Hanscom Flight Training Center
PA28R-201 Arrow III Written Test

1. The speeds for V_x (gear retracted), V_y (gear retracted) are:
   (A) 72, 78
   (B) 85, 96
   (C) 78, 90
   (D) 72, 78

2. The liftoff speed for a short-field takeoff (using flaps) varies with _____, and ranges in speed from _____ to _____.
   (A) weight, temperature and pressure altitude; 51 to 59 KIAS
   (B) weight; 51 to 59 KIAS
   (C) density altitude. Weight and wind; 51 to 59 KIAS
   (D) OAT, pressure altitude, weight and wind; 65 to 75 KIAS

3. The short-field approach speed for a 2600lb aircraft, over a 50-foot obstacle where, PA is 1000 feet, and OAT is 50° F, is:
   (A) 65 KIAS
   (B) 67 KIAS
   (C) 70 KIAS
   (D) 79 KIAS

4. Normal rotation speed is _____ depending on weight.:
   (A) 65 to 75 KIAS
   (B) 60 to 70 KIAS
   (C) 70 to 80 KIAS
   (D) 75 to 80 KIAS

5. Regardless of the acceptable range of the rotation speeds, under normal conditions the best speed for take-off is _____. Trying to pull the aircraft off the ground at too low an airspeed _____.
   (A) 70; decreases controllability should there be an engine failure
   (B) 65; increases the likelihood of an inability to climb immediately after becoming airborne
   (C) 70; increases the likelihood of obstructing forward visibility due to a high angle of attack
   (D) 75; decreases controllability should there be an engine failure

6. Using Question #3 conditions, the takeoff distance with a 15 knot headwind is:
   (A) 2020 ft.
   (B) 1530 ft.
   (C) 1710 ft.
   (D) 1200 ft.

7. Performance Cruise TAS at 65 percent power and 8,000 ft. standard day condition is:
   (A) 130 KIAS
   (B) 136 KIAS
   (C) 140 KIAS
   (D) 142 KIAS

8. If you are turning base with flaps up at a 30° bank angle at max gross weight, in level flight, the airplane will stall at:
   (A) 58 KIAS
   (B) 60 KIAS
   (C) 62 KIAS
   (D) 65 KIAS

9. Using the following information, determine if the aircraft is loaded within its weight/CG envelope.
   Basic Empty Weight: 1800 pounds
   CG Arm: 85 inches
   Pilot/Front Passenger: 440 pounds
   Rear Passenger: 15 pounds
   Fuel: 72 gallons
   Baggage: empty
   (A) the aircraft is loaded within the weight/CG envelope
   (B) the aircraft is loaded beyond maximum weight
   (C) the aircraft is loaded within weight limits, CG is at the forward limit
   (D) the aircraft is loaded within weight limits, CG is out of limits

10. The landing gear retraction/extension system is powered by _____, and the gear is held in retracted position by _____:
    (A) an electric motor; mechanical up locks
    (B) a flux capacitor; electromagnets
    (C) an electrically-driven hydraulic pump; hydraulic pressure.

11. If the Hanscom Aero Club Arrows are slowed to 65 kts. or slower with 14” of manifold pressure the landing gear will be:
    (A) automatically extended unless the gear override is activated
    (B) unaffected
    (C) automatically extended regardless of whether the gear override is activated
    (D) both A and C

12. If the landing gear does not check down and locked, reduce airspeed to below _____. Move the landing gear selector to the DOWN position.
    (A) 129 KIAS
    (B) 105 KAIS
    (C) 87 KAIS

13. When using low power settings, or following an engine failure, the automatic gear extension override should be engaged before slowing to _____ in order to avoid unwanted gear extension.
    (A) 105 KIAS
    (B) 100 KIAS
    (C) 95 KIAS
    (D) Hanscom Flight Training Center Arrows have had the automatic gear extension system disabled

14. The “Gear Unsafe” warning light and horn will activate when:
    (A) the landing gear is up, and the power setting is less than 14” MP
    (B) the landing gear is automatically extended and the landing gear selector is still in the UP position
    (C) both A and B

15. Priming and starting the engine when cold, is accomplished by:
    (A) by depressing the primer plunger 3-5 times, ensuring it is locked, moving the mixture to full rich and engaging the starter
    (B) by cycling the throttle from idle to full 2-3 times, moving the mixture to full rich and engaging the throttle
    (C) by opening the throttle to full open, fuel pump on, retard the throttle to idle after the peak fuel flow is noted
    (D) setting the throttle full open, fuel pump off, moving the mixture to idle cutoff and engaging the starter

16. If you do not get three green lights when gear down is selected, the first things you should check are:
    (A) the master switch is on
    (B) the panel lights are in the “OFF” position during daytime operation
    (C) the strobe lights and beacon are off
    (D) the circuit breaker is set in the proper position
    (E) A, B, or D

17. When alternate air is selected, the engine is using:
    (A) unfiltered, heated air
    (B) unfiltered, ambient air
    (C) filtered, heated air
    (D) filtered, ambient air

18. True or false, if the primary induction air source becomes blocked, the alternate path will open automatically.
    (A) true
    (B) false

19. In the event of a complete electrical failure, you must remember to:
    (A) expect magnetos to operate for short duration on battery power
    (B) squawk 7600
    (C) extend the gear using the emergency procedure because the hydraulic pump will be inoperative
    (D) all of the above

20. The Arrow's constant-speed propeller is operated by oil pressure. If oil pressure is lost, the propeller blades will move to the _____ position, possibly causing _____.
    (A) full high pitch; an engine stall
    (B) full low pitch; a prop over speed
    (C) full high pitch; a prop over speed
    (D) full low pitch; partial power loss

21. During a power-off landing following an engine failure, the prop control should be placed in the:
    (A) full DECREASE / low RPM position
    (B) full DECREASE / high RPM position
    (C) full INCREASE / high RPM position

22. In a forward slip to a landing, caution should be taken because _____.
    (A) abrupt nose low attitudes will occur when extreme cross control is applied
    (B) fuel flow interruption may occur
    (C) uncovering of the fuel outlets is possible
    (D) answers B and C

23. The turning arc of the nose wheel is _____, the strut extension is _____ and the tire pressure should be _____.
    (A) 20°, 3.25"+/- .25', 30 psi
    (B) 15°, 2.75"+/- .25", 27 psi
    (C) 30°, 2.75"+/- .25", 27 psi
    (D) 10°, 2.75"+/- .25', 24 psi

24. The main gear strut extension is _____ and the tire pressure should be _____.
    (A) 3.25"+/- .25", 30 psi
    (B) 2.75"+/- .25", 27 psi
    (C) 2.5"+/- .25", 30 psi
    (D) 2.75"+/- .25", 24 psi

25. The battery is located _____.
    (A) in the engine compartment on the right side of the upper firewall
    (B) under the left rear passenger seat
    (C) behind the baggage compartment

26. Lean the engine for best power by retarding the mixture control lever:
    (A) until the engine becomes rough, then advance it until it becomes smooth again
    (B) 2 inches
    (C) to 100°F rich of peak EGT
    (D) to peak EGT

27. The maximum capacity for the baggage compartment is _____ and caution should be taken to account for the weight in weight and balance calculations.
    (A) 100 pounds
    (B) 200 pounds
    (C) 300 pounds
    (D) 400 pounds

28. The pitot and static drains located _____. The static port located _____.
    (A) lower left firewall; under the instrument panel on the right side
    (B) lower left cowling; under the instrument panel on the right side
    (C) under the instrument panel on the right side; lower left cowling
    (D) lower left sidewall of the cockpit; on each side of the aft fuselage

29. If the altimeter becomes unreliable, what should be done in flight?
    (A) enable the alternate static source
    (B) tap on the glass case of the altimeter
    (C) clean the static port
    (D) break the glass on the altimeter

30. At 4000 feet pressure altitude with an OAT of 15°C, what is the manifold pressure associated with 75% power?
    (A) 24.4”
    (B) 24.56”
    (C) 24.7”
    (D) full throttle

31. Climbing from a 2000 ft. airport to 8500 feet MSL on a standard day under the following conditions requires _____ gallons, _____ minutes, and _____ NM?
    Wind: average 30kts. headwind
    Power setting: full throttle
    Mixture setting: full rich
    Gear and flaps: up
    Airspeed: V_y

Loading: max gross weight
(A) 5, 13, 23
(B) 5, 13, 23
(C) 4, 11, 18
(D) 4, 11, 12

32. From question 31, once reaching 8500 feet MSL on a standard day, which of the following power settings should produce approximately 65% power?
(A) 18.7" MP, 2400 RPM
(B) 25.0" MP, 2500 RPM
(C) 20.9' MP, 2400 RPM
(D) the aircraft is incapable of producing 65% power at 8500 feet PA

33. At 8500 feet MSL on a standard day, in cruise flight with the power setting for 65% power from question 32, and the mixture leaned to peak EGT, what is your True Airspeed?
(A) 121 KTAS
(B) 125 KTAS
(C) 129 KTAS
(D) 132 KTAS

34. 34. At 8500 feet MSL on a standard day (temp of negative 2°C), in cruise flight at a TAS of 140 KTAS, what should your airspeed indicator read?
(A) 140 KTAS
(B) 132 KTAS
(C) 128 KTAS
(D) 124 KTAS

Closed book portion of exam must be completed on the back of the ***HQ AFSVA FORM 1584c AP97 (test) answer sheet.***

Annual Reviews

Date _____ (CFI) _____

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