

Elmendorf Aero Club Aircraft Test

Cessna – 172RG

For the following questions, you will need to refer to the Pilots Information Manual for the C-172RG and the Auxiliary Fuel Tanks STC. 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-360 and rated at what horsepower?
 - a. 180 hp @ 2500 RPM
 - b. 160 hp @ 2700 RPM
 - c. 180 hp @ 2700 RPM

2. This aircraft has two main fuel tanks and two auxiliary fuel tanks. Which total fuel capacities are correct?
 - a. 50 mains and 15 auxiliary
 - b. 66 mains and 24 auxiliary
 - c. 72 mains and 30 auxiliary

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

4. (True/False) – The 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 2650 lbs.

8. Since this aircraft has a constant speed propeller, the first indication of carburetor ice is?
 - a. loss of RPM.
 - b. drop in Manifold pressure.
 - c. both a and b.

9. If the engine driven fuel pump fails during takeoff (500'), you should?
 - a. turn on the auxiliary fuel pump.
 - b. switch to the other fuel tank.
 - c. both a and b.

10. (True/False) - The auxiliary fuel pump should be switched on if the fuel pressure drops below 0.5 psi.

11. (True/False) - You should switch to the outboard (auxiliary) tank only after a main fuel tank quantity is completely exhausted in flight.

12. (True/False) - Transferring fuel from the outboard (auxiliary) tanks to the inboard (main) tanks can be done at any time except when landing.

13. The landing gear unsafe indications are?
 - a. no gear light with shutter open
 - b. gear warning horn
 - c. both a and b

14. (True/False) - Landing gear extension and retraction is accomplished by an electrically driven hydraulic power pack.

15. The gear warning horn will activate whenever the gear is not down and locked and?
 - a. flaps are more than 20 degrees extended
 - b. the power is less than 12" MP
 - c. either a or b

16. (True/False) - After takeoff, prior to retracting the landing gear, brakes should be applied to prevent the main tires from rubbing on retraction.

17. (True/False) - A safety (squat) switch prevents inadvertent gear retraction on the ground. The squat switch is located on the left main landing gear

18. (True/False) - Oil for controlling the prop comes from an independent oil reservoir.

19. If all oil is lost, the prop would go toward
- low pitch (high rpm)
 - high pitch (low rpm)
 - feather
20. (True/False) – The oil pressure indicator should indicate positive oil pressure within 45 seconds after engine start. (Assume a warm engine or summertime temps)
21. The alternator is rated at?
- 50 AMPS
 - 60 AMPS
 - 12 AMPS
22. The aircraft electrical system is rated at?
- 12 Volts
 - 28 Volts
 - 60 AMPS
23. The over voltage limit is?
- 24 Volts
 - 12 Volts
 - 31.5 Volts
24. The Electrical instruments are?
- Fuel quantity indicators, Oil temp, CDI, CHT
 - RMI, Turn coordinator, Ammeter
 - All of the above
25. (True/False) - The engine instruments are the engine tachometer (RPM) and the Manifold Pressure, Fuel Pressure, and Oil Pressure gages.
26. Best glide is based on?
- Windmilling propeller, flaps up, zero wind
 - Stopped propeller, flaps up, zero wind
 - Neither a or b
27. 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
28. The initial procedures for a “Go-Around” are?

- a. Carb heat hot, flaps to 20 degrees, full throttle
- b. Full throttle, carb heat cold, flaps to 20 degrees
- c. Full throttle, flaps to 20 degrees, carb heat cold

29. The minimum RPM drop during the carb heat check is?

- a. 150
- b. 100
- c. Not specified

30. The hydroplane speed (9 times the square root of the tire pressure) for the main wheels is?

- a. 76
- b. 70
- c. 65

31. The max demonstrated cross wind limit is?

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

32. To lean using Recommended Lean using EGT?

- a. Lean to 50 degrees rich of peak EGT
- b. Lean to peak RPM then enrich 2 full turns of the mixture knob
- c. Lean to peak RPM

33. To lean for Best Economy using EGT only?

- a. Lean to 50 degrees lean of peak EGT
- b. Lean to 50 degrees rich of peak EGT
- c. Lean to peak EGT

34. (True/False) - The use of full carburetor heat at full throttle will result in an approximate drop of 1" MP

35. (True/False) - The primer places fuel directly into the carburetor

36. (True/False) - The Avionics Power Switch also serves as a circuit breaker for the Avionics Bus

(For questions 37 & 38) Compute the takeoff distance at maximum gross weight with the following conditions:

**Sea level
0 degrees C.**

**50' obstacle
Tailwind – 8 kts**

37. What is the ground Roll?

- a. 835 feet
- b. 1337 feet
- c. 955 feet

38. To clear 50' obstacle?

- a. 2247 feet
- b. 1605 feet
- c. 1400 feet

(For questions 39, 40 & 41) What are the time, fuel, and distance to climb from a P.A of 1000 to a P.A. of 7000 feet?

39. Time?

- a. 10 minutes
- b. 11 minutes
- c. 12 minutes

40. Fuel?

- a. 2.3 gal
- b. 3.4 gal
- c. 2.5 gal

41. Distance?

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

(For questions 42, 43, 44, 45 & 46) What is the power setting, fuel consumption, true airspeed, range, and endurance for the following conditions?

65% Power, 6,000' PA, 62 gals usable fuel, full fuel with 45 minute reserve, Standard Temperature.

42. RPM/MP?

- a. 2300/23"
- b. 2200/23"
- c. 2300/22"

43. GPH?

- a. 9.3
- b. 8.8
- c. 9.0

44. TAS?

- a. 128
- b. 132
- c. 129

45. Range nm?

- a. 511
- b. 772
- c. 650

46. Endurance hrs?

- a. 4.6
- b. 4.1
- c. 6.1

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

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

- a. 600 feet
- b. 635 feet
- c. 543 feet

48. 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

49. (True/False) – During cruise flight with a constant speed prop, always use a manifold pressure setting that is lower than the RPM setting.

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

	Weight	Arm	Moment
Licensed Empty Weight	1730.3	38.69	66.940
Pilot and Front Passenger	390	37.00	
Rear Passengers	310	73.00	
Baggage Area 1 (120 lbs)	75	95.00	
Baggage Area 2 (50 lbs)	0.0	115.00	
Usable Fuel (62 + 23 Gals)		48.00	
Total			
Max Takeoff Wt. 2650 Lbs.			

OPTIONAL BONUS QUESTIONS (NOT IN THE BOOK)

51. Landing gear extension and retraction times are approximately?
- 5 seconds down, 4 seconds up
 - 6 seconds down, 7 seconds up
 - 4-5 seconds for either down or up
52. (True/False) - When the landing gear retracts, a moment change occurs
53. (True/False) - The reason to cycle the prop during the run-up is to provide warm oil into the propeller hub so the governor will maintain speed and not hunt.
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-172RG 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				T	F				
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 R/G 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 Shutoff Valve** – _____
4. **Ignition Switch** – _____
5. **Landing Gear** – _____
6. **Flaps** – _____
7. **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-172RG

DATE: _____