

**Patuxent River Navy Flying Club  
T-41C Mescalero Exam**

**Name:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**Aircraft:** \_\_\_\_\_ **Initial Grade:** \_\_\_\_\_

**Instructor:** \_\_\_\_\_ **Date upgraded to 100%:** \_\_\_\_\_

Print this page then complete the exam using the references listed below. Give the completed exam (hard copy) to a PRNFC CFI for review and correction. After the exam has been reviewed, upgraded to 100% and signed off by the CFI then turn it in to the office to be placed in your training folder. This exam must be completed annually per BUPERSINST 1710.22.

1. The maximum gross takeoff weight is \_\_\_\_\_ pounds in the normal category, and is \_\_\_\_\_ pounds in the utility category.
2. The aircraft is powered by a A carbureted or B fuel injected (circle correct choice) engine.
3. There are \_\_\_\_\_ gallons of useable fuel in all flight conditions, and additional \_\_\_\_\_ gallons in level flight only, for a total of \_\_\_\_\_ gallons of useable fuel.
4. The oil sump capacity is \_\_\_\_\_ quarts. Do not operate the engine with less than \_\_\_\_\_ quarts. The current dipstick reads 2 quarts low, so a full reading shows 8 quarts.
5. There are \_\_\_\_\_ fuel drain valves to check during preflight inspections.
6. The auxiliary pump IS / IS NOT (circle correct choice) used during normal cruise flight.
7. Although our aircraft no longer has the engine-driven fuel pump with an aneroid, if the current fuel pump fails, you may still need to use the auxiliary fuel pump on \_\_\_\_\_ accompanied by \_\_\_\_\_ leaning.
8. The wing flaps are \_\_\_\_\_ operated and can be extended to a maximum of \_\_\_\_\_ degrees.
9. TRUE / FALSE Holding the wing flap switch in the full up or down position for extended periods may cause the flap motor to overheat and the circuit breaker to pop.
10. During normal flight, the voltmeter should indicate \_\_\_\_\_ volts to recharge the \_\_\_\_\_ volt battery.
11. To prime the engine, the auxiliary fuel pump switch should be in the \_\_\_\_\_ position, and the throttle advanced to obtain a fuel flow of \_\_\_\_\_ gallon/hour, then reduced to 1/4 to 1/2 inch.
12. Following engine start, the oil pressure should show a positive indication within \_\_\_\_\_ secs.
13. During ground operations a throttle setting of at least \_\_\_\_\_ RPM should be set, when not in motion, to aid in engine cooling, lubrication and prevention of spark plug fouling.
14. During engine run-up, maximum allowable RPM drop is \_\_\_\_\_ RPM, with a maximum differential between magnetos of \_\_\_\_\_ RPM.
15. For normal take-off, the nose should be raised to the take-off attitude at \_\_\_\_\_ to \_\_\_\_\_ mph.
16. For short field take-offs with an obstacle at the departure end, use \_\_\_\_\_ degrees of flaps and best angle-of-climb speed (Vx) of \_\_\_\_\_ mph.
17. Normal climbs are accomplished with full power and at a constant airspeed of \_\_\_\_\_ mph.

18. According to the flight manual, normal landings are flown with \_\_\_\_\_ degrees of flaps at an airspeed of \_\_\_\_\_ mph. In practice, setting the flaps to 30 degrees and using 75 mph results in landings that are more consistent and helps to avoid pilot-induced pitch oscillations (i.e., porpoising) at touchdown.
19. No-flap landings are flown at an airspeed of \_\_\_\_\_ mph.
20. TRUE / FALSE The aircraft should not be placed in a slip when using more than 30 degrees of flaps.
21. Normal cruise at 64% power, 5,000' altitude, is flown at \_\_\_\_\_ RPM, yielding a true airspeed (TAS) of \_\_\_\_\_ mph and a fuel flow of \_\_\_\_\_ gallons/hour. In practice, a good cruise setting is 2500 RPM with the mixture leaned to show 5-6 gal./hr., depending on altitude (this equates to peak EGT). This fuel flow display is in error and reads about 3 gal./hr. too low, so the actual fuel flow is about 8-9 gal./hr.
22. Assuming full fuel, a 200 lb. pilot and 200 lb passenger, with 200 lbs. baggage in the rear seat, calculate the weight and balance for the aircraft. The following chart shows a common method for weight and balance calculations and can be easily used in a computer spreadsheet program like Microsoft Excel. You can, of course, still use the chart in Figure A1-6 to calculate the moment. The empty weight and moment can also be found in SkyManager by hovering over the tail number in the Online Schedule Page.

Item	Weight (lb)	Arm (in)	Moment (lb-in)
N7869N (empty)	1431.7		52,908.65
Oil	19	-----	-400
Pilot	200	36	
Front Pax	200	36	
Rear Seat	200	70	
Baggage	0	98	
Fuel	46gal → 276lb	47.8	
<b>Total</b>		-----	

23. The loaded aircraft moment is \_\_\_\_\_ lb-in and IS / IS NOT in the allowable envelope.
24. The take-off distance at maximum gross weight, with no wind, at sea level, and at a temperature of 84 deg F is \_\_\_\_\_ ft ground run and \_\_\_\_\_ ft to clear a 50' obstacle.
25. The landing distance at maximum gross weight, with full flaps and no wind, at sea level and at a temperature of 59 deg F is \_\_\_\_\_ ft ground run and \_\_\_\_\_ ft to clear a 50' obstacle.

**EMERGENCY PROCEDURES – CLOSED BOOK**

Complete this portion of the test during review with the CFI.

26. Procedure for Emergency Engine Shutdown on the Ground:

1.
2.
3.
4.

27. Procedure for Engine Fire in Flight:

1.	4.
2.	5.
3.	6.

28. Procedure for an engine failure immediately after takeoff:

1.	4.
2.	5.
3.	6.

29. Procedure for an engine restart in flight:

1.	7.
2.	8.
3.	9.
4.	10.
5.	11.
6.	-----

30. What action should be performed if you suspect an electrical fire in-flight?

**REMEMBER:** use your checklist and follow the manufacturer's operating recommendations found in the Pilot Operating Handbook.

**CAUTION:** The performance numbers given in the aircraft performance charts are based on new aircraft. Consider the age of the aircraft you are flying and give yourself plenty of margin.

**FLY SAFE!**