

Elmendorf Aero Club Aircraft Test

Cessna - 172

For the following questions, you will need to refer to the Pilots Information Manual for the C-172R (180hp). 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 IO-360 and rated at what horsepower?
 - a. 180 hp @ 2500 RPM
 - b. 160 hp @ 2700 RPM
 - c. 180 hp @ 2700 RPM
2. The fuel capacity is?
 - a. 68 total and 62 usable
 - b. 56 total and 53 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 5 quarts. What is the maximum sump oil level?
 - a. 8 quarts
 - b. 9 quarts
 - c. 7 quarts
7. (True/False) - The maximum certificated weight for takeoff is 2550 lbs.
8. The maximum combined weight for baggage areas 1 and 2 is?
 - a. 150 pounds
 - b. 120 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 1800 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 battery is rated at?
- 12 Volts
 - 24 Volts
 - 60 AMPS
13. The over voltage limit is?
- 24 Volts
 - 12 Volts
 - 31.5 Volts
14. The Electrical instruments are?
- Fuel quantity indicators, Fuel Flow, CDI
 - RMI, Turn coordinator, Ammeter, HSI (if equipped)
 - All of the above
15. (True/False) - The engine instruments are the engine tachometer (RPM), EGT, Oil Temp Gage and the Oil pressure gage.
16. If the pitot tube is clogged (or iced over) which of the following instruments will have erroneous readings?
- Airspeed indicator
 - Vertical speed indicator
 - Altimeter
17. If the vacuum system fails, which instruments will be affected?
- Directional Gyro (DG) and Attitude Indicator (AI)
 - AI only
 - Neither DG or AI

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-172 is 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)
- 1 NM
 - 1.5 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 70-80 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 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?
- 55 KIAS
 - 58 KIAS
 - 52 KIAS
29. The max demonstrated cross wind limit is?
- 20 KIAS
 - 12 KIAS
 - 15 KIAS

30. (True/False) - The aircraft cannot be safely landed in cross winds in excess of the maximum demonstrated cross wind limit.
31. (True/False) - The load factor ("G") limits specified in the POH are less than the design load factor.
32. The Low Voltage Annunciator will illuminate when alternator output falls below?
- 28 Volts
 - 31.5 Volts
 - 24.5 Volts
33. (True/False) - Full slips with full flaps are prohibited.
34. To lean to Recommended Lean?
- Lean to 50 degrees rich of Peak EGT
 - Lean until engine runs rough and then enrich 2 full turns of the mixture knob
 - Lean to peak EGT
35. To lean to Best Economy Lean?
- Lean to 50 degrees lean of peak EGT
 - Lean to 50 degrees rich of peak EGT
 - Lean to peak EGT

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

<i>Sea level</i>	<i>0 degrees C</i>
<i>2550 lbs</i>	<i>50' obstacle</i>
<i>Grass surface</i>	<i>6 kt tailwind</i>

36. What is the ground Roll?
- 989 feet
 - 1285 feet
 - 860 feet
37. To clear 50' obstacle?
- 2071 feet
 - 1594 feet
 - 1465 feet

(For questions 38, 39 & 40). What are the time, fuel, and distance to climb from a P.A of 1000 to a P.A. of 7000 feet?

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

39. Fuel?

- a. 2.3 gal
- b. 3.4 gal
- c. 2.2 gal

40. Distance?

- a. 15 nm
- b. 14 nm
- c. 12 nm

(For questions 41,42,43,44 &45). What is the power setting, fuel consumption, true airspeed, range, and endurance for the following conditions?

65% Power, 6,000' PA, 53 gals usable fuel, full fuel with 45 minute reserve, Standard Temperature.

41. RPM?

- a. 2500
- b. 2450
- c. 2470

42. GPH?

- a. 9.6
- b. 9.0
- c. 8.5

43. TAS?

- a. 112
- b. 115
- c. 114

44. Range nm?

- a. 492
- b. 550
- c. 650

45. Endurance hrs?

- a. 4.6
- b. 5.9
- c. 4.9

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

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

- a. 556 feet
- b. 585 feet
- c. 530 feet

47. The Annunciator panel provides caution and warning messages for?
- Fuel quantity and Oil Pressure
 - Low Vacuum and Low Voltage
 - Both A and B
48. Nose gear steering, using the rudder pedals only, will turn the nose wheel 10 degrees either side of center. By applying either left or right brake in conjunction with the rudder pedals, the degree of turn may be increased up to?
- 30 degrees either side of center
 - 30 degrees total (15 degrees either side of center)
 - 20 degrees either side of center
49. (True/False) - Use of alternate air can cause a power loss of up to 10% at full throttle.
50. What is the maximum fuel allowed, and is this aircraft within Weight/Balance?

	Weight	Arm	Moment
Licensed Empty Weight	1715.6	39.93	68.520
Pilot and Front Passenger	400	37.00	
Rear Passengers	200	73.00	
Baggage Area 1 (120 lbs)	75	95.00	
Baggage Area 2 (50 lbs)	0.0	123.00	
Usable Fuel (53 Gals)		48.00	
Zero Fuel Weight			
Total			
Max Takeoff Wt. 2550 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
 - Trim to best glide, find a place to land, and then accomplish engine failure in flight procedures
 - Hold present altitude and accomplish engine failure in flight 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 nor 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 nor b above

USAF AERO CLUB KNOWLEDGE EXAM RECORD

Name: _____

Date Taken: _____

Type Exam: Standardization Instrument Make & Model C-172 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-172 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. **Fuel Shutoff Valve** – _____
6. **Aux Fuel Pump** – _____
7. **Fire Extinguisher** – _____

Engine Fire In-Flight

1. **Mixture** – _____
2. **Fuel Shot Off Valve** – _____
3. **Aux Fuel Pump Switch** – _____
4. **Master Switches** – _____
5. **Cabin Heat & Air** – _____
6. **Airspeed** – _____
7. **Forced Landing** – _____

Engine Failure In-Flight (Cruise)

1. **Airspeed** – _____
2. **Fuel Shutoff Valve** – _____
3. **Fuel Selector Valve** – _____
4. **Aux. Fuel Pump Switch** – _____
5. **Mixture** – _____
6. **Ignition Switch** – _____

Emergency Landing Without Engine Power

1. **Airspeed** – _____ (FLAPS UP); _____ (FLAPS DOWN)
2. **Mixture** – _____
3. **Fuel Shutoff 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-172** _____

DATE: _____