

**CFI PRETEST
INITIAL MULTIENGINE**

STUDENT NAME: David Leahy

**This is an open book test. Completion is required before attending CFI training.
References are not required, unless otherwise specified.**

I. Areas of Operation: Fundamentals of Instruction. Tasks A - G

1. Define learning. *Learning is the change in behavior as a result of experience. This behavior can be physical and/or overt or it may not be easily seen*
2. List the six principles of learning and an example of each.
 - a. *Desire to learn*
 - b. *Patterns to follow - a step by step example. A clear impression of what the student does is important*
 - c. *Performing the skill - so coordination develops; Verbal instruction mean more*
 - d. *Knowledge of the results - Do not allow practice mistakes*
 - e. *Learning Plateau*
 - f. *Duration/Organization of a lesson - Don't Practice too much, organize in blocks*
3. List the four levels of learning and provide an example of each using Vx as your model.
 - a. *Rate - The lowest level, is the ability to repeat something back w/o understanding
ex: Learning the definition of Vx, but dumbfounded on what it actually is.*
 - b. *Understanding - Developing an insight into how to do something
ex: understanding Vx IAS \approx Best \angle / given distance*
 - c. *Skill to apply - major level of learning. Consistency in the skill
ex: Understand Vx is not always Vx IAS. Density Altitude changes Vx - understanding & applying this concept show true understanding*
 - d. *Correlation - The highest level. The student can associate a learned element w/ other learned elements.
ex: Understand differences in Vx & other V speeds. Use V speeds as needed*
4. What are three reasons we forget?
 - a. *Disuse*
 - b. *Interference*
 - c. *Repression*
5. Define positive and negative transfer of learning.

Positive Learning - *learning a maneuver through learning another maneuver*

Negative Learning - *crippling the skills used for one maneuver to learn & perform a new maneuver*

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6. List three ways a CFI can enhance learning.
 - a.
 - b.
 - c.

7. List Maslow's Hierarchy of Needs.

8. Explain three types of defense mechanisms.
 - a.
 - b.
 - c.

9. Explain three different ways a CFI keeps a student motivated.
 - a.
 - b.
 - c.

10. What are the three elements of effective communications?
 - a.
 - b.
 - c.

11. What are the four steps in the teaching process?
 - a.
 - b.
 - c.
 - d.

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Student Name:

Start Date:

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I. Areas of Operation: Fundamentals of Instruction, Tasks A – G

1. Define learning. (REF: FAA-H-8083-9 / Pg. 1-2)

2. List the six principles of learning and an example of each. (REF: FAA-H-8083-9 / Pg. 1-5)
 - a.
 - b.
 - c.
 - d.
 - e.
 - f.

3. List the four levels of learning and provide an example of each using Vx as your model. (REF: FAA-H-8083-9 / Pg. 1-9)
 - a.
 - b.
 - c.
 - d.

4. What are three reasons we forget? (REF: FAA-H-8083-9 / Pg. 1-15)
 - a.
 - b.
 - c.

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5. Define positive and negative transfer of learning. (REF: FAA-H-8083-9 / Pg. 1-16)

6. List three ways a CFI can enhance learning. (REF: FAA-H-8083-9 / Pg. 2-1)
 - a. Be a role model
 - b. Create an atmosphere that encourages students to help themselves
 - c. Direct & control behavior of students to guide them towards their goal

7. List Maslow's Hierarchy of Needs. (REF: FAA-H-8083-9 / Pg. 2-2 - 2-3)
 - a. self-fulfillment
 - b. Ego
 - c. social
 - d. safety
 - e. Physical

8. Explain three types of defense mechanisms. (REF: FAA-H-8083-9 / Pg. 2-3)
 - a. Rationalization
 - b. flight
 - c. Resignation

9. Explain three different ways a CFI keeps a student motivated. (REF: FAA-H-8083-9 / Pg. 1-8)
 - a. Relationships to the main pt.
 - b. Master one task before moving to the next
 - c. Giving praise when the student does well

10. What are the three elements of effective communications? (REF: FAA-H-8083-9 / Pg. 3-1 - 3-2)
 - a. Source - sender, speaker, transmitter or instructor
 - b. Symbols - simple oral or visual codes
 - c. Receiver - listener, reader or student

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11. Explain two barriers to effective communication. (REF: FAA-H-8083-9 / Pg. 3-3)
 - a. Lack of Common experience
 - b. Interference
12. What are the four steps in the teaching process? (REF: FAA-H-8083-9 / Pg. 4-1 - 4-4)
 - a. Preparation
 - b. Presentation
 - c. Application
 - d. Review & Evaluation
13. What is the primary use for the lecture method of teaching? (REF: FAA-H-8083-9 / Pg. 5-3)

Introducing students to a new subject & also for summarizing ideas & showing relationships
14. Define "Guided Discussion" and explain three different kinds of questions that can be used in a guided discussion. (REF: FAA-H-8083-9 / Pg. 5-7 - 5-8)
 - a. Overhead - Direct to an entire group
 - b. Direct - used to get responses from a specific person
 - c. Relay - redirection of student questions to the group
15. What are the five essential phases of the demonstration performance method of teaching, and give an example? (REF: FAA-H-8083-9 / Pg. 5-10)
 - a. Explanation
 - b. Demonstration
 - c. Student Performance
 - d. Instructor Supervision
 - e. Evaluation
16. Discuss three different characteristics of an effective critique. (REF: FAA-H-8083-9 / Pg. 6-2 - 6-3)
 - a. Objective - Focus on student performance not personal opinion
 - b. Flexible - fit the time technique & content of the critique to the occasion as well as the student
 - c. Acceptable - Students must list except the instructor.

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17. List three desirable effects of oral quizzing. (REF: FAA-H-8083-9 / Pg. 6-4 - 6-5)
- a. Reveals effectiveness of the instructor's training procedure
 - b. Checks student's retention of what has been learned
 - c. Id's points that need emphasis
18. What is the difference between "validity" & "reliability" on a written test? (REF: FAA-H-8083-9 / Pg. 6-6 - 6-7)
- Validity - test measures what it should measure
Reliability - Constant results
19. Why is the PTS considered a "Performance Test"? (REF: FAA-H-8083-9 / Pg. 6-14)
- PTS Evaluates training that evolves an operation, a procedure or a process to PTS
20. List three major considerations and qualifications included in CFI Professionalism. (REF: FAA-H-8083-9 / Pg. 8-10 - 8-13)
- a. Professionalism exist only when a service is performed for someone of the common good
 - b. Professionalism is achieved only after extended training or prep
 - c. True performance as a professional is based on study & research
21. List three ways a CFI helps a student learn. (REF: FAA-H-8083-9 / Pg. 8-1 - 8-2)
- a. Determination of standards & objectives
 - b. Develop & assemble of blocks of learning
 - c. Identification of the blocks of learning
22. Describe three "abnormal" reactions to stress. (REF: FAA-H-8083-9 / Pg. 2-5)
- a. Extreme over cooperation
 - b. Marked changes in mood on different lessons such as excellent morale followed by deep depression
 - c. Severe anger directed toward the CFI, service personnel, & others.
23. How does a CFI mitigate a student's anxiety? (REF: FAA-H-8083-9 / Pg. 2-4 - 2-5)
- By reinforcing students enjoyment of flying & by teaching them to cope w/ their fears. Treat their fears as a normal reaction

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24. What is meant by the FAA's phrase "CFI Student Pilot supervision and surveillance"? (REF: FAA-H-8083-9 / Pg. 8-4 - 8-5)
25. Give an example of five different types of CFI endorsement that are **not** for a certificate or rating. (REF: FAA-H-8083-9 / Pg. 8-6 - 8-9 and FAR Part 61.31)
- Act as PIC of a complex airplane
 - " " " " " High Performance airplane
 - Completion of a flight review
 -
 -
26. What are the minimum ground and flight requirements for a flight review? (REF: FAR Part 61.56)
- 1 hr of ground & 1 hr. of Flight training
27. Discuss two different methods where an airmen can receive credit for a flight review. (REF: FAR Part 61.56)
- Accomplish one or more phases of a FAA sponsored Pilot proficiency Award Program
 - Passed Proficiency check by examiner, approved Pilot check airman, or US Armed Forces for a pilot certificate rating or operating privileges
28. What is meant by the "Integrated Flight Instruction"? (REF: FAA-H-8083-9 / Pg. 9-3)
- Flight instruction during which students are taught to perform flight maneuvers both by outside visual reference & by references to the flight instruments
29. Discuss five elements that would be included in the syllabus of a Mountain Flying Course. (REF: AIM 7-5-5)
- Objective
 - Content
 - schedule
 - equipment
 - Instructor's actions

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30. Do a pre-flight maneuver lesson plan for: "Steep Spirals", and, "180 degree power off accuracy approach & landing". (REF: FAA-H-8083-9 / Pg. 10-12 and Commercial Airplane Single Engine PTS, 08-01-2002)

II. Area of Operation: Technical Subject Areas

A. **Aeromedical Factors**

1. What are the procedures for obtaining a medical certificate with a possible disqualifying factor? (REF: FAR Part 67.409)
 - Applying in writing & Duplicate to the Federal air Surgeon for reconsideration of denial within 30 days of the exam.
 - Aviation medical examiners can issue a medical certificate w/ certain limits on flying activities due to medical conditions that exist.

2. What is a "SODA" as per FAR Part 67? (REF: FAR Part 67.401)

"Statement Of Demonstrated Ability"

- Allows someone w/ a disqualifying condition who has been found capable of performing airman duties without endangering the public & allows them to fly as a private pilot w/ limitation

3. Define hypoxia and list the four major hypoxia groups. (REF: AIM 8-1-2a and AC 61-107 1.7.e.)
 - Hypoxia -
 - a. Hypoxic - Lack of O₂ in Blood Stream & High Altitudes
 - b. Stagnant - Blood not reaching heart or brain due to High "G" loads
 - c. Hypemic - Carbon monoxide Poisoning causes a lack of O₂ in Blood Stream
 - d. Histotoxic - alcohol or drugs in system

4. Discuss the various causes of Spatial Disorientation. (REF: AIM 8-1-5b)

Trying to fly in IMC while looking outside to False horizon; relying on the inner ear Fluid mechanism & using the nerves in the body while flying by the seat of your pants

5. What are the rules for SCUBA diving and flying? Why? (REF: AIM 8-1-2d)

No Decompression ≈ 12 hours

Decompression ≈ 24 hours

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B. Visual Scanning/Use of Distractions

6. Discuss three visual illusions that effect flight. (REF: FAA-H-8083-3 / Pg. 10-2 – 10-3 and AIM 8-1-5)

a. Runway Width = Wider than usual \approx to low illusion
narrower than usual \approx to high illusion

b. Runway - Terrain slope illusions \approx Upsloping creates illusion that you are higher \approx a lower approach is flown

c. Featureless Terrain - no ground features creates illusion you are higher \approx lower approach flown

7. Discuss proper clearing procedures, low / high wing. (REF: FAA-H-8083-3 / Pg. 4-2 and AIM 4-4-14)

C. Principles of Flight

8. What is the additional component of the four forces of flight in a turn? Be able to explain to a Private Pilot the following: Lift, Weight, Thrust, and Drag. (REF: FAA-H-8083-3 / Pg. 4-4 – 4-5) *horizontal lift*

9. Define the following: (REF: AC 61-23C / Pg. 1-11)

• Stability - Aircrafts ability to return to normal flight

• Controllability - Ability to respond to pilot inputs

• Maneuverability - Aircrafts structural ability to be handled easily

10. Discuss four left turning tendencies. (REF: AC 61-23C)

a. Torque reaction of prop - Right rotation turns plane left

b. Gyroscopic Precession

c. Corkscrewing effect of the prop

d. P-factor of downward blade creates more left turn

11. Discuss the Term "Load Factor", and V_a . (REF: FAA-H-8083-9 / Pg. 6-14 and AC 61-23C)

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12. How are wing tip vortices generated? (REF: AC 61-23C)

- Strongest when aircraft is slow, clean & heavy
- High pressures ↓ wing trying to move to the low pressure area on top of the wing

D. Airplane Flight Controls: Aileron, Rudder, & Elevator

13. Take one of the above and describe purpose, location, attachment, system of control, movement in flight and its effect on the airplane. (REF: AC 61-23C and Piper Seminole POH)

Elevator - Attached to the horizontal portion of the empennage, provides control of the pitch

* 14. Describe four types of flaps, the most efficient, and those on the Piper Seminole. (REF: AC 61-23C and Piper Seminole POH)

- a. Plain
- b. Split
- c. Slotted
- d. Fowler-

* 15. Describe the trim devices on a Piper Seminole. (REF: AC 61-23C and Piper Seminole POH)

E. Airplane Weight and Balance

16. What is the formula for weight and balance calculation and the meaning of each component? (REF: AC 61-23C and Piper Seminole POH) $W \times A = M$

W = Weight of objects in lbs

A = Horizontal distance from Datum line to "CG"

M = WA

17. Where is the datum on the Seminole? Which way does the CG Move during flight? (REF: AC 61-23C and Piper Seminole POH)

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F. Navigation and Flight Planning

18. Describe the following: (Which one is used for determining VFR Cruising Altitude?) (REF: AC 61-23C)
- True Course and Heading – *Intended path over the ground*
 - Magnetic Course and Heading – *True course corrected for Magnetic Deviation = heading wind correction*
 - Compass Heading – *Mag Course corrected for compass deviation*
19. Using a MANUAL E6B, Compute the following: (REF: AC 61-23C)
- a. 90Nm = how many SM & How Many Km?
 - b. What is ground speed if you fly 120NM in 50 minutes?
 - c. Provide GS for 80 NM in 35 Minutes.
 - d. Given 333NM @ 174Kias, provide time.
 - e. Given 2Hr 15' @ 135Kias, provide distance.
 - f. Given 30gal fuel flow, in 111 minutes, provide GPH.
 - g. Given 125Kias @ -15 degrees C & PA 8000', provide TAS.
 - h. Given 35 degrees Celsius, convert to Fahrenheit.
 - i. Given Wind 160 degrees @ 30kts; TAS 120KIAS; True Course 090; provide True Heading and Ground Speed.

NOTE: During the seminar, you will be required to perform two cross-country calculations on the local Sectional using the manual E6b plotter.

20. Describe the elements of an in air Diversion per the Commercial PTS. (REF: Commercial PTS)

21. Discuss three different flight plans a pilot can file. (REF: AIM 5-1-4 – 5-1-7)

- a. *VFR/DVFR*
- b. *Composite*
- c. *IFR*

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G. Night Operations

22. Describe three types of night visual illusions. (REF: FAA-H-8083-3 / Pg. 10-2 – 10-3)
- a.
 - b.
 - c.
23. Discuss all the airport night lighting available after hours at an airport with an operating control tower. (REF: FAA-H-8083-3 / Pg. 10-4– 10-5 and AIM 2-1-1 – 2-1-9)
- Beacon Taxiway lights
Approach lights touch down lights
runway lights
24. What additional equipment is required for VFR night flight? (REF: FAA-H-8083-3 / Pg. 10-3 – 10-4)
- Fuses / circuit breakers - Anticollision lights - Source of power
- Landing light - Position lights
25. What is "Night"? What is the requirement to maintain night currency to carry passengers in Category, Class, and Type? (REF: FAA Part 61.57b)

H. High Altitude Operations

26. What characteristics of an airplane make a high altitude sign off a requirement? What training is involved? (REF: FAR Part 61.31g)
27. Describe the rules for the use of oxygen under FAR Part 91. (REF: FAR Part 91.211)
- 12,500 - 14,000 ≈ 30 min req. crew need O₂
↑ 14,000 - crew must use O₂
↑ 15,000 - Passengers must be provided O₂
28. Discuss the three different types of oxygen systems. (REF: FAA-H-8083-3 / Pg. 13-5 – 13-6)
- a. Continuous flow - continuous flow of O₂
 - b.
 - c. Pressure Demand - O₂ used only when breathing in (As needed)

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29. Where does the pressure come from for a Pressurized GA airplane? (REF: FAA-H-8083-3 / Ch. 13)
30. What is the difference between rapid and explosive decompression? (REF: FAA-H-8083-3 / Pg. 13-4 – 13-5)
Rapid - occurs in more than 1/2 second slow leak in cabin
Explosive - occurs in less than 1/2 second, normally due to structural failure

I. Federal Aviation Regulations and Publications

31. What is contained in the following FAR Parts? (REF: FAR Parts, as appropriate)
- 1 - Def & Abbreviations
- 23 - Airworthiness std's re normal, utility, acrobatic & comm category airplanes
- 61 - Certifications - Pilot flight instructor; Ground Instructor
- 67 -
- 91 - General Operations & Flight rules
32. According to NTSB Part 830, what constitutes an accident? (REF: NTSB Part 830.2)
Means an occurrence associated w/ the operations of an aircraft which takes place b/w the time any person boards the plane w/ the intention of flight & all such persons have disembarked & in which any person suffers death or serious injury. Or in which the aircraft receives substantial damage
33. What is a Notice of Proposed Rulemaking [NPRM]? (REF: FAA Part 11.5)
34. What is an Airworthiness Directive [AD]? (REF: FAA Part 11 and FAR Part 39)
35. How can a CFI ensure that he/she is using the current PTS? (REF: FAA Part 11)
By calling the FSDO or the examiner you are going to use

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J. National Airspace System

36. Using the template: "Gen Description/Dimension, entry requirement, equipment required, pilot certificate required, describe the following airspace classes. (REF: AIM Ch. 3-1 – 3-3)

A –

B –

C –

D –

E –

G –

37. Describe five types of Special Use Airspace [SUA]. (REF: AIM 3-4)

a.

b.

c.

d.

e.

38. What type of flight plan is needed to cross the ADIZ? (REF: AIM 5-6-1)

OVFR

K. Navigation Aids & Radar Survives

39. What is the difference between a VOR/DME & a VORTAC? (REF: AIM 1-1-3 and AIM 1-1-6)

40. Choose either DME or LORAN, and describe how it works. (REF: AIM 1-1-7 and AIM 1-1-15)

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41. In general terms, how does the GPS System work? (REF: AIM 1-1-21)

42. What does the term "DF Steer" mean? (REF: FAR Part 1)

L. Logbook Entries and Certificate Endorsements*

43. What are the specific requirements for logging both Flight and Ground time in a student's logbook? What is the specific reference? (REF: FAR Part 61, AC 61-65D, and Appendix)

44. List at least 10 commonly used logbook, and certificate Endorsements, to qualify an individual for a Private Pilot Practical Test, at a location within 30NM veil of a Class Bravo Airspace Airport. (REF: FAR Part 61, AC 61-65D, and Appendix)

a. Pre-solo Aeronautical Knowledge

b. Pre-solo Flight training

c. Pre-solo Flight training @ night

d. Solo flight (Each additional 90 day period)

e. Solo take offs & Landings @ another airport within 25 NM

f. Initial solo cross country flight

g. Solo X-country

h. Repeated solo X-country flight not more than 50 NM from pto of departure

i. Solo flight in Class B airspace

j. Solo flight to From or @ an airport Located in class B airspace

45. Discuss the Aeronautical Experience Requirements for the Private Pilot Airplane Single Engine Land. (REF: FAR Part 61, AC 61-65D, and Appendix)

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46. List two unique, and two non-unique endorsements for a CFI candidate, and, who can provide them. (REF: FAR Part 61, AC 61-65D, and Appendix)

Unique Endorsements

a.

b.

Non-Unique Endorsements

a.

b.

47. What are the prerequisites for a Gold Seal Flight Instructor? How long is the award good for? (REF: FAR Part 61, AC 61-65D, and Appendix)

A. Must hold a commercial certificate or ATP w/ IFR rating

B. Must hold a ground instructor certificate w/ Advanced or instructor ground instructor rating

C. Accomplished within the previous 24 months

- trained & recommended @ least 10 applicants for a practical test with @ least 3 passing the 1st take

- conduct @ least 20 PT as a DE or graduation test as a chief instructor of a 141 school

48. List five endorsements a CFII can give that a CFI cannot. (REF: FAR Part 61, AC 61-65D, and Appendix)

a.

b.

c.

d.

e.

49. What endorsements may an AGI W/ an IGI rating give? (REF: FAR Part 61, AC 61-65D, and Appendix)

50. Discuss five ways a CFI may "renew" his/her certificate. How does this differ from reinstatement"? (REF: FAR Part 61.197 and FAR Part 61.199)

a.

b.

c.

d.

e.

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51. List two ratings that may be placed on a CFI-airplane certificate. (REF: FAR Part 61, AC 61-65D, and Appendix)

- a. Instrument
- b. Multi-engine

52. Once I am a CFIA, how do I get to teach in a seaplane? (REF: FAR Part 61, AC 61-65D, and Appendix)

53. What kind of records must a CFI keep, and for how long? (REF: FAR Part 61.189)

54. Provide two privileges and two limitations of a CFI. (REF: FAR Part 61.193 and FAR Part 61.195)

Privileges

- a.
- b.

Limitations

- a.
- b.

55. How do I get to teach in various makes and models of Twin-Engine airplanes? (REF: FAR Part 61.183)

Must have @ least 5 hrs in the aircraft before instructing in rdt.

56. List five pilot certificates and their expirations. (REF: FAR Part 61.5)

- a. Private Pilot
- b. Commercial Pilot
- c. Flight instructor
- d. Ground instructor
- e. Recreational Pilot

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57. What requirements must be met after an applicant fails the following: Knowledge Test; Practical Test, Oral Portion; practical Test, Flight Portion; and, CFI Practical Test where the candidate entered an inadvertent spin? (REF: FAR Part 61.49)

58. What type of Medical Certificate is required for any practical test? (REF: FAR Part 61.39)

2nd class

59. Can a CFI Teach, and charge money, if the CFI loses their Medical Certificate? (REF: FAR Part 61, AC 61-65D, and Appendix)

Tasks M & N pertain to Seaplanes.

III. Area of Operations: Preflight Preparation.

A. Certificates & Documents

1. What are the training requirements for a Commercial Pilot ASEL who does not desire a VFR restriction? (REF: FAA-H-8083-3 / Ch. 1 - 2 and FAA Part 61.51, and FAR 91-400 Series)

2. What are several unique limitations of a student pilot? (REF: FAR Part 61.89 and FAR Part 61.95)

3. Discuss Classes of Medical Certificates and their duration. (REF: FAR Part 61.23)

1st - 6 months after receiving medical - ATP

2nd - 12 months - Commercial Pilot

3rd - Good for 2 years if over 40, 3 yrs if \downarrow 40 - needed for Private & Student Pilots

4. How do I maintain currency to carry passengers day/night? (REF: FAR Part 61.57)

3 takeoffs & landing / night fullstop within the previous 90 days

5. What are required logbook entries? (REF: FAA-H-8083-3 / Ch. 1 - 2, FAA Part 61.51, and FAR 91-400 Series)

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B. Weather Information

6. Provide the sources for a legal preflight weather brief. (REF: AIM 7-1-2)

TIBS, TWEB, AFSS, T-TWEB

7. What are the three types of weather briefings? (REF: AIM 7-1-3)

- a. Standard Briefings
- b. Abbreviated Briefings
- c. Outlook Briefings

8. What are a "D", "L", and "FDC" NOTAM. What is the NTAP? (REF: AIM 5-1-3)

D - "Distant" - used for Nav facilities that are part of National Airspace (NAS), public use A-parts seaplane bases, heliports

L - "Local" - taxiway closures, personnel & equipment near or crossing runways, ops rotating beacon, airport lightings aids that do not affect instrument approach criteria \approx VASI

FDC - "Flight Data Center" - amendments to Published IAP's & other current aeronautical charts, advisory TFR's

NTAP - "Notice to Airmen Publications" - published every 4 weeks, intended to reduce congestion on telephone

9. What is the appropriate source for an In-flight weather brief? What Frequency? What Altitude? What Hours?

(REF: AIM 7-1-4) EFAS on 122.0 from 6am - 10pm throughout US & Puerto Rico for aircraft flying 5000 - 17,500 feet. Discrete frequencies cover 18,000 - 45,000 serving a specific ARTCC area

10. What is HIWAS? Discuss the Five Weather Products available on HIWAS. (REF: AIM 7-1-9)

"Hazardous Inflight Wx Advisory Service"

AWW, sigmets, convective sigmets, CWA's, Airmets, & urgent Pirep's

11. What constitutes a "UUA"? What is LLWS and, How Low? (REF: AIM 7-1-19 and AIM 7-1-24)

- Ceiling @ or below 5000 - wind shear / LLWS \approx Low level wind shear
 - Visibility @ or below 5 sm - volcanic ash / 150 ft
 - THD returns
 - Icing
 - Turbulence

NOTE: The CFI Candidate should already be familiar with general weather theory, e.g., lows/highs, cold fronts, warm fronts, atmospheric stability etc. During the seminar the candidate will be required to decode: METAR, METAF, PIREP, Winds & Temperature aloft, as well as the new emphasis on weather charts in the Private, Commercial, and CFI PTS effective August 1st, 2002.

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C. Airworthiness Requirements

12. What is the required equipment for VFR Day/Night/IFR? (REF: FAA-H-8083-3 / Ch. 2, FAR Part 91-205, and FAR Part 91-400 Series)
- | | | | | |
|---|--|---|--|--|
| <p><u>VFR Day</u></p> <ul style="list-style-type: none"> - ASI - Tach - Oil press - Man. press - Altimeter | <ul style="list-style-type: none"> - Temp gauge - Oil temp - Fuel gauge - Landing gear Position lights | <p><u>VFR Night</u></p> <ul style="list-style-type: none"> - Anti collision - Mag compass - Emergency equip - Safety Belts - Landing lights - Anticollision - Position lights - source of pwr | <p><u>IFR</u></p> <ul style="list-style-type: none"> - Generator/Alternator - Rate of turn - Attitude Ind. - Inclinator - Clock | <ul style="list-style-type: none"> - Altimeter - Radio - DG - DME ↑ 24,000 |
|---|--|---|--|--|
13. List the various tests and inspections for a flight school aircraft, to maintain it in an airworthy condition. (REF: FAR Part 91.409)
- AD's
 - VOR's within 30 days
 - Inspections - 100 hr/Annual
 - Altimeter/Pitot static 24 calendar months
 - Transponder - 24 calendar months
 - ELT - Bst 1/2 life, 1 hr cumulative use, 1 yr
14. What is the "logic flow" to ascertain whether an aircraft is legal for flight if a something is broke? (REF: FAA-H-8083-3 / Ch. 2, FAR Part 91-205, and FAR Part 91-400 Series)
- MEL, if not required refer to VFR day/Night, and/or IFR MEL
15. What must be done to make it legal for flight? (REF: FAR Part 91.213)
- The inop equipment must be removed, cockpit control placard, & maintenance recorded w/ 43.9
 - Deactivated & Placarded inop
16. What documents must be aboard an aircraft to make it legal for flight, if it operates in Mexico once per month. (REF: FAR Part 91.213)
- Letter of authorization issued by the FAA Flight standards district office having jurisdiction over the area in which the operator is based, authorizing of the aircraft & MEL
17. What is an MEL? How do I obtain one for my flight school's airplane? (REF: FAR Part 91.213)
- Minimum Equip List
Letter of authorization may be obtained by a written request of airworthiness cert. holder
18. What is an STC, and why does an approved MEL with its LOA constitute an STC? (REF: FAA-H-8083-3 / Ch. 2, FAR Part 91-205, and FAR Part 91-400 Series)
- The FAA considers an approved MEL to be a supplemental type certificate (STC) issued to an aircraft by serial # & reg #. It therefore becomes the authority to operate that aircraft in a condition other than originally type cert.
19. How can I legally ferry an airplane that is out of Annual? (REF: FAR Part 91.409)
20. What is an AAIP ["Progressive" Inspection]? (REF: FAR Part 91.409)
- An inspection schedule specifying the intervals in hrs or days when routine & detailed inspections will be performed

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IV. Area of Operation: Preflight Lesson

NOTE: See Area of Operations I, question 30.

1. What is meant by the phrase "recognition, analysis, and correction of common errors"? (REF: CFI PTS)

V. Area of Operations: Preflight Procedures

A. Preflight Inspection

1. What am I looking for when I do the "prop feather check" in a Piper Seminole? (REF: Piper Seminole POH 4-18)
Drop in Rpm / oil press. & rise in manifold pressure.
This is done to circulate warm oil into the gov.
2. Where is the Pitot-static drain on the Piper Seminole? (REF: Piper Seminole POH)
Bottom / Left of left seat pilot
3. What is meant by the term "emergency safe oil level" in the Piper POH? (REF: Piper Seminole POH)
4. What is the correct procedure for opening/closing the door on a Piper Seminole [on the ground]? (REF: Piper Seminole POH)

B. Cockpit Management

5. Discuss "CRM" with two rated pilots aboard a Seminole. (REF: FAA-H-8083-9 / Pg. 9-9)
PIC Flies the airplane while other pilot navigates, reads ✓ list & operates radios
6. What does the phrase "positive exchange of flight controls" mean with respect to CRM? (REF: FAA-H-8083-9 / Pg. 9-7)
letting the other know for sure who has control of the airplane
ex: my controls - your controls
7. Discuss the legal elements of a passenger briefing. (REF: FAR Part 91-519)
Passengers need be orally briefed on smoking, safety belts, exits, survival equipment but if determined the passengers are familiar w/ the operations an oral briefing isn't necessary

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8. What is the regulatory requirement for the use of seatbelts/shoulder harnesses, start-up, taxi, takeoff, cruise, and landing? (REF: FAR Part 91-521)

C. Engine Starting

9. What is the importance of leaning for density altitude? (REF: AC 61-23C, Piper Seminole POH, and ATP Ops Book) *takeoff distances, groundroll, TAS, V_x , V_y*
10. Why do I want to "error on the low side" of the RPM setting for engine startup, especially first start of the day? (REF: AC 61-23C, Piper Seminole POH, and ATP Ops Book)
11. Besides temperature, what other atmospheric condition effects engine horsepower? (REF: AC 61-23C, Piper Seminole POH, and ATP Ops Book) *pressure altitude, humidity*

D. Taxiing

12. What is the turning radius of the Piper Seminole? When is differential power required for taxiing? (REF: FAA-H-8083-3 / Ch. 2, FAA-H-8083-9 / Ch. 9, and Piper Seminole POH) *30° turn radius of wheel, differential PWR should be used in place of the brakes*
13. What are the appropriate control inputs for taxiing in wind? (REF: FAA-H-8083-3 / Ch. 2, FAA-H-8083-9 / Ch. 9, and Piper Seminole POH)
*tailwind - dive away
headwind - dive into*

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G. Before Takeoff Check

14. What is the "Challenge Response" method of performing an engine run up, using a checklist? (REF: FAA-H-8083-3 / Ch. 2, FAA-H-8083-9 / Ch. 9, and Piper Seminole POH)
The PIC ask for the \checkmark list & in turn the other pilot reads aloud the checklist while the PIC performs the actions of the checklist

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15. Why should a pilot always be "spring-loaded" for an abort? (REF: FAA-H-8083-3 / Ch. 2, FAA-H-8083-9 / Ch. 9, and Piper Seminole POH)

@ the 1st sign of trouble the pilot should take action to minimize damage

VI. Area of Operations: Airport...Operations

A. Radio Communications & ATC Light Signals

1. What is the purpose of a "clearance delivery" frequency? (REF: AIM Ch. 4 and 6, and Piper Seminole POH)
2. What is the appropriate method of approaching an airport with an operating control tower, when your radio went inoperative? What light gun signal are you looking for? (REF: AIM Ch. 4 and 6, and Piper Seminole POH)

Observe the flow of traffic & wait for a light signal outside of the pattern

B. Traffic Patterns

3. What is the correct downwind speed for the Piper Seminole? (REF: AIM Ch. 4 and 6, and Piper Seminole POH)
- 100
4. What is the appropriate method of relief if you are closing on a slower aircraft in the pattern of a tower-controlled airport? (REF: AIM Ch. 4 and 6, and Piper Seminole POH)

C. Airport & Runway Markings and Lighting

5. Discuss five types of airport & runway markings. (REF: AIM Color Figures)
- a. Runway location sign - tells your position
- b. Critical Area Boundary sign - Holding when ILS system is in use & your plane could interfere w/ it's accuracy
- c. Direction sign - tell you how to get to your destination
- d. MIL - Destination sign for military
- e. Runway distance remaining sign - shows remaining dist. in 1000's of feet

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VII. Area of Operations: Takeoffs, Landings, & Go-Around

B. Short Field Takeoff

1. Describe the elements of a short field takeoff in the Piper Seminole, no flaps, and, commercial pilot level. (REF: FAA-H-8083-3 / Ch. 4 and PTS)

G. Short field approach & landing

2. Describe the elements of a short field landing, Piper Seminole, Private Pilot level. (REF: FAA-H-8083-3 / Ch. 4 and PTS)

VIII. Area of Operations: Fundamentals of Flight

B. Level Turns

1. Describe the elements of a level turn, shallow, medium, and steep bank. Include in your discussion "over banking tendency", and, aircraft stability in a shallow turn. (REF: FAA-H-8083-3 / Ch. 4 and PTS)

IX. Area of Operations: Performance Maneuvers

A. Steep Turns

1. Describe the elements of a Steep turn, Piper Seminole, Commercial Pilot level. (REF: FAA-H-8083-3 / Ch. 4 and PTS)

X. Area of Operations: Ground Reference Maneuvers

C. Turns Around a Point

1. Do a lesson plan for a preflight maneuver briefing on turns around a point. (REF: FAA-H-8083-3 / Ch. 6 and PTS)

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XI Area of Operations: Slow Flight & Stalls

B. Power-on Stalls

1. Describe the elements of a Power On Stall, Private Pilot. (REF: FAA-H-8083-3 / Ch. 6, FAA-H-8083-9 / Ch. 10, and PTS)

C. Power Off Stalls

2. Describe the elements of a power off stall, Commercial level. (REF: FAA-H-8083-3 / Ch. 6, FAA-H-8083-9 / Ch. 10, and PTS)
3. How do you "pick up a wing" if one drops during a stall? (REF: FAA-H-8083-3 / Ch. 6, FAA-H-8083-9 / Ch. 10, and PTS)

XII Area of Operations: Basic Instrument Maneuvers

E. Recovery from Unusual Attitudes

1. Describe the elements of setup, execution, and recovery from unusual flight attitudes. (REF: FAA-H-8083-3 / Ch. 9)

XIII Area of Operations: Emergency Operations

A. System & Equipment Malfunctions

1. What are the indications that the LEFT vacuum pump has failed in a Piper Seminole? (REF: AC 61-23C and Piper Seminole POH)
2. What is one possible indication of low hydraulic fluid, or, a leak in the gear system of the Seminole? (REF: AC 61-23C and Piper Seminole POH)

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3. What is the appropriate action for prop over speed? (REF: AC 61-23C and Piper Seminole POH)

B. Engine Failure during Takeoff before Vmc

4. When teaching this "maneuver" what is the note to the CFI? (REF: AC 61-23C and Piper Seminole POH)

E. Emergency Decent

5. Discuss the elements of emergency decent from the 1979 model Seminole POH. (REF: AC 61-23C and Piper Seminole POH)

XIV Area of Operations: Multiengine Operations.

A. Operation of Systems

1. Describe the following Seminole Systems, as if teaching a Commercial Pilot: Power plant & Propellers; Landing Gear; fuel, Oil, and Hydraulic Systems; electrical Systems; Pitot static/vacuum system associated instruments. (REF: AC 61-23C and Piper Seminole POH)

B. Performance & Limitations

NOTE: ATIS for the next problem, EXCEPT, single engine service ceiling: Wind Calm; Temp 40C Dew Point 10C, altimeter setting, 29.72; Seminole ramp weight 3816. For Single Engine Service Ceiling, change temperature to 0C, aircraft weight 3600lbs. Airport elevation is 2205MSL.

2. Based on ATIS provided, determine: Pressure Altitude; Density Altitude; ASD; SERC; Takeoff over 50' obstacle, short field effort, heavy duty brakes; landing distance, over a 50' obstacle short field effort, heavy duty brakes. (REF: AC 61-23C and Piper Seminole POH)
3. Using data for single engine service ceiling provided above, calculate single engine absolute ceiling, and single engine service ceiling, if the aircraft engine fails at 8000msl, or 6000' AGL above airport elevation. (REF: AC 61-23C and Piper Seminole POH)

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4. What is a "Standard Day" at Atlantic City, NJ? What is a "Standard Day" at Las Vegas Nevada? (REF: AC 00-6)

5. What is TAS? What are different methods of determining TAS? (REF: AC 61-23C and Piper Seminole POH)

6. What's the difference in TAS and Horsepower, for Santa Barbara, versus Denver Colorado? (REF: AC 61-23C and Piper Seminole POH)

7. What are the prerequisites for Carburetor Ice to form? What is the temperature spread given the Seminole POH? How does it happen? (REF: AC 61-23C and Piper Seminole POH)

NOTE: The following data applies to the next two perform problems: Standard Day; Mid-cruise weight of Seminole 65% performance cruise; do not consider fuel reserves.

8. What is the Max Range and Max Endurance for the Piper Seminole, flying off the coast of California west to a desert Island? (REF: AC 61-23C and Piper Seminole POH)

9. Will I still make it to the Island, if I lose an engine after one hour of flight? (REF: AC 61-23C and Piper Seminole POH)

C. Flight Principles-Engine Inoperative

10. Per FAR Part 23, discuss the various factors that had to be shown to the FAA to prove VMC, AND, what happens to VMC as those factors are varied. (REF: FAR Part 23, FAA-H-8083-3 / Ch. 14, ATP Ops Book, PTS, and Piper Seminole POH)

11. What manufacturer has to prove a climb at 5000' DA on one engine? (REF: FAR Part 23, FAA-H-8083-3 / Ch. 14, ATP Ops Book, PTS, and Piper Seminole POH)



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12. What are ASD, AGD, Balanced Field Length, and Stop way? (REF: FAR Part 23, FAA-H-8083-3 / Ch. 14, ATP Ops Book, PTS, and Piper Seminole POH)

13. Discuss "PAST" per the ATP Operations Manual. (REF: FAR Part 23, FAA-H-8083-3 / Ch. 14, ATP Ops Book, PTS, and Piper Seminole POH)

14. What is the appropriate response to an engine failure when the airspeed is below VMC, in the Piper Seminole? (REF: FAR Part 23, FAA-H-8083-3 / Ch. 14, ATP Ops Book, PTS, and Piper Seminole POH)

15. When is the VMC Demonstration "over" even if there is no roll or yaw into the dead engine? (REF: FAR Part 23, FAA-H-8083-3 / Ch. 14, ATP Ops Book, PTS, and Piper Seminole POH)

F. "Drag" Demonstration

16. What is the purpose behind the Drag Demo? (REF: FAR Part 23, FAA-H-8083-3 / Pg. 14-17, ATP Ops Book, PTS, and Piper Seminole POH)

17. Describe the elements of the Drag Demo. (REF: MEI PTS 2-61)

XV Area of Operations- Post flight Procedures

A. Post flight Procedures

1. What are the three possible outcomes to any practical test? (REF: FAR Part 61-43)
 - a.
 - b.
 - c.



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2. What constitutes "unsatisfactory performance" on a CFI practical Test and how does that differ from a commercial practical test? (REF: (REF: MEI PTS Pg. 11-12 and Piper Seminole POH)

3. At whose discretion is the practical test continued after an unsatisfactory event? (REF: FAR Part 61.43)

4. Who is PIC in the event of an emergency during a practical test? (REF: FAR Part 61.47)

5. What are post flight procedures on the Piper Seminole? (REF: MEI PTS 2-62 – 2-66, Piper Seminole POH 4-12 – 4-25)

Tasks B - D for Seaplanes

