

CP Aviation Pre-Solo Cross Country Exam

This exam is to be completed OPEN book and all answers should be per the regulations, POH, and textbooks. ALL ANSWERS MUST CITE THE SOURCE.

1. Describe the Procedure to a VOR from an unknown position.
2. Describe the emergency procedures for the following conditions:
 - Low oil pressure:
 - Over-voltage light illuminates
3. The weight of oil is _____.
4. The weight of fuel is _____.
5. What is density altitude? How does it change aircraft performance?
6. What is standard pressure at:
 - Sea Level _____
7. What is standard temperature at:
 - Sea Level _____
 - 5,000' _____
 - 10,000' _____
8. What is the pressure altitude and density altitude at SZP if the pressure is 30.12 and the temperature is 32°C?

9. What is the pressure altitude and density altitude at Big Bear if the pressure is 30.12 and the temperature is 15°C?
10. What would the ground roll be on takeoff (using the information above) with:
- No obstacle _____
 - 50' obstacle _____
11. To compute moment for weight and balance, you need to:
- a. Add all weights
 - b. Multiply weight by moment
 - c. Multiple weight by arm
 - d. Multiply arm by CG
12. As your airplane gets lighter (due to fuel consumption), how is the maneuvering speed (V_a) affected?
- a. No change
 - b. V_a becomes higher
 - c. V_a becomes lower
13. What special equipment, requirement, and pilot certificates are required for flight in Class B & C airspace?
14. Give a brief description of the following:
- Prohibited Area

 - MOA (Military Operations Area)

 - Restricted Area

 - Warning Area

15. When a pilot deviates from a FAR because of an emergency, a written report is required by the administrator
- Upon request only
 - Within 48 hours
 - Within 30 days
 - Only in controlled airspace
16. How do you determine the traffic pattern altitude at a destination airport?
17. To determine the direction to fly the traffic pattern at an airport not having a control tower, FSS or Unicom, you should:
- Call the closest tower in the area and ask
 - Observe the tetrahedron
 - Observe the segmented circle
 - Observe the wind sock
18. Surface winds reported by the tower are:
- True winds
 - Winds corrected for deviation
 - Magnetic winds
 - Corrected for latitude
19. Certain factors must be considered when selecting a VFR cruising altitude that conforms to regulations. After determining your true course, which of the following would be irrelevant in selecting your cruising altitude?
- The elevation of the terrain over which you fly
 - The terrain clearance, which you plan to maintain
 - Whether or not the flight is conducted on Federal Airways
 - The magnetic variation in the area over which you fly
20. Regulations state that when flying VFR, a pilot on a landing approach to a runway where a visual approach slope indicator (VASI, PAPI, etc.) and traffic control tower are in operation:
- May make an approach utilizing the VASI only if declaration of the intent is made to the tower
 - May make an approach using any glide slope desired if the tower gives landing clearance
 - Will be authorized to use VASI only in conjunction with simulated ILS approaches
 - Shall maintain an altitude at or above the VASI glide slope until a lower altitude is necessary for a safe landing, unless otherwise authorized by ATC

21. What are the basic flight visibility and cloud clearance requirement for flight in controlled airspace below 10,000' MSL?
22. You are planning a cross country and flying over the mountains. What is the appropriate altitude when crossing terrain?
23. You can expect carburetor icing to be *least* probable when:
- The humidity is high
 - The outside air temperature is around 70°F
 - The outside air temperature is well below freezing
 - The engine is running at low RPM
24. In answer to your request for landing instructions, the control tower replies: "SKYHAWK THREE SEVEN BRAVO, MAKE LEFT TRAFFIC RUNWAY ONE THREE, REPORT DOWNWIND ABEAM. WIND ONE SIX ZERO AT ONE TWO." At the downwind abeam position, your magnetic heading and your position relative to the runway are:
- MH 310°, SW of the runway
 - MH 130°, NE of the runway
 - MH 310°, NE of the runway
 - MH 130°, SW of the runway
25. The width of a federal airway from either side of the centerline is:
- 6 nautical miles
 - 4 nautical miles
 - 8 nautical miles
26. Pre-flight action, as required for all flights away from the vicinity of an airport, shall include:
- A study of arrival procedures at airports of intended use
 - An alternate course of action if the flight cannot be completed as planned
 - The designation of an alternate airport
27. Except when necessary for takeoff or landing, what is the minimum safe altitude required for a pilot to operate an aircraft over congested airspace?
- An altitude of 500' above any person, vessel, vehicle, or structure
 - An altitude of 500' above the highest obstacle with a horizontal radius of 1,000' of the aircraft
 - An altitude of 1,000' above the highest obstacle with a horizontal radius of 2,000' of the aircraft
28. A blue segmented circle on a Sectional Chart depicts which class of airspace?
- Class B
 - Class C
 - Class D

29. What are Hot Spots at Airports? Where do you find information about them?
30. The ground controller clears you to “TAXI TO RUNWAY 17 VIA GOLF, ALPHA.” With this clearance you:
- May taxi onto runway 17 and wait for takeoff clearance
 - May use any taxiway to runway 17 and hold short of runway 17
 - May cross all runways and taxiways except the assigned takeoff runway
 - Must taxi on Golf, Alpha, may not cross any active runways on the way to runway 17 without further clearance, and must hold short of runway 17
31. The tower controller instructs you to “LINE UP AND WAIT, RUNWAY 17.” This authorizes you:
- To cross the hold-short line
 - To taxi onto the departure runway
 - To takeoff
 - Both A and B
32. Assume a TAS of 90 knots, wind calm, and a cruising altitude of 6,500'. You want to be at 2,000' MSL 5 miles from your destination. When should you begin your descent?
33. At your destination you hear on the tower frequency that Beech Baron has an emergency. It has an engine fire and will land in front of you on Runway 17. The Baron lands without problems, damage, or injury. How much time does the Baron pilot have to notify the NTSB of this incident?
- Immediately
 - Seven days
 - Ten days
 - Only if requested
34. When must the Baron pilot submit a report to the nearest NTSB field office?
- Immediately
 - Seven days
 - Ten days
 - Only if requested

35. What is the power setting, fuel consumption, and TAS for the following:

- 65% power, 8,000', standard temperature
 - RPM _____
 - Fuel Consumption _____ TAS _____

- 75% power, 7,500', standard temperature
 - RPM _____
 - Fuel Consumption _____ TAS _____

36. Short field take off, maximum gross weight, 0KTS wind, for

- Sea level, 15°C
 - Feet Roll _____ 50' Obstacle _____
- 5,000', 40°C
 - Feet Roll _____ 50' Obstacle _____

37. To enter a Class D airspace, an airplane must have:

38. To enter a Class C airspace, an airplane must have:

39. VFR cruising altitudes are required above what minimum altitude:

40. Describe the manual mixture leaning procedure.

41. Work this sample range problem:

- Destination: Apple Valley (KAPV)

○ PA 7,500' TAS _____ Kts Fuel Stops _____
○ Temp +15° GPH _____ Fuel Required _____
○ Wind 090°/20Kts Day VFR Reserve _____ Fuel Remaining _____

42. How does center of gravity effect Angle of Attack and Stall Speed? (PHAK 5-43 & 5-44)

	Angle of Attack	Stall Speed
Over Gross		
Forward CG		
Aft CG		

43. Is an aircraft loaded with an Aft CG MORE or LESS stable? Why? (PHAK Chapter 5)

44. What are the consequences of overloading an aircraft? (PHAK 10-2)

45. Why is it important to comply with the weight and balance limits established for all aircraft?
(PHAK 10-3)

46. Loading an airplane nose-heavy causes problems with? (PHAK 10-3)

47. Loading an airplane tail-heavy causes problems with? (PHAK 10-3)

48. The quality of an aircraft to correct for conditions that may disturb its equilibrium and return to its original flight path is?

- a. Stability
- b. Balance
- c. Controllability

49. Sample weight and balance problem. Carry maximum passengers at 170 lbs. each, max baggage, and figure out how much fuel you can have so that you are not over gross weight. Also show what the CG is.

Empty Weight _____ Gross Weight _____
 Useful Load _____
 Max. Takeoff Weight _____ Landing Weight _____

	Weight	X	Arm	=	Moment
Empty A/C					
Front Pass					
Rear Pass					
Fuel					
Oil (if applicable)					
Baggage					
Total Gross			Total Moment		
	CG = Total Moment/Total Weight				

Oil 7.5 lbs per gal Fuel 6 lbs per gal

CG Limits _____ Forward _____ Aft (Max Weight)

Weather Questions

1. What type of clouds and precipitations are associated with stable air?
2. What type of clouds and precipitations are associated with unstable air?
3. Illustrate and describe the type of weather associated for the following as seen on a surface prognostic chart:
 - Cold front
 - Warm front

- Trough
- Occluded front
- Stationary front

4. True or false. Radar detects the current cloud coverage.
5. What can we learn from the temperature/dew point spread?
6. What is the recommended distance pilots should stay away from any thunderstorm?
7. What causes wind?
8. Describe a squall line.
9. What layer of the atmosphere is most weather formed?
10. As temperature increases what happens to the density of the air?
11. What is a temperature inversion?
12. Name three types of fog, and when and where you might encounter them.

13. What is special VFR?

14. Can we use special VFR?

15. What is a TAF and how often is it updated? What area is a TAF valid for?

16. What is a METAR and how often is it updated?

17. How do you obtain a briefing?

18. How do you make sure that there is a record of your briefing?

19. What is an Airmet? How often are they updated? Name the three types (aim 7-1-6)

20. What is a Sigmet? How often are they updated? What weather phenomena occur?

21. What is a Convective Sigmets? How often are they updated?

22. What are G-Airmets? How long are they valid?