterns about the plane.
B. The result of an alteration in airflow patterns increasing induced drag about the wing of the airplane
C. The result of the disruption of the airflow patterns about the wings of an airplane to the point where the wings no longer support the airplane in flight.

40. What action, if any, is appropriate if the pilot deviates from an ATC instruction (but does not violate the FARS) during an emergency and is given priority?
A. Take no special action, since you are pilot in command
B. File a detailed report within 48 hours to the chief of the appropriate ATC facility, if requested.
C. Call the Flight Standards District Office and file a report with them within 72 hours.

41. A student pilot is NOT required to demonstrate proficiency in which of the following maneuvers or procedures prior to being authorized for solo flight:
A. Control and maneuvers solely by reference to flight instruments
B. Airport traffic patterns, including entry and departure procedures, and collision avoidance and wake turbulence
C. Flight at various airspeeds from cruise to minimum controllable airspeed

42. Regulations prohibit a student from:
    A. Soloing a student at night
    B. Carrying property for compensation or hire
    C. Operating within an Airport Radar Service Area

43. In order for a student pilot to conduct a solo fight, what minimum flight or surface visibility is required by the regulations:
    A. Three statue miles day, Five statute miles at night.
    B. Three statute miles day or night.
    C. On statute mile in controlled airspace; three statute miles in uncontrolled airspace.

44. A student pilot may operate within class B airspace if:
    A. The student pilot announces his/her intentions in advance of the Common Traffic Advisory Frequency for the class B.
    B. The student has received ground and flight training for that class B and his/her logbook has been properly endorsed.
    C. The student maintains altitude below 1,000 feet AGL and remains clear of clouds.

45. Prior to entering class C airspace, a pilot is required to:
    A. Receive a transponder code and be radar identified by the ATC facility having jurisdiction over the class C.
    B. File a flight plan indicating the proposed time of class C penetration.
    C. Establish communication with the ATC facility having jurisdiction over the class C.

The following questions apply to: **1977 Cessna 172 N**

1. What is the total fuel capacity? ____gallons Usable? ____gallons

2. What is the approved fuel grade (s)? _____ Color(s)? _____

3. Where are the fuel drains located? _____ When should they be drained? _____

4. How should the fuel selector valve be positioned when refueling? _____
   Why?_____For takeoff?_____For landing?_____

5. What is the prescribed oil quantity for normal flights of less than three hours? _____
   For extended flights? _____ Minimum for flight? _____

6. What is the proper type of oil for use after engine break-in? _____

7. What is the empty weight? _____ Maximum certified gross weight? _____ Useful load _____
   Payload with full fuel? _____ (Refer to your weight and balance papers.)

8. How much fuel can you carry with a front seat payload of 340lb, rear seat, 300 lb, and 80 lb of baggage?
   _____

9. What is the maximum demonstrated crosswind velocity (takeoff or landing)? _____

10. What is maneuvering speed (Va) at 1,950lb? _____
    What airspeed should be maintained when penetrating turbulent air? _____ Why? _____
    How does Va vary with gross weight? _____

11. What is the recommended airspeed (KIAS) for:

	FLAPS	AIRSPEED
Normal takeoff/climb:	UP	
Normal landing:	UP	
Normal landing	DOWN	
En route climb, sea level:	UP	
Short-field takeoff/climb:	UP	
Short-field landing:	UP	
Short-field landing:	DOWN	

12.List the following airspeeds:

	AIRSPEED
Best rate of climb (V) @ seal level	
Best angle of climb (Vx) @ sea level	
Maximum flab extensions (Vfe)	
Stall speed, clean (Vs)	
Stall Speed, full flaps (Vso)	
Best glide speed	
Maneuvering speed, gross weight (Va)	
Never exceed (Vne)	

13. What is the range in zero wind, @ 65% power at 4,000 feet, standard temperature with 40 gallons usable fuel and 45 minutes reserve? _____

14. What is the hourly fuel consumption (lean mixture) at 4,000 feed pressure altitude, standard temperature and 75% power? _____

15. What is the airspeed for maximum gliding distance? _____KIAS Flap setting? _____

Note: For questions 16, 17, 18 refer to POH Section 3, Emergency Procedures.

16. How do you detect carburetor ice? _____

17. How do you prevent carburetor ice? _____

18. If carburetor ice is suspected in flight, what is the proper procedure?

_____

_____.

19. What is the indication of alternator malfunction?

_____

20. How would you restore electrical power?

_____

21. What would you do if unable to restore the alternator?

_____

22. In the event the vacuum pump failed (no backup systems), what flight instruments would be lost?

_____

23. In the event the electrical system failed, what flight instruments would be lost?

_____

24. Where is the alternate static source (if installed) located? _____

25. What flight instruments would be lost if the static system was plugged up and there was no alternate static source?

_____

26. What is the power setting, fuel consumption, and TAS at maximum gross weight at 8,000 feet, 75% power, standard temperature? RPM _____ Fuel consumption _____ TAS _____

27. What is the procedure for engine failure immediately after takeoff? _____

28. Why is it important to lock the engine primer after use? _____

29. What aircraft documents must be on board during flight? _____

30. List the procedure for a balked landing (go-around).

_____

_____