

C-182Q OPEN BOOK EXAM

USAFA Aero Club

12 March 2021

Name _____ Date _____ Score _____

1. What is the total fuel capacity with long range tanks, how much fuel is unusable in each tank? (2-8)

- a. 80 / 2.5
- b. 75 / 2.5
- c. 61 / 3
- d. 56 / 4

2. What is the engine oil SUMP capacity with oil filter? _____ (1-4)

3. Minimum oil quantity for flight of less than 3hrs? _____ (1-4)

4. What are the following airspeed limits (2-4, 3-3, 3-9, 4-3, 5-3, 5-11)?

Vne _____

Vno _____

Va _____

Vfe _____

Vx _____

Vy _____

Vs _____

Vso _____

Best Glide _____

5. Engine Fire during start (engine fails to start) (3-5)

- a. _____
- b. _____
- c. _____
- d. _____

Secure Engine

1. _____
2. _____
3. _____

6. Spins are not an approved maneuver (3-13)

True

False

7. Emergency actions for an electrical fire in-flight? (3-6)

- a. _____
- b. _____
- c. _____
- d. _____

8. If erroneous readings of the static source instruments are suspected, what corrective action can you take? (3-8)

- a. Turn on the pitot heat
- b. Open the cockpit window to stabilize the air pressure
- c. Switch to the alternate static source
- d. Fly out of the turbulent air conditions

9. Failure of the vacuum pump will cause which instruments to fail? (3-11)

- a. Heading & Altimeter
- b. Heading & Attitude
- c. Vertical Speed & Altimeter
- d. Airspeed & Altimeter

10. What are your emergency actions if the ammeter shows a discharge? (3-8)

- a. _____
- b. _____
- c. _____

11. During flight you get an Over-Voltage warning light, what are your emergency actions? (3-8)

- a. _____
- b. _____
- c. _____
- d. _____
- e. _____
- f. _____

12. What RPM is use during run-up for the magneto check. _____ (4-7)

13. Minimum RPM for takeoff with full throttle _____ (4-7)

14. What are the maximum demonstrated crosswind limits for takeoff and landing?

Takeoff _____; Landing _____ (4-3)

15. What flap setting and airspeed is used for a **short** field takeoff until obstacles are cleared?

_____ (4-8, 5-12)

16. What flap setting and airspeed is used for a **soft** field takeoff until obstacles are cleared?

_____ (4-14)

17. What flap setting and airspeed is used for a **short** field landing?

_____ (4-18)

18. During a full flap landing a go-around must be executed, what flap setting do you use, and initial airspeed? _____ Retract flaps to _____ (4-10)

19. Cruise power is in the range of _____ power. (4-15)

20. During very cold weather operations, if there is no oil temperature indication after 2-5-minute Warm-up at 1000rpm, what is an acceptable engine indication that the engine is ready for takeoff.

a. _____ (4-20)

The following data is used for the performance questions.

Cessna182Q empty weight 1808.45, CG 38.85, moment 70259.41 (given)

Pilot - 170lbs, Front seat Pax 150lbs, (320lbs), Arm - 37", mom 11840 (standard seating Configuration) (6-8, 6-10)

Fuel – 75gals, 450lbs, Arm 46", moment – 20700 (6-8/10)

Baggage area A 75lbs, arm 97", moment – 7275 (6-8/10)

21. What is the gross weight and Center of Gravity _____? (6-8, 6-10, 6-11)

Enroute flight data

Departure airport KXXX 6000' 20°C,

Cruise altitude 10,000', Cruise power 2200rpm, 19"mp, standard temperature

Destination KYYY 3000' 20°C

22. Include the engine start, taxi and takeoff allowance; calculate the time, fuel and distance to climb to 10,000' at 90K at standard temperature. (5-16)

a. Start, taxi, takeoff _____

b. Time to climb _____

c. Distance to climb _____

23. calculate the fuel required for a 3hr flight (5-21)

a. fuel burn (gallons used) _____

b. reserve fuel per aero club requirements _____

c. total required fuel _____

24. Takeoff distance; Ground roll _____, To clear a 50' obstacle _____ (5-13)

25. Landing distance; To clear a 50' obstacle, _____ Ground roll _____ (5-27)

26. During Descent the cowl flaps should be? (4-9)

a. open

b. closed

27. What is the purpose of the cowl flaps? (4-13)

28. A rough running engine and loss of manifold pressure may result due to? (3-13/14)

29. Explain what is manifold pressure. (7-17)

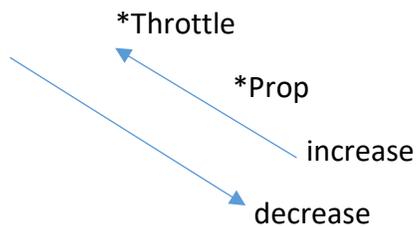
30. Prop control uses engine boosted oil pressure to the governor to change the blade angle, high RPM-
Low blade angle, or Low RPM-high blade angle. The governor will maintain engine speed-RPM
once the throttle-manifold pressure is set.

To avoid high stresses on the engine the combination of low RPM and HIGH MANIFOLD PRESSURE
should be avoided.

The sequence of changing power;

Increasing power; prop, throttle

Decreasing power; throttle, prop



Assuming that you read the paragraph on propeller (7-21) if the engine fails and the prop governor
oil pressure decreases what will the blade angle be?

- a. low blade angle
- b. High blade angle