

**Piper Seneca**

**Normal Procedures Test**

**Rocky Mountain Flight Center**



*Please do not mark on booklet*

1. List the following airspeeds assuming max gross takeoff weight.
  - a)  $V_{yse}$
  - b)  $V_y$
  - c)  $V_{mc}$
2. What is the maximum gross take-off weight of the Seneca?
  - a) 4200 lbs
  - b) 4000 lbs
  - c) 4030 lbs
  - d) 4500 lbs
3. What is the total horsepower available for the Seneca?
  - a) 200
  - b) 400
  - c) 375
  - d) 500
4. The cowl flaps have an intermediate position between open and closed.
  - a) true
  - b) false
5. The fuel injection system operates on which principle? The amount of fuel delivered to the engine is determined by:
  - a) The carburetor butterfly position
  - b) The alternate air position
  - c) The position of a mechanical link between throttle and electric fuel pump
  - d) Measuring engine air consumption and using air flow to control fuel flow
6. Is the Seneca less susceptible to carburetor icing due to the fuel injection system?
  - a) Yes (However, you should not fly into known icing conditions)
  - b) No (If icing occurs, you should apply carburetor icing)
7. Why does the Seneca not experience a "critical engine" factor when flying with an engine out?
  - a) Both propellers rotate counter clockwise as seen from the cockpit
  - b) Both propellers rotate clockwise as seen from the cockpit
  - c) It has counter-rotating propellers
  - d) It has asymmetric thrust

8. If one or two green landing gear lights do not illuminate when the gear handle is down, this could indicate that one or more of the following conditions may exist:
- a) The gear is not locked down
  - b) The bulb is burned out
  - c) There is a malfunction in the indicating system
  - d) All Choices
9. A micro switch in the throttle quadrant activates a warning horn under the following conditions:
- a) Gear Up – manifold pressure reduced below 14" on either or both engines
  - b) Gear Up – manifold pressure reduced below 14" on the right engine only
  - c) Gear selector switch in the "UP" position when the aircraft is on the ground
  - d) A and C above
10. How many fuel tanks and fuel drains are in the airplane?
- a) 4 tanks – 8 drains
  - b) 2 tanks – 8 drains
  - c) 2 tanks – 4 drains
  - d) 4 tanks – 4 drains
11. What is the total fuel capacity
- a) 100 gallons
  - b) 98 gallons
  - c) 95 gallons
  - d) 90 gallons
12. How many gallons of unusable fuel does the Seneca have per side?
- a) 5 gallons
  - b) 3 gallons
  - c) 2.5 gallons
  - d) 1.5 gallons
13. A reading of 60 amps of either ammeter is:
- a) Normal
  - b) OK if it is on one ammeter
  - c) Excessive and electrical load should be reduced
  - d) Excessive and master switch should be turned off

14. A vacuum suction indication of less than 4.5" of mercury indicates:
- a) Normal operation for all conditions
  - b) Low air flow through the gyro instruments with possibly inaccurate readings
  - c) Is not a problem because the second pump's pressure is not indicated on the gage
  - d) Is normal for high RPM engine operation
15. Including the alternate static air, how many static sources are there in the Seneca?
- a) 1
  - b) 2
  - c) 3
  - d) 4
16. Our Seneca is not qualified to fly into known icing conditions because it is not equipped with anti-icing fuel tank vents. However, in the event you inadvertently encounter icing, our aircraft is equipped with the other anti-icing and deicing equipment listed in the Seneca manual, which includes which of the following?
- a) Electric windshield panel
  - b) Electro-thermal propeller deicer pads
  - c) Pneumatic wing leading edge deicer boots
  - d) All the above
17. What is the maximum baggage weight allowed in the forward compartment, weight and balance permitting?
- a) 20 lbs
  - b) 50 lbs
  - c) 100 lbs
  - d) 150 lbs
18. The inboard stall warning device will operate when close to the critical angle of attack and the aircraft is configured with:
- a) 50 degrees or 40 degrees of flap
  - b) 0 degrees or 10 degrees of flap
  - c) 10 degrees or 25 degrees of flap
  - d) 0 degrees or 40 degrees of flap

19. On the RPM gages, there is both a red arc which designate an RPM range that should not be used for continuous operation due to engine vibration, and a red line that identifies the max RPM. These RPM gage markings are at:

(Reference written change in Seneca Manual and Supplement at end of Manual)

Red Arc

Red Line

- |                                      |                    |
|--------------------------------------|--------------------|
| a) 1800-2500 RPM (no continuous ops) | and 2500 RPM (max) |
| b) 2000-2350 RPM (no continuous ops) | and 2600 RPM (max) |
| c) 2200-2400 RPM (no continuous ops) | and 2700 RPM (max) |
| d) 1500-1900 RPM (no continuous ops) | and 2800 RPM (max) |

20. List the following airspeeds assuming max gross takeoff weight

- Max landing gear extension and extended speed
- Max landing gear retraction speed

21. What is the demonstrated crosswind component?

- 17 mph
- 18 mph
- 15 mph
- 12 mph

22. Cowl flaps are provided to allow manual control of engine temperature. The cowl flaps should be open during ground operations in climbs. In no case should the cylinder head temperature be allowed to exceed \_\_\_\_\_ and the oil temperature to exceed \_\_\_\_\_.

- |                |             |
|----------------|-------------|
| a) 475 degrees | 300 degrees |
| b) 450 degrees | 245 degrees |
| c) 475 degrees | 245 degrees |
| d) 245 degrees | 475 degrees |

23. The engine can be feathered at any RPM.

- True
- False

24. During single engine operation in level flight, to burn fuel from the dead engine's tank, accomplish the following:

- Fuel selector, operating engine-X-feed, Fuel selector, inop engine-Off, Fuel pumps-Off
- Fuel selector, operating engine-X-feed, Fuel selector, inop engine-X-Feed, Fuel pumps-On
- Fuel selector, operating engine-Off, Fuel selector, inop engine-X-Feed, Fuel pumps-On

25. If one of the Seneca's engines fails during the takeoff roll, what calibrated airspeed is needed in order to continue takeoff?

- a) 80 mph
- b) 90 mph
- c) 100 mph
- d) 105 mph

26. Calculate the CG for the Seneca assuming the following conditions:

	Weight (LBS)	Moment (IN)
Basic empty weight	2956.3	250002.7
Pilot & front seat passenger	350	
Middle seat passengers	220	
Rear seat passengers	0	
Nose section baggage	100	
No rear baggage	0	
Full fuel (93 gal usable)	558	

What is the CG for this load and is it in or out of CG limits?

- a) 80.1                      Out of CG
- b) 84.3                      Within CG
- c) 86.1                      Out of CG
- d) 94.0                      Within CG

27. Electric fuel pumps should be off during a hot start

- a) True
- b) False

28. If an external power source is used for engine start, the Master Switch should be in the \_\_\_\_\_ position during connection and removal of either jumper leads or an external power source plug.

- a) On
- b) Off

29. One fuel selector may be in the cross-feed on takeoff provided:

- a) The side you cross-feed is full
- b) The other fuel selector is in the ON position
- c) There is no provision for takeoff on cross-feed
- d) Both a & b

30. On engine run-up during the propeller governor check, the governor should first be exercised with prop control reductions that produce 200 – 300 RPM drops. Then the governor can be checked by which of the following:
- It was already checked by exercising the 200 – 300 RPM drops using the prop control
  - Retard the prop control 100 – 200 RPM and then increase the throttle to get a slight manifold pressure increase without increasing RPM.
  - Turning off the master switch and looking for a small RPM drop
  - You cannot check the governor
31. The danger of performing a short field takeoff using the 25 degree of flap procedure is that you rotate below Vmc.
- True
  - False
32. Takeoff rotation speed for the Seneca on normal takeoffs with flaps up is:
- 80 – 85 mph
  - 70 – 80 mph
  - 90 – 100 mph
  - 65 – 75 mph
33. Vfe is placarded at 125, however, Chapter 6 of the Seneca manual lists the following maximum speeds for each individual flap setting:
- | <u>Flap Setting</u> | <u>10 degrees</u>                                | <u>25 degrees</u> | <u>40 degrees</u> |
|---------------------|--|-------------------|-------------------|
| a)                  | 125 mph  | 125 mph           | 125 mph           |
| b)                  | 160 mph  | 140 mph           | 125 mph           |
| c)                  | 150 mph  | 150 mph           | 125 mph           |
| d)                  | Cannot find it listed in Chapter 6 of the manual |                   |                   |
34. For short field approaches, the aircraft should be configured:
- Full flaps at 87 mph
  - No flaps at 87 mph
  - 25 degrees flaps at 90 mph
  - Both a & b

35. Calculate the takeoff ground run for the Seneca for a short field takeoff effort with full power prior to brake release at 25 degrees of flaps.

Weight	3800 lbs
Pressure Altitude	6200 ft
Temperature	Standard
Headwind	5 kts

- a) 2100 ft
  - b) 1500 ft
  - c) 750 ft
  - d) 1100 ft
36. With a temperature of 80 degree Fahrenheit, at 3800 lbs and a 10 kt headwind, what distance would be required to accelerate to 80 knots (Vmc) and then stop the Seneca at 6200 feet pressure altitude (Accelerate-Stop distance)?
- a) 3150 ft
  - b) 3000 ft
  - c) 2600 ft
  - d) 1750 ft
37. Calculate the single-engine climb rate and speed for the aircraft with a weight of 3800 lbs and a density altitude of 3500 ft.
- |            |         |
|------------|---------|
| a) 100 fpm | 90 mph  |
| b) 200 fpm | 95 mph  |
| c) 175 fpm | 103 mph |
| d) 300 fpm | 120 mph |
38. At 4200 lbs gross weight, 98 gallons total fuel, 2400 rpm, best economy setting, gear up, what is the approximate GPH (gallons per hour) fuel flow at 65% power?
- a) 16.2
  - b) 20.6
  - c) 18.3
  - d) 17.2

39. Calculate the landing distance required for the Seneca under the following conditions:

Runway	No obstacle, paved, dry conditions
Flaps	Full
Weight	3800 lbs
Temperature	65 degrees Fahrenheit
Pressure Altitude	6000 ft
Wind	Calm

- a) 600 ft
  - b) 650 ft
  - c) 700 ft
  - d) 850 ft
40. Do the Flight Training Center's Standard Operating Procedures (SOP) permit you to fly the Seneca in the mountains?
- a) Yes
  - b) No