C-182Q OPEN BOOK EXAM

USAFA Aero Club

September 2022

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 used 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. Total Fuel to climb _____
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)

_____

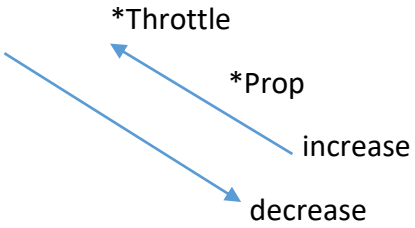
30. Prop control uses engine boosted oil pressure to the governor to change the blade angle, high RPM-Low blade angle, or Low RPM-high blade angle. The governor will maintain engine speed-RPM once the throttle-manifold pressure is set.

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