

# Elmendorf Aero Club Aircraft Test

## Cessna - 185

*For the following questions, you will need to refer to the Pilots Information Manual for the C-185F and Graphic Engine Monitor (GEM 610) Pilot's Guide. 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 Continental IO-520 and rated at what horsepower?
  - a. 285 hp @ 2700 RPM
  - b. 300 hp @ 2850 RPM (max of 5 minutes)
  - c. Both a and b
  
2. The fuel capacity is?
  - a. 92 total and 88 usable
  - b. 88 total and 84 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 40 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 3350 lbs.

8. The maximum combined weight for baggage areas 1 and 2 is?
- 150 pounds
  - 170 pounds
  - 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), Fuel Flow/ 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
  - All of the above
16. If the vacuum pump fails, which instruments will be affected?
- HSI (horizontal situation indicator) and ASI (attitude situation indicator)
  - ASI only
  - Neither HSI or ASI

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-185 is approximately 8:1. 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)
- 1 NM
  - 1.3 NM
  - 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 95 KIAS.
- Maintain heading with rudder only
  - Maintain coordinated flight with a combination of ailerons and rudder
  - You cannot 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?
- Airspeed indicator only
  - Airspeed indicator and the altimeter
  - 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 all 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?
- 46 KIAS
  - 58 KIAS
  - 52 KIAS

29. The max demonstrated cross wind limit is?

- a. 20 KIAS
- b. 12 KIAS
- c. 15 KIAS

***For questions 30-34 refer to the Graphic Engine Monitor (GEM 610) Pilot's Guide  
(HINT: The answers are in the highlighted text.....)***

30. The three modes of operation for the GEM 610 are?

- a. Test, Monitor, Lean
- b. Monitor, Normalize, Lean
- c. Test, Normalize, Monitor

31. To enter the GEM 610 Monitor Mode?

- a. Press and hold the Select button for 2 seconds
- b. Press and release the Select and Reset buttons simultaneously
- c. Do nothing. The Monitor mode is the default mode upon power activation

32. To enter the GEM 610 Lean Mode?

- a. Press and hold the Select button for 2 seconds
- b. Press and hold the Reset button for 2 seconds
- c. Press and release the Select and Reset buttons simultaneously

33. In the GEM 610 Lean Mode, to lean for recommended lean (best power setting)?

- a. enrich to a three to four bar drop below peak EGT
- b. Lean to 50 degrees lean of peak EGT
- c. Lean to peak EGT

34. In the GEM 610 Lean Mode, to lean for best economy?

- a. Lean to 50 degrees rich of peak EGT
- b. enrich to a one bar drop below peak EGT
- c. Lean to peak EGT

35. (True/False) – If the engine does not start during the first few attempts, allow sufficient time for the starter motor to cool before another start is attempted.

**(For questions 36 & 37) Compute the takeoff distance at maximum gross weight with the following conditions:**

**Sea level**

**Grass surface**

**0 degrees C.**

**50' obstacle**

**Tailwind – 5 kts**

36. What is the ground Roll?

- a. 740 feet
- b. 1021 feet
- c. 888 feet

37. To clear 50' obstacle?

- a. 1675 feet
- b. 1542 feet
- c. 1773 feet

**(For questions 38, 39 & 40) What are the time, fuel, and distance to climb from a P.A of 2000 to a P.A. of 8000 feet? (maximum rate of climb)**

38. Time?

- a. 10 minutes
- b. 11 minutes
- c. 8 minutes

39. Fuel?

- a. 5.3 gal
- b. 3.3 gal
- c. 2.6 gal

40. Distance?

- a. 15 nm
- b. 12 nm
- c. 17 nm

**(For questions 41 - 45) What is the power setting, fuel consumption, true airspeed, range, and endurance for the following conditions?**

**65% Power, 6,000' PA, 84gals usable fuel, full fuel with 45 minute reserve, Standard Temperature.**

41. RPM/MP?

- a. 2500/23"
- b. 2400/23"
- c. 2400/22"

42. GPH?

- a. 14.9
- b. 13.7
- c. 14.0

43. TAS?

- a. 134
- b. 139
- c. 138

44. Range nm?

- a. 680
- b. 702
- c. 725

45. Endurance hrs?

- a. 3.8
- b. 5.9
- c. 5.2

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

**PA 1000'; 10 degrees C.; Headwind - 5 kts**

- a. 589 feet
- b. 620 feet
- c. 600 feet

47. When the fuel shutoff valve is placed in the shut off position, where is the fuel is shut off?

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

48. (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.
49. (True/False) - During a restart (after a brief shutdown) in hot weather, the Aux Fuel Pump may be required to purge the lines of fuel vapors.
50. What is the maximum fuel allowed for this Weight/Balance?

	Weight	Arm	Moment
Licensed Empty Weight	1898.1	36.70	69.654
Pilot and Front Passenger	450	38.00	
2 <sup>nd</sup> Row Passengers	400	65.00	
3 <sup>rd</sup> Row Passengers (If Installed)		97.00	
Baggage Area 1 (No 3 <sup>rd</sup> Row) (120 lbs)	100	95.00	
Baggage Area 2 (50 lbs)	50	123.00	
Usable Fuel (84 Gal Max)		46.50	
Total			
<b>Max Takeoff Wt. 3350 Lbs.</b>			

## 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-185    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)	<b>A/C BONUS QUESTIONS:</b>
20.	(A)	(B)	(C)	(D)		45.	(A)	(B)	(C)	(D)	<b>51.</b>
21.	(A)	(B)	(C)	(D)		46.	(A)	(B)	(C)	(D)	<b>52.</b>
22.	(A)	(B)	(C)	(D)		47.	(A)	(B)	(C)	(D)	<b>53.</b>
23.	(A)	(B)	(C)	(D)		48.	(A)	(B)	(C)	(D)	<b>54.</b>
24.	(A)	(B)	(C)	(D)		49.	(A)	(B)	(C)	(D)	<b>55.</b>
25.	(A)	(B)	(C)	(D)		50.	(A)	(B)	(C)	(D)	<b>56.</b>

# C-185 CLOSED BOOK EXAM

Write the Emergency Action Procedures for the following:

## Engine Fire During Start

1. **Cranking** – \_\_\_\_\_ **Aux Fuel Pump** – \_\_\_\_\_ **RPM** – \_\_\_\_\_ **Engine** – \_\_\_\_\_

If engine fails to start:

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

## Engine Fire In-Flight

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

## Engine Failure In-Flight (Cruise)

1. **Airspeed** – \_\_\_\_\_
2. **Fuel Shutoff Valve** – \_\_\_\_\_
3. **Fuel Selector Valve** – \_\_\_\_\_
4. **Mixture** – \_\_\_\_\_
5. **Throttle** – \_\_\_\_\_
6. **Primer** – \_\_\_\_\_
7. **Aux Fuel Pump** – \_\_\_\_\_
8. **Ignition Switch** – \_\_\_\_\_

## Emergency Landing Without Engine Power

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

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-185

DATE: \_\_\_\_\_