Questions to test your knowledge of areas of the Practical Test:

A. CERTIFICATES AND DOCUMENTS (14 CFR)

1. What is the primary privilege that the private glider pilot certificate will give you that a student certificate does not allow? Part 61.89(a)(1) _____

   _____

2. What must you do to keep this privilege current? Part 61.57(a)(1): _____
3. What is the main limitation of a Private Pilot Certificate? Part 61.113(a): _____
4. What must you do to keep your Certificate in force? Part 61.56(c)(1)(2): _____
5. If you do not have a medical certificate, what must you **not know** or **not have reason to know** to be legal to fly a glider?

   Part 61.53(b): _____
6. What must your personal pilot logbook show for you to qualify for the practical test?
   a. Part 61.103(f)(2): _____
   b. (Licensed power pilots only) Part 61.109(f)(2): _____
   c. (Student pilots only) Part 61.109(f)(1) _____
7. Do you need to have an FCC station license and Operators Permit? _____
8. Where in your glider would you look for the glider Airworthiness and Registratio certificates?

   _____
9. If you could not find either or both, what would it mean to you as a pilot of the glider? Part 91.203(a)(1) and (2): _____
10. Where in your glider would you find some of the glider's operating limitations? _____

    _____
11. What kind of limitations would they be? 1. _____ 2. _____
12. Where would you find more operating limitations of the glider? _____
13. Is there an equipment list for your glider? _____
14. Where will you find the actual weight and balance data measured on the actual glider you will fly for the test? _____
15. Where will you find the primary maintenance requirements for the glider you will fly for the test? _____

16. What are the primary maintenance requirements?

    a. Part 91.409(a)(1): _____

    b. Part 91.409(b):_____

17. What glider records will show compliance with the maintenance requirements? _____

18. What will the glider maintenance records tell you? _____

B. OBTAINING WEATHER INFORMATION

GLIDER FLYING HANDBOOK, AVIATION WEATHER

1. How will you obtain the weather information required for the practical test? (GFH 9-25,26) _____

_____

2. What types of weather reports and forecasts should you obtain? (GFH 9-33-40)

    a. _____ b._____

    c. _____ d. _____

    e. _____f. _____

3. What other types of weather charts would be helpful if available? (GFH 9-27 thru 33)

    a. _____ b. _____

    c. _____ d. _____

4. What type of FSS notice carries information that might affect the safety of your flight? (GFH 9-37, 11-2)

    a. _____

5. How does a greater or lesser temperature lapse rate affect the strength of thermals? (GFH 9-8 thru 11)
_____

6. With upper-air temperatures of -2°C @ 12,000', 5°C @ 9000', and 10°C @ 6000', what surface temperature in °F at 1500' is necessary for thermals to reach a height of 5500' AGL? (Use the Pseudoadiabiatic chart attached) (GFH 9-8 thru 11) _____

7. What effect does atmospheric instability have on the formation of thermals? (GFH 9-4 thru 8)

_____

8. What does a negative thermal index indicate? (GFH 9-9):
_____

9. What is a major source of thermals? (GFH 9-4,5): _____

10. What causes cloud formation? (GFH 10-1): _____

_____

11. What are the major cloud types that affect soaring? (GFH 9-20, 10-1, AW):

    a. _____ Why? _____ b. _____ Why? _____

    c. _____ Why? _____ d. _____ Why? _____

12. Sketch the typical airflow that causes lenticular clouds: (GFH 9-20 thru 22):

13. What is this type of airflow called? (GFH 9-20): _____

14. What is a cold front? (AW): _____

15. What type of weather is associated with the passage of a cold front? (AW):_____

16. What type of soaring weather might we find the day after the passage of a cold front? (Ch 16):_____

_____

17. What is a warm front? (AW): _____

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18. What type of soaring is associated with a warm front? (AW): _____

19. Name the main sources of lift for soaring: (GFH 10-18)

    a._____ b. _____

    c. _____ d. _____

20. What are the chief hazards associated with flight in the vicinity of thunderstorms?

    a. _____ b. _____ c. _____

21. How far from a thunderstorm should you be to be reasonably safe from its hazards? (AIM 7-1-25, Thunderstorms): _____

C. FLIGHT INSTRUMENTS AND ASSOCIATED SYSTEMS

1. What are two types of in-flight compass errors? (GFH 4-13):

a. _____ b. _____

2. Describe what the compass does when you turn away from a northern heading? (GFH 4-13): _____

---

3. Describe what the compass does when you speed up while on an easterly or westerly heading? (GFH 4-13):
_____

4. What is the purpose of the inclinometer? (GFH 4-14): _____

5. While in a turn, you note that the yaw string is deflected toward the lower wing. What is the glider doing?

(GFH 4-14): _____

6. How does the airspeed indicator work? (GFH 4-1): _____

_____

7. Many airspeed indicators have color markings. What speed is <u>not</u> marked on the airspeed indicator?

(GFH 4-3): _____

8. What is the meaning of the red line on an airspeed indicator? (GFH 4-3): _____

9. Which way will the altimeter needle move if the barometric pressure drops? (GFH 4-4): _____

10. How does a mechanical variometer work? (GFH 4-7): _____

_____

_____

11. What does a total energy compensator do for a variometer? (GFH 4-8) _____

_____

D. DETERMINING PERFORMANCE AND LIMITATIONS

1. What great hazard would exist if you flew your glider with the center of gravity located behind the rear limit?

(GFH 5-11): _____

2. What would be the effect on landing speed if the C.G. of your glider were ahead of the forward C.G. limit?

(GFH 5-11):_____

3. What is the beneficial effect on glider performance of increasing the wing loading? (GFH 5-13:

_____

4. What is the negative effect on glider performance of increasing the wing loading? (GFH 5-14):

_____

5. What would you notice in landing a glider at an airport with a high density altitude? (GFH 5-1):

_____

6. Why does a headwind result in a steeper glide angle relative to the ground? (GFH 5-4):

_____

E. REFERRING TO THE 2-33 FLIGHT MANUAL

1. Using the chart on page 1-15: In still air, at max gross weight and 70 mph, what is the 2-33 glide ratio? _____

2. In the same conditions, what is its sink rate in fpm? _____

3. Using the chart on page 1-10: What would be the g-load on the wing if you stalled the 2-33 at 60 mph? ____

4. Using the same chart, what would be the g-load on the wing if you hit a gust equal to the positive gust load factor at 90 mph (no control deflection)? _____

5. Using the chart on page 1-14: Would a 2-33 be within c.g. limits with a front seat weight of 250# and a rear seat weight of 215#? _____

   a. Would it be within gross weight limits? _____

6. Using the form on page 1-12: Compute the c.g. location with a front seat weight of 190# and a rear seat weight of 130# (no ballast): _____

   a. Is this within c.g. limits? _____

   b. Is the c.g. in front or behind the leading edge of the wing? _____

7. List the kinds, and speeds in mph, of the performance speeds shown in the 2-33 flight manual:

   a. _____ speed: solo _____ dual _____

   b. _____ speed: solo _____ dual _____

   c. _____ speed: solo _____ dual _____

   d. _____ speed: solo _____ dual _____

   e. _____ speed: solo _____ dual _____

F. FLIGHT PREPARATIO AND PLANNING

1. How do you determine if a Sectional Aeronautical Chart is current? (GFH 11-1): _____

2. On the current Los Angeles sectional chart, what two lines cross at Lat. 34°47'N, Lon. 116°23'W?

a._____ b. _____

3. When on a true heading of 0° at this point, what is your magnetic heading? (GFH 4-12): _____

4. List the classes of airspace in the National Airspace System and the limitations they place on VFR glider flights:

   a. _____ Limitations: _____

   b. _____ Limitations: _____

   c. _____ Limitations: _____

   d. _____ Limitations: _____

e. _____ Limitations: _____

f. _____ Limitations: _____

5. Identify the classes of airspace at March ARB (Lat. 33°53'N, Lon. 117°15'W) that are encountered from the surface to 61,000':

a. _____ b. _____

c. _____ d. _____

6. At what altitudes above March ARB would you not be required to have a Mode-C transponder? (14 CFR 91.215 (b) (5) (i)): _____

7. What is the upper limit of class D airspace at Palm Springs International Airport? _____

8. What is the lower limit of class D airspace at PSP? _____

9. What is the floor of the class E airspace above Hemet-Ryan Airport? _____

10. What class of airspace does the chart show at the surface of Cochran Regional Airport (Lat. 33°38'N, Lon. 116°09'W)? _____

11. What type of flight is prohibited in a federal airway? (14 CFR 91.303(d)): _____

12. What is the floor of Class E airspace where there is no blue or magenta shading on the chart? (14 CFR 71.71(a)): _____

13. What is required for flight through a restricted area? (CFR 91.133(a)): _____

14. What radial would you fly from Thermal VORTAC to Bermuda Dunes Airport? _____

G. EQUIPMENT

1. What equipment is essential for flight at high altitude? (GFH 6-4): _____

Over long distances? _____ Over varying terrain? _____

In changing climatic conditions? _____

2. What are the main components of an oxygen system? (Handout)

a. _____ b. _____ c. _____

3. What are the three types of oxygen systems in common use and the altitudes they are good to?

a. _____ altitude _____

b. _____ altitude _____

c. _____ altitude _____

4. What is the acronym for the inspection of glider oxygen systems? _____ What do the letters stand for?

_____ _____ _____ _____ _____

5. What is the requirement for parachute inspections? (CFR 91.307(a)(1)(2)(i)): _____

6. How can you tell when a parachute was last inspected? _____

H. AEROMEDICAL FACTORS

1. What are the symptoms, effects and corrective actions of hypoxia? (GFH 1-10):_____

_____

2. What could be the worst effect of hypoxia? (GFH 1-10): _____

3. What are the symptoms, effects and corrective actions of hyperventilation? (GFH 1-11): _____

_____

4. What could be the worst effect of hyperventilation? (GFH 1-11) _____

5. What are the symptoms, effects and corrective actions of middle ear and sinus problems? (GFH 1-11):

_____

6. What could be the worst effect of middle ear and sinus problems? (GFH 1-11): _____

7. What are the symptoms, effects and corrective actions of spatial disorientation? (GFH 1-12): _____

_____

8. Of motion sickness? (GFH 1-13): _____

9. Of dehydration? (GFH 1-14): _____

10. Of carbon monoxide poisoning? (GFH 1-14): _____

11. How do drugs and alcohol affect the safety of your flying? (GFH 1-15): _____

12. What is the minimum recommended time between diving and flying? (GFH 1-16): _____

13. What might happen if the diver does not wait for the minimum time? (GFH 1-16): _____

I. SPINS

1. What must take place before a glider will spin? (GFH 7-31) _____

2. What must take place before a glider will stop spinning? (GFH 7-32) _____

3. What are the steps for normal spin recovery? (GFH 7-32): a. _____

b. _____ c. _____

d. _____ e. _____

4. What is the effect of c.g. position on spin recovery? (GFH 3-14): _____

_____

5. If you fly a glider with less than the placarded minimum weight in the cockpit, where is the c.g.? (GFH 5-11):

_____

6. If the c.g. position is behind the rear limit authorized for your glider, and you spin it, what might occur?

(GFH 5-11): _____

J. CONSTRUCTING A FLIGHT PROFILE FOR A 2-33 GLIDER:

1. Use nautical miles.

2. Use “speed-to-fly” when flying against the wind. Use best-glide-speed when flying with the wind.

3. Use the “L/D” dual (max gross weight) curve page 1-15 of the 2-33 manual to obtain the glide ratio in the air at your airspeed.

4. Calculate the glide ratio over the ground.

5. To allow for sink, use a safety factor of 70%.

6. When flying against the wind, allow a minimum of 1500’ clearance over the terrain for safety: when flying with the wind 500’ is sufficient.

SAMPLE PROBLEM

1. You will fly from Agua Caliente Springs Airport (Lat. 32° 57’ N., Lon. 116° 17’ W.) to Bermuda Dunes Airport (Lat. 33° 44’ N., Lon. 116° 17’ W.) Your wind is 30 mph from 180°. How high is the “go ahead” point, and how far from Agua Caliente Springs Airport is it?

STEP –BY-STEP SOLUTION:

If you can not reach the required altitude and distance, you must return to Agua Caliente Airport.

Will you be flying with or against the wind on your return? _____

What airspeed will you fly? _____

What is the glide ratio of the 2-33 in the air at that speed? _____

What glide ratio over the ground might you obtain? _____

[Glide ratio over the ground equals (groundspeed divided by airspeed) times glide ratio in the air]

What is the safe glide ratio you can use on your flight profile? _____

(Multiply the glide ratio over the ground by the safety factor of 70%.)

What minimum altitude must you have at Agua Caliente if your return? _____

At your “safe” glide ratio, how many feet of altitude would you lose in the last ten nautical miles of return to Agua

Caliente? _____ (Ten miles times 6000 per mile equals 60000 feet: divide this by the “safe” glide ratio to obtain the number of feet of altitude lost.)

What must your altitude be at ten nautical miles out from Agua Caliente? _____

On your flight profile, mark the minimum altitude at Agua Caliente, and the required altitude ten nautical miles out.

Draw a line between these two points and extend it upwards towards the middle of the flight profile.

If you do attain your required altitude and distance, you will proceed to Bermuda Dunes.

What is the distance to Bermuda Dunes? _____

Draw a vertical line on your flight profile showing the location of Bermuda Dunes.

Will you be flying with or against the wind? _____

What airspeed will you fly? _____

What is the glide ratio of the 2-33 in the air at that air speed? _____

What glide ratio over the ground might you obtain? _____

What is the "safe" glide ratio you can use on your flight profile? _____

What minimum altitude must you have on arrival at Bermuda Dunes? _____

At your "safe" glide ratio, how many feet of altitude will you lose in the last ten n.m. to Bermuda Dunes? _____

What must your altitude be ten nautical miles out from Bermuda Dunes? _____

On your flight profile, mark a minimum altitude at Bermuda Dunes, and the required altitude ten miles out.

Draw a line between these two points, and extend it upwards towards the middle of the flight profile.

Extend both lines until they cross. Where they cross is your trial "go-ahead" point.

You now must check for terrain clearance of the line to Agua Caliente:

Your course line passes over high ground north of Agua Caliente. How high is it? _____

How far is it from Agua Caliente? _____ Does your flight profile clear it? _____

How high must you be above it to be safe? _____ (Remember the wind!)

On the flight profile, mark the minimum altitude required above this high ground and draw a line from this point upwards toward the middle to the graph, parallel to the original flight profile line, until the new line crosses the line from Bermuda Dunes. This is the second trial "go-ahead" point.

Now check for terrain clearance of the line to Bermuda Dunes:

Your course line passes over high ground south of Bermuda Dunes. How high is it? _____

How far is it from Bermuda Dunes? _____ Does your flight profile clear it? _____

How high must you be above it to be safe? _____ (Remember the wind?)

On the flight profile, mark the minimum altitude required above this high ground and draw a line from this point upwards toward the middle of the graph, parallel to the original flight profile line, until the new line crosses the line from Agua Caliente. Where these lines cross is the required "go-ahead point."

How far from the Agua Caliente Airport is your "go-ahead" point? _____ How high is it? _____

2. What prominent check point would you select to keep track of your progress along your course?

a._____

b. _____

c. _____

3. What appropriate available landing areas exist along your course?

a. _____

b. _____

c. _____

4. Are you required to contact Air Traffic Control anywhere along your route? _____