

Elmendorf Aero Club Aircraft Test

Cessna - 182

For the following questions, you will need to refer to the Pilots Information Manual for the C-182R. The bonus questions at the end of the test are optional. They cannot be used to lower your overall test score. However, they can be used to improve it.

USE ANSWER SHEET "AF FORM 1584C EXAM RECORD"

1. The engine is a Lycoming O-470 and rated at what horsepower?
 - a. 230 hp @ 2400 RPM
 - b. 300 hp @ 2850 RPM (max of 5 minutes)
 - c. Both a and b

2. The fuel capacity is?
 - a. 61 total and 56 usable
 - b. 92 total and 88 usable
 - c. 54 total and 50 usable

3. Recommended fuel grade is 100 LL and the color is?
 - a. Green
 - b. Blue
 - c. Red

4. (True/False) - Alternate fuel grade is 100 and Red in color.

5. (True/False) - The grade of oil for summer and winter is 20W-50 weight.

6. The minimum operating oil level is 9 quarts. What is the maximum sump oil level?
 - a. 9 quarts
 - b. 12 quarts
 - c. 13 quarts

7. (True/False) - The maximum certificated weight for takeoff is 3100 lbs.

8. The maximum combined weight for baggage areas A, B, and C is?
 - a. 150 pounds
 - b. 200 pounds
 - c. Not defined

9. (True/False) – The oil pressure indicator should indicate positive oil pressure within 45 seconds after engine start.
10. The Mag check is accomplished at 1700 RPM. What is the max drop per mag and the max difference between mags?
- 150 RPM max drop; +/- 50 RPM difference between mags
 - 125 RPM max drop; +/- 50 RPM difference between mags
 - 150 RPM max drop; +/- 25 RPM difference between mags
11. The alternator is rated at?
- 50 AMPS
 - 60 AMPS
 - 12 AMPS
12. The over voltage limit is?
- 24 Volts
 - 12 Volts
 - 31.5 Volts
13. The Electrical instruments are?
- Fuel quantity indicators, Oil temp, Cyl head temp
 - CDI, RMI, Turn coordinator, Ammeter
 - All of the above
14. (True/False) - The engine driven instruments are the engine tachometer (RPM), Manifold Pressure, and the Oil pressure gage.
15. If the pitot tube is clogged (or iced over) which of the following instruments will have erroneous readings?
- Airspeed indicator
 - Vertical speed indicator
 - Altimeter
16. If the vacuum pump fails, which instruments will be affected?
- Directional Gyro (DG) and Attitude Indicator (AI)
 - AI only
 - Neither DG or AI
17. (True/False) - Full slips with full flaps are not authorized.
18. Best glide is based on?
- Windmilling propeller, flaps up, zero wind
 - Stopped propeller, flaps up, zero wind
 - Neither a or b

19. The glide ratio for a C-182 is approximately 9:1. This means that, at best glide speed, for every 1000 feet of altitude lost, the distance traveled over the ground is? (assume proper configuration, no wind)
- a. 1 NM
 - b. 1.5 NM
 - c. 2 NM
20. (True/False) - To effect an air start, the ignition key must be turned to the start position.
21. To perform an emergency descent through the clouds, reduce power, trim for 500 to 800 feet per minute rate of descent and 80 KIAS.
- a. Maintain heading with rudder only
 - b. Maintain coordinated flight with a combination of ailerons and rudder
 - c. You can not enter the clouds since this requires an IFR clearance
22. (True/False) - Alternator malfunction can only be detected by the low voltage warning light.
23. During flight, if the static port becomes clogged with ice, which of the following instruments would be affected?
- a. Airspeed indicator only
 - b. Airspeed indicator and the altimeter
 - c. Airspeed indicator, altimeter and vertical speed indicator
24. (True/False) – The wing fuel tanks can be isolated from each other in the event of a catastrophic leak in one tank (fuel cap not secured) by switching the fuel selector to either the left or right tank as applicable
25. (True/False) – The engine does not need to be leaned if cruising below 3000 feet.
26. (True/False) - During ground operations, the engine should be at 1000 RPM minimum.
27. (True/False) - If a total loss of oil pressure is accompanied by a rise in oil temperature, there is good reason to suspect that an engine failure is imminent.
28. The hydroplane speed (9 times the square root of the tire pressure) for the main wheels is?
- a. 55 KIAS
 - b. 58 KIAS
 - c. 52 KIAS
29. The max demonstrated takeoff cross wind limit is?
- a. 15 KIAS
 - b. 12 KIAS
 - c. 20 KIAS

30. (True/False) – Failure of the engine driven fuel pump will be evidenced by a sudden drop in fuel flow prior to a loss of power.
31. (True/False) – After engine start, carb heat may be required to prevent carb ice.
32. (True/False) – During cruise flight with a constant speed prop, always use a manifold pressure setting that is lower than the RPM setting.
33. To lean for recommended lean?
- Lean to 1 GPH lean of the recommended fuel flow in the performance charts
 - Lean to peak EGT, then enrich 2 full turns of the mixture knob
 - Lean to 50 degrees rich of peak EGT
34. To lean for best economy?
- Lean to 50 degrees lean of peak EGT
 - Lean to 25 degrees rich of peak EGT
 - Lean to peak EGT

(For questions 35 & 36). Compute the takeoff distance at maximum gross weight with the following conditions:

Sea level	50' Obstacle
3100 lbs	6 Kt Tail Wind
0 Degrees C	

35. What is the ground Roll?
- 720 feet
 - 936 feet
 - 775 feet
36. To clear 50' obstacle?
- 1775 feet
 - 1365 feet
 - 1465 feet

(For questions 37, 38 & 39). What are the time, fuel, and distance to climb from a P.A of 2000 to a P.A. of 8000 feet? (normal rate of climb)

37. Time?
- 10 minutes
 - 12 minutes
 - 11minutes

38. Fuel?

- a. 6.4 gal
- b. 4.4 gal
- c. 3.5 gal

39. Distance?

- a. 15 nm
- b. 19 nm
- c. 17 nm

(For questions 40, 41, 42, 43 & 44). What is the power setting, fuel consumption, true airspeed, range, and endurance for the following conditions?

65% Power, 6,000' PA, 88gals usable fuel, full fuel with 45 minute reserve, Standard Temperature.

40. RPM/MP?

- a. 2200/20"
- b. 2400/20"
- c. 2300/20"

41. GPH?

- a. 11.6
- b. 11.1
- c. 10.4

42. TAS?

- a. 130
- b. 133
- c. 127

43. Range nm?

- a. 628
- b. 890
- c. 875

44. Endurance hrs?

- a. 4.8
- b. 5.9
- c. 6.9

45. Compute the landing distance (ground roll) for the following conditions.

PA 1000'; 10 degrees C.; Headwind - 9 kts

- a. 540 feet
- b. 600 feet
- c. 660 feet

46. When the fuel selector valve is placed in the shut off position, where is the fuel is shut off?

- a. At the carburetor
- b. At the fuel selector valve
- c. At the firewall

47. (True/False) – When taking off on gravel, it is very important to advance the throttle slowly.

48. Nose gear steering, using the rudder pedals only, will turn the nose wheel 11 degrees either side of center. By applying either left or right brake, the degree of turn may be increased up to?

- a. 29 degrees either side of center
- b. 30 degrees total (15 degrees either side of center)
- c. 20 degrees either side of center

49. (True/False) - The battery is located in the tail cone aft of the baggage compartment.

50. What is the maximum fuel allowed for this Weight/Balance, and is the aircraft within Weight/Balance?

	Weight	Arm	Moment
Licensed Empty Weight	1884.3	36.80	69.348
Pilot and Front Passenger	400	37.00	
Rear Passengers	200	74.00	
Baggage Area A (120 lbs)	75	97.00	
Baggage Area B (80 lbs)	50	116.00	
Baggage Area C (80 lbs)	50	129.00	
Usable Fuel (88 Gals)		48.00	
Total			
Max Takeoff Wt. 3100 Lbs.			

* Max combined weight for baggage area A, B, and C is 200 lbs

** Max combined weight for baggage area B and C is 80 lbs

OPTIONAL BONUS QUESTIONS (NOT IN THE BOOK)

51. If an engine fails in flight you should?
- Lower the nose immediately and trim for best glide
 - Accomplish airstart procedures, find a place to land and then trim to best glide
 - Hold present altitude and accomplish restart procedures while decelerating to best glide
52. The minimum RPM required for takeoff is?
- 2350
 - 2600
 - Not defined
53. During a static engine run (short field takeoff technique), the maximum RPM developed by the engine will be _____ the RPM during the actual takeoff roll.
- Greater than
 - Equal to
 - Less than
54. Maneuvering speed (V_A) is based on gross weight and guarantees that structural damage will not occur at or below this speed because?
- The aircraft will stall before structural damage occurs
 - There is not enough control authority to cause over-G damage
 - Both a and b
55. V_x is the best angle of climb and gives you?
- The most altitude in a given amount of time
 - The most altitude in a given distance
 - Neither a or b above
56. V_y is the best rate of climb and gives you?
- The most altitude in a given amount of time
 - The most altitude in a given distance
 - Neither a or b above

USAF AERO CLUB KNOWLEDGE EXAM RECORD

Name: _____

Date Taken: _____

Type Exam: Standardization Instrument Make & Model C-182 Recurrency
 Pre-Solo Solo Cross Country Other: _____

Raw Score (%): _____

Date Corrected to 100%: _____

I certify all items were thoroughly debriefed and all questions answered

Pilot's Signature					Instructor's Signature						
T	F	(A)	(B)	(C)	(D)	T	F	(A)	(B)	(C)	(D)
1.	(A)	(B)	(C)	(D)		26.	(A)	(B)	(C)	(D)	
2.	(A)	(B)	(C)	(D)		27.	(A)	(B)	(C)	(D)	
3.	(A)	(B)	(C)	(D)		28.	(A)	(B)	(C)	(D)	
4.	(A)	(B)	(C)	(D)		29.	(A)	(B)	(C)	(D)	
5.	(A)	(B)	(C)	(D)		30.	(A)	(B)	(C)	(D)	
6.	(A)	(B)	(C)	(D)		31.	(A)	(B)	(C)	(D)	
7.	(A)	(B)	(C)	(D)		32.	(A)	(B)	(C)	(D)	
8.	(A)	(B)	(C)	(D)		33.	(A)	(B)	(C)	(D)	
9.	(A)	(B)	(C)	(D)		34.	(A)	(B)	(C)	(D)	
10.	(A)	(B)	(C)	(D)		35.	(A)	(B)	(C)	(D)	
11.	(A)	(B)	(C)	(D)		36.	(A)	(B)	(C)	(D)	
12.	(A)	(B)	(C)	(D)		37.	(A)	(B)	(C)	(D)	
13.	(A)	(B)	(C)	(D)		38.	(A)	(B)	(C)	(D)	
14.	(A)	(B)	(C)	(D)		39.	(A)	(B)	(C)	(D)	
15.	(A)	(B)	(C)	(D)		40.	(A)	(B)	(C)	(D)	
16.	(A)	(B)	(C)	(D)		41.	(A)	(B)	(C)	(D)	
17.	(A)	(B)	(C)	(D)		42.	(A)	(B)	(C)	(D)	
18.	(A)	(B)	(C)	(D)		43.	(A)	(B)	(C)	(D)	
19.	(A)	(B)	(C)	(D)		44.	(A)	(B)	(C)	(D)	A/C BONUS QUESTIONS:
20.	(A)	(B)	(C)	(D)		45.	(A)	(B)	(C)	(D)	51.
21.	(A)	(B)	(C)	(D)		46.	(A)	(B)	(C)	(D)	52.
22.	(A)	(B)	(C)	(D)		47.	(A)	(B)	(C)	(D)	53.
23.	(A)	(B)	(C)	(D)		48.	(A)	(B)	(C)	(D)	54.
24.	(A)	(B)	(C)	(D)		49.	(A)	(B)	(C)	(D)	55.
25.	(A)	(B)	(C)	(D)		50.	(A)	(B)	(C)	(D)	56.

C-182 CLOSED BOOK EXAM

Write the Emergency Action Procedures for the following:

Engine Fire During Start

1. **Cranking** – _____ **RPM** – _____ **Engine** – _____

If engine fails to start:

2. **Throttle** – _____
3. **Mixture** – _____
4. **Cranking** – _____
5. **Master and Ignition Switches** – _____
6. **Fuel Selector Valve** – _____
7. **Fire Extinguisher** – _____

Engine Fire In-Flight

1. **Mixture** – _____
2. **Fuel Selector Valve** – _____
3. **Master Switches** – _____
4. **Cabin Heat & Air** – _____
5. **Airspeed** – _____
6. **Forced Landing** – _____

Engine Failure In-Flight (Cruise)

1. **Airspeed** – _____
2. **Carb Heat** – _____
3. **Fuel Selector Valve** – _____
4. **Mixture** – _____
5. **Ignition Switch** – _____
6. **Primer** – _____

Emergency Landing Without Engine Power

1. **Airspeed** – _____ (FLAPS UP); _____ (FLAPS DOWN)
2. **Mixture** – _____
3. **Fuel Selector Valve** – _____
4. **Ignition Switch** – _____
5. **Wing Flaps** – _____
6. **Master Switches** – _____

Fill in all the applicable blanks.

1. V_A _____ Lbs
2. V_A _____ Lbs
3. V_A _____ Lbs
4. V_{FE} _____ (First Extension Increment)
5. V_{LO} _____ Retraction (R/G aircraft only)
6. V_{LO} _____ Extension (R/G aircraft only)
7. B/G _____ (Best Glide - At Max Gross Wt)

NAME: _____

A/C: C-182

DATE: _____