

## OPMF34 - VISUAL FLIGHT RULES STUDY GUIDE

### FOREWORD:

The following pages contain sample answers to the questions in the VFR exam paper (OPMF 33). In addition, notes are included discussing the reasoning behind many of the rules and references for you to obtain more information about various topics. The object of the VFR exam is to ensure HG/PG pilots fly safely with other gliders and also the other aviators out there sharing the skies with us. This study guide covers many of the basic areas of VFR knowledge pertinent to PG/HG pilots, but hopefully you will continue to build on your aviation knowledge and airmanship skills over the years. Much of the information contained here requires some rote learning, and ongoing reference to the core VFR documents is needed to remain current.

Remember: Aviation rules and procedures change over time. Charts should be updated regularly and pertinent changes need to be passed on to all pilots in the area. The AIP and AIP Supplements can be accessed for free at [www.aip.net.nz](http://www.aip.net.nz) NOTAMs can be obtained (also free of charge) along with weather information from [www.ifis.airways.co.nz](http://www.ifis.airways.co.nz). All HG/PG clubs should have someone responsible for checking these references regularly and passing on the information to members. If in doubt ask NZHGPA for the latest information. If still in doubt, get your airspace officer to contact CAA.

CAA produce a very useful pdf called "New Zealand Airspace" as part of their 'Good aviation practice' series of publications. Download this from the CAA website at [http://www.caa.govt.nz/safety\\_info/Posters/NZ\\_Airspace\\_poster.pdf](http://www.caa.govt.nz/safety_info/Posters/NZ_Airspace_poster.pdf)

**Q1 CAR** = Civil Aviation Rule(s). These are the rules that govern all aspects of aviation in NZ. CAR Part 91 contains the general operating and flight rules, and CAR Part 106 contains rules for hang gliders which are additional or exceptions to Part 91. All CAR parts can be downloaded as pdfs from the CAA website at [www.caa.govt.nz](http://www.caa.govt.nz).

**In CAR all references to hang gliders should be taken to include paragliders and powered gliders.**

**Q2 AMSL** = Above Mean Sea Level. The height of an object / aircraft above mean sea level. See Q3. AGL.

**Q3 AGL** = Above Ground Level. The height of an aircraft in the sky measured vertically above the ground. See Figure 1.

**Q4 IFR** Instrument Flight Rules. PG and HG pilots always fly under Visual Flight Rules – ie using visual reference for navigation. IFR pilots use instruments for navigation (hence the ability to fly safely without visual reference).

**Q5 NM** - Nautical Mile. Nautical miles are the standard aviation unit of distance. 1 NM = 1.852 Km. A nautical mile is a geometric unit defined as the length of one minute of arc on the circumference of the earth at the equator.

**Q6 CTR** - Control Zone. These surround major aerodromes and extend from ground level, to a specified upper height limit. The purpose of CTRs is to facilitate air traffic management in the vicinity of aerodromes. CTRs may be either Class C or D and require a radio clearance from the local tower before entering. This excludes most HG/PGs from operating with a CTR. CTRs may also be transponder mandatory. Refer to the relevant VNC for information.

**Q7 CTA** – Control Area. Control Areas are areas of controlled airspace (class C or D) extending

between specified lower and upper levels (but never from ground level). CTAs are generally above CTRs and along commercial air traffic routes throughout the country and trans oceanic routes. Pilots wishing to enter a CTA must obtain a clearance from the appropriate ATS unit (check your VNC for frequencies) and maintain 2 way radio comms. CTAs may be transponder mandatory, in which case you need to carry a functioning transponder or obtain a specific ATC approval. HG/PG almost never get clearance to enter transponder mandatory airspace.

**Q8 CAA** -Civil Aviation Authority. This Crown Owned Entity was established in 1992 to undertake regulatory activities which promote safety and security in civil aviation at a reasonable cost. This means the primary function of the CAA is to oversee safety standards for the aviation system, but not necessarily provide direct aviation services. Funding for the CAA is to come from user charges plus Crown funding for mailers such as safety policy advice and the production of new Civil Aviation Rules.

ACNZ -AIRWAYS CORPORATION OF NZ, or just AIRWAYS. (This information is provided to help remove the confusion about the roles of CAA and ACNZ ) ACNZ was established in 1987 as an SOE (State Owned Enterprise). Its primary function is to provide air traffic control services. Related services include flight information services to aircraft and aeronautical information services such as the AIP and charts. The establishment of ACNZ split the operational functions of civil aviation from the regulatory, aviation security and policy-making functions. These remain with the Ministry.

**Q9 GAA** stands for General Aviation Area. A GAA is part of a CTR or a CTA which may be released as class G uncontrolled airspace during daylight hours for the purpose of facilitating VFR operations, including glider and powered VFR activity. They are specified from a lower height to an upper height- e.g. G270 2500-4500ft. These were once known as Glider Flying Areas.

There are three types of GAA.

- those active during daylight hours (without reference to ATC)
- those active when notified to the applicable ATC unit (ATC notification)
- those active when approved by the applicable ATC unit (ATC approval)

A VNC shows the different types of GAA along with the GAA designator and upper/lower limits of the GAA.

The first type doesn't require activation and you are free to fly through this area during daylight hours without any further fuss. The second and third type requires you to notify the applicable ATC unit and let them know that you either (a) require it to be opened or (b) ask for it to be opened. This means phoning ATC (Christchurch) requesting the use of the GAA (named). During 'activation' usual IFR (instrument flight rules) traffic will be diverted either over or around the activated GAA. Diversions may cost commercial operators big money therefore GAA's should not be left activated longer than necessary.

It is usually most convenient for HG/PG's to "auto-deactivate by Civil Evening Twilight" (CET) which is half an hour after official sunset. If the use of a GAA concludes sooner than CET or the extra height provided by the GAA is not required, every effort should be made to deactivate the area at the earliest convenience. If it is not AUTO-deactivated at time of requesting an activation, it is imperative that the GAA be deactivated (by phone or radio).

**Q10 VNC**= Visual Navigation Chart. VNC's are printed front and back in 3 different scales:

- 1:500,000 – large scale charts better suited for powered aircraft (2 for Nth Is. & 2 for Sh Is.)
- 1:250,000 – best scale for planning XC flights
- 1:125,000 – Detailed terminal VNC's for AA and CH airspace

VNC's are available at [www.aip.net.nz](http://www.aip.net.nz).

**Q11 A I P SUPPLEMENT:** Aeronautical Information Publication Supplement – see Q12 below.

**Q12 AIP supplements** provide aeronautical information of a temporary nature such as warnings, notices of military exercises, aviation events and changes to airspace. They are sent out to all holders of the AIP and are also available digitally for free at [www.aip.net.nz](http://www.aip.net.nz) (and follow the link to the AIP supplements).

Further information worth noting:

The AIP itself is a manual containing aeronautical information of a lasting character. There is a wealth of useful information within the AIP, which can be downloaded for free from the following CAA website: [www.aip.net.nz](http://www.aip.net.nz)

NOTAMs (Notices to airmen) are a way to promulgate urgent information about potential hazards to flight which may have missed the publishing deadline for inclusion as an AIP supplement.

**Q13 A VNC shows terrain and airspace relevant for VFR flights and includes:**

Airspace - vertical & horizontal extents, pertinent radio frequencies

Special use areas such as: Restricted, Danger and Low Flying areas, Mandatory Broadcast Zones, and Parachute Landing Areas.

Topographical information such as terrain, airfields, hazards and obstacles

VNCs are updated on a regular basis and may be purchased from [publishing@airways.co.nz](mailto:publishing@airways.co.nz)

**Q14 CHART CHARACTERS:**

**A** HG/PG activity

**B** Wire Hazard (highest span 700ft)

**C** An airfield (published in the AIP)

**D** A parachute landing Area

**(These can be found on your VNC).**

**Q15 CONTROL ZONES** extend from ground level to a specified upper limit: TRUE.

e.g. AA, WN & CH, are examples of **CTR/C** (controlled airspace class "C".) Smaller airfields such as DN, OH & NS are examples of **CTR/D**.

As far as most HG/PG pilots are concerned, you won't be flying in either Class C or D airspace. If you have an airband radio you may get clearance through some of the less busy control zones.

**Q16 A CONTROL AREA (CTA)** is controlled airspace of defined dimensions extending upwards from a specific level; but never from ground level.

**Q17 CLASSES OF AIRSPACE:**

(a) G

(b) G

Class A is oceanic airspace – we don't get to go there.

Class C and D are both controlled airspace and require a clearance to enter.

**Q18 AERONAUTICAL MILE:** answer 'C' = 6080ft.

5280ft is a statute mile, an ancient unit of land measurement used in the USA.

1000ft was thrown in to weed out pilots with no idea.

**Q19 UNITS FOR MEASUREMENT OF HEIGHTS AND DISTANCES:**

- Aviation heights: - Feet. (Set by ICAO – the international civil aviation organisation.) Yes – it's archaic, but you have to live with it to ensure everyone is operating within the same system.
- Topo maps: - Metres (m).

- Visibility for VFR: - Kilometres (Km).
- Aviation horizontal distances : - Nautical miles (NM).

**Q20 VERTICAL & HORIZONTAL SEPARATION from CLOUD**

- (a) CLASS G AIRSPACE, UNDER 3000ft AMSL, BELOW 1000 ft AGL:  
ans= Clear of cloud and in sight the surface.
- (b) CLASS G AIRSPACE. HIGHER THAN “a”. : ans= 500ft vertical & 2km horizontal.  
(ref CAR 91.301(a)(2) – see Table 4)

NOTE: CAR 106.53(1) is an amendment to the table below and allows a reduced distance from cloud for HG ( and PG) of 500ft instead of 1000ft.

Class of airspace		Distance from cloud	Flight visibility
B		Clear of cloud	
C, D, and E		2 km horizontally 1000 feet vertically outside a control zone 500 feet vertically within a control zone	8 km at or above 10 000 feet AMSL  5 km below 10 000 feet AMSL
F and G	Above 3000 feet AMSL or 1000 feet above terrain whichever is the higher	2 km horizontally 1000 feet vertically See NOTE above for HG	
	At or below 3000 feet AMSL or 1000 feet above the terrain whichever is the higher	Clear of cloud and in sight of the surface	5 km

(CAR 91 Table 4)

**A BROADER PERSPECTIVE:** The VFR table is difficult to memorise. What is important to understand is the rationale for having minimum separation distances from cloud for VFR aircraft. You need a certain amount of time to avoid a collision with an oncoming aircraft AFTER having seen it. An aircraft which is approaching at 120 knots (which is pretty slow really) is traveling in excess of 1 km every 16.5 seconds. If you are both skimming the clouds, you may have no time for collision avoidance manouvres. IFR aircraft (aircraft using instruments for navigation, not visual reference) may operate within the cloud and may exit cloud climbing or descending, which is why it is important to maintain vertical separation from cloud.

IFR aircraft are required to maintain a minimum separation distance of 1000ft from the highest terrain in the area, hence the reduction in met minima for us below 1000ft AGL (ie there shouldn't be any IFR aircraft that low).

The real difficulty with VFR met minima is how to measure your distance and height from cloud. Estimating distances is the only practical way to do this. It's not perfect, just do your best and be particularly vigilant for other aircraft when operating in the vicinity of clouds.

**Q21 MIN.FLIGHT VIZ BELOW 10,000FT:** ans= 5km.

(ref CAR 91.301(a)(1) - see Table 4)

Note The minimum flight viz increases to 8km above 10,000ft since aircraft are expected to be travelling faster at higher altitudes and more time to react is needed.

**Q22** (refer Q9)

- those active during daylight hours without reference to ATC. (Shown as "DAY" on VNCs)
- those active when notified to the applicable ATC unit. (Shown as "ATC notification on VNCs)
- those active when approved by the applicable ATC unit. (Shown as "ATC approval" on VNCs)

**Q23 GAA ACTIVATION:** ans= Phone the controlling ATC unit (listed in the AIP GEN 3.3 – 16) or call on the appropriate airband frequency (shown on the VNC).

**Note -** CAA keeps a record of GAA use, so the more often we activate and use GAAs the more likely we will be to keep the use of that airspace at the next Air Space Review.

**Q24 PILOT QUALIFICATIONS** ans = d "All of the above"

i.e. YOU are the person responsible for making sure your glider is airworthy, and that you obey all rules and are appropriately qualified!

**Q25 DEFINE BAROMETRIC HEIGHT:** ans= b). Zero set to present sea level barometric pressure (ATC provides "QNH" to pilots, which is the pressure they need to set into their altimeters to make them read Barometric height).

**Q26 MAXIMUM HEIGHTS WHICH CAN BE FLOWN AT LOCAL SITES**

Sites to be inserted by the examiner. The examinee is being tested for his/her ability to read the charts for him/herself. Use the VNC charts appropriate to your area in the exam.

**Q27 REQUIREMENTS FOR FLIGHT BELOW 500FT:** ans= e) a and either b or c.

**Q28 CONFLICT ABOUT AIRSPACE SCHEDULED FOR MILITARY EXERCISES:**

Ans: Phone Duty Op's Officer, RNZAF Base OHAKEA. 06-351-5441.

**Q29 MINIMUM DISTANCE FROM AERODROMES**

- (a) No closer than the edge of the CTR (ref CAR 91.225)
- (b) There is no minimum distance HG/PG's must fly from an uncontrolled aerodrome but you must remain clear of the circuit traffic or comply with standard circuit procedures (which would be somewhat difficult in an HG/PG). (ref CAR 91.223)

**Q30 HG/PG OPERATIONS NEAR UNCONTROLLED AERODROMES**

You must either comply with the local aerodrome traffic circuit or avoid the aerodrome traffic circuit. (ref CAR 91.223)

Note: Since it is not practical for un-powered HG / PG to comply with a standard circuit, we must

avoid the aerodrome traffic circuit (by flying above or outside the circuit traffic area). Obviously to do this, you will first have to study the aerodrome traffic information in the AIP – if you don't know local traffic rules, stay well clear of the aerodrome!

**Q31 REQUIREMENT TO CARRY A SERVICEABLE ALTIMETER AT ALL TIMES:**

ans= true. **Note** that metres on the altimeter is not legal. (ref CAR 106.15(b))

**Q32 RESTRICTION ABOUT FLYING OVER TOWN or POPULOUS AREA**

ans= You are allowed to do this but the minimum height is 1,000 ft AGL. (ref CAR 91.235)

**Q33 MEMBERSHIP REQUIRED IF FLYING PRIVATE PROPERTY**

ans= yes! It makes no difference where you fly in NZ- you're in NZ airspace as soon as you are airborne. (ref CAR 106.5(a))

**Q34 MBZ ENTRY REQUIREMENTS:**

a) ans= A pilot must have a functional airband radio

b) ans= callsign, position, altitude, intentions. *½ mark per component & 1 mark for correct order*  
(ref CAR 91.135)

Note this also implies that the pilot needs to be familiar with RTF procedures (how to talk correctly on the radio). MBZs are generally established around busy uncontrolled aerodromes and areas of intense tourist traffic so that all users are kept aware of other traffic in their vicinity. A useful guide to aviation radio can be found here

[https://www.caa.govt.nz/Publications/GAPS/Plane\\_Talking.pdf](https://www.caa.govt.nz/Publications/GAPS/Plane_Talking.pdf)

**Q35 ACCIDENT REPORTING CATEGORIES:**

- a. Serious injury / fatality, including 3<sup>rd</sup> party injury as a result of the accident.
- b. Substantial damage to aircraft (affecting structural strength / performance).
- c. The glider or pilot is missing or completely inaccessible.

See OPM for details of definitions of the above terms (ref OPM 5.13.1)

**Q36 ACCIDENT REPORTING:**

- a. Fatality: CAA (ph 0508 ACCIDENT), Police, Club Safety Officer, NZHGPA Operations Manager (Inform all these people as soon as practicable). Note: While both CSO and OPSO can be notified on the accident report form, a telephone call should be made in the first instance.
- b. In the members section of the NZHGPA website, within 48 hours.
- c. No requirement to report minor damage, but incident reports are always welcomed.
- d. Third party injury / damage: NZHGPA Operations Manager (as soon as practicable)  
(ref OPM 5.13.2)

**Q37 GROUND SIGNAL FOR MEDICAL ASSISTANCE:** ans= X

Try a packed hanglider crossed with a HG bag or 2 paragliders rolled and crossed.

**Q38 GROUND SIGNAL FOR ALL IS WELL:** ans= LL

OK – you're unlikely to use these - just carry a cell phone / radio / EPIRB – it makes things so much easier...

**Q39 WHAT MAY BE DROPPED FROM A PG/HG?:** ans= Anything that does not endanger people or property  
(ref CAR 91.235)**Q40 WHEN ENTERING A THERMAL IN WHICH ANOTHER GLIDER IS CIRCLING,**

**WHICH DIRECTION SHOULD YOU ENTER?** ans= The same direction which the other glider is circling. (or you could finish up meeting them head on.) And unless you are the only person in it, you keep going that way. (Ref OPM OPS 5.5.6.8)

**Q41 WHEN MAY YOU FLY A SITE 1 RATING ABOVE YOUR RATING?** ans= If under the supervision of an instructor or Advanced / PG3 rated pilot ( as appropriate) familiar with the site. (ref OPM OPS 5.5.13)

**Q42 WHEN IS AN HG/PG PERMITTED TO FLY IN CLOUD?** ans= Never  
(ref CAR 91.301(a)(1) - see Table 4 and CAR 106.53(1))

**Q43. WHAT DOES M.C.T and E.C.T MEAN TO HG/PGs?** ans= VFR flight is not permitted before MCT ( 30 minutes before natural sunrise) or after ECT (30 minutes after natural sunset). It's also when car headlights are legally meant to be turned on by.  
(Ref CAR 106.57)

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*Mandatory questions that must ALL be answered correctly to pass:*

**Q44 APPROACHING ANOTHER AIRCRAFT HEAD ON, WHAT SHOULD YOU DO:**  
ans= b). Turn right, right? Rote learn it – this is one rule you do not want to forget as soon as you pass this exam. (ref CAR 91.229(b))

**Q45 GIVE WAY TO ANOTHER AIRCRAFT APPROACHING ON YOUR RIGHT?**  
ans= True. Give way to your right. When you have that relaxing cruise in the sky, keep your right eye open. (ref CAR 91.229(c))

**Q46 WHICH AIRCRAFT HAS RIGHT OF WAY; OVERTAKING OR OVERTAKEN?**  
ans= Overtaken. (and if you are being overtaken, don't change speed or course unless it further distances you from the other aircraft.) (ref CAR 91.229(d))

**Q47 YOU ARE FLYING AN AIRCRAFT WHICH HAS THE RIGHT OF WAY OVER AN APPROACHING AIRCRAFT. WHAT SHOULD YOU DO?**  
ans= a). Maintain course and speed.  
Note: occasionally you will encounter another pilot that does not know the rules or is not looking your way. In this event, your obligation is to avoid an accident. Do not just fly into them smugly thinking you have the right of way... (ref CAR 91.229(a)(2))

**Q48 DOES A GLIDER WITH ITS RIGHT WING TO THE RIDGE HAVE RIGHT OF WAY?** ans= True.  
Reasoning: if the glider with the ridge to their right cannot turn to the right (refer Q47) without hitting the ridge, so it is the responsibility of the other glider to give way. (Ref CAR106.51(a))

#### **MARKING:**

Failure to correctly answer any one of the “Rules of the Air” questions must result in a fail. These are questions: 44, 45, 46, 47 & 48.

#### **95% pass mark.**

The exam is worth a total of 75 marks. A 95% pass thus means a total of greater than 71/75 To calculate a PERCENTAGE divide the answer by 75 then multiply by 100 (round up to the nearest whole number).

Upon the candidate successfully passing the VFR rating, the Club Safety Officer (or his/her appointee for examining VFR's) should:

- 1) Provide a permanent copy of the completed (& corrected) test paper, to the candidate.
- 2) Sign the candidates' rating form "VFR passed (date), signed (...), authority eg "for CSO"
- 3) Take appropriate action to inform the NZHGPA administrator the the pilot has passed the VFR exam satisfactorily