Aircraft Knowledge Test
For PA28-140

Name: ________________________ Date: / /

Aircraft Performance & Limitations

1. Fuel and oil limitations:
   a. Total fuel capacity __________ Usable fuel ____________
   b. Grade of fuel ______________ Color of fuel ____________
   c. Oil capacity ________ Minimum oil ________
   d. Type & weight of oil approved ____________________________________

2. Aircraft weights and limitations:
   a. Maximum takeoff weight ________
   b. Maximum landing weight ________
   c. Basic empty weight ________
   d. Useful load ________

3. Aircraft performance speeds:

Definition	Speed (KIAS)
V_{SO} --	
V_{S1} -	
V_X -	
V_Y –	
V_{FE} -	
V_A -	

V_{NO} –	
V_{NE} -	
Best Glide – speed for greatest gliding distance, at max weight with wind milling propeller	
Turbulent air penetration speed – speed to use in moderate or worse turbulence	
Maximum demonstrated crosswind	

4. Engine performance and operating limitations:
   a. Maximum continuous power setting: RPM ______
   b. Maximum oil pressure: _______ Minimum oil pressure: ______
   c. Maximum oil temperature: ________
5. Flap limitations:
   a. Flap range approved for takeoff: _______
   b. Flap setting for short-field takeoff: ________
   c. Flap setting for soft-field takeoff: ________
   d. Airspeed limitations for various flap settings:

      ____

Emergency Procedures

6. What is the emergency procedure for engine loss during cruise flight (including initial response, field selection, troubleshooting, communication, and forced landing)?

   ____
   ____
   ____
   ____
   ____
   ____
   ____

7. What are the possible causes and corrective actions for a rough running engine or partial loss of power?

8. How is the alternator checked during the engine run-up before takeoff?

9. What are the corrective actions taken when there is an excessive rate of charge on the ammeter?

10. What action should the pilot take if the low-voltage light illuminated indicating a discharge?

11. What action should the pilot take in the event of an engine fire during engine start?

12. What action should the pilot take in the event of an engine fire during flight?

13. List the airspeeds and power settings for the following operations:

Operation	Airspeed (KIAS)	Power Setting (RPM)
Rotation		
Initial Climb		
Normal Climb		
Normal Cruise		
Approach (full flaps)		
Approach (no flaps)		
Short-field approach		
Go-around		

14. What is the procedure for a balked landing (go-around), including initial response, communication and other traffic?

____

____

____

15. What is the starting procedure for this aircraft (first start of the day)?

____

____

16. What is the worm start procedure for this aircraft?

____

____

17. What are the procedures for the management of aircraft fuel system?

____

____

Performance and Weight & Balance charts

18. Given the following conditions: Field elevation; sea-level wind; calm, Temp; ISA Aircraft weight; Max takeoff
    a. Takeoff Roll: ________________ Landing Roll:__________________
    b. Horizontal distance to clear a 50-foot obstacle on T/O: _____________ Landing:_____________

19. What is this aircraft's maximum endurance and range at 5000 ft, 65 % power and a 45 min reserve? ____

20. Center of Gravity ranges:
    a. Maximum Forward CG:_______________
    b. Maximum Aft CG:_______________

21. What are the characteristics of an aircraft with the CG too far forward?

____

____

22. What are the characteristics of an aircraft with the CG too far Aft?

____

____

23. What are the baggage compartment loading limitations for this aircraft?

____.

24. Calculate the Weight & Balance for this aircraft with the following conditions: Yourself, a190-lb passenger, 50 lbs of baggage and full fuel.

	Weight	**Moment**
Basic Empty Weight		
Pilot & front passenger		
Rear passenger		
Baggage area 1		
Baggage area 2		
Useable fuel		
Ramp Weight and Moment		
Used for start-up, Taxi & Run-up		
Takeoff Weight & Moment		

Corrected and Reviewed

Pilot's signature: ___________________________

N.S.A flight instructor signature: _________________________ Date: __________