

OPMF34 - VISUAL FLIGHT RULES EXAM GUIDE

FOREWORD:

A picture is worth a thousand words. This guide gives both; nearly a thousand words plus some diagrams to make the flight rules become a set of images in the pilot's mind which he/she may then impose upon those wonderful real images of the flying world. Hopefully this will enhance the pilot's appreciation of aviation. It is probably truer that a safe pilot lives a thousand fortnights! Therefore the main object of this guide is to provide those who participate in this great sport with a safer working knowledge of rules. "Q" numbers correlate with questions in the VFR exam paper (OPMF 33) The question is not written out in full, but is abbreviated. The correct answer then follows, with an explanation of that answer.

Remember CAA rules sometimes follow after changes in the VNC's. If the internet conflicts with CAA rules - be patient. The AIP and AIP Supplements can be checked on the airways web site at: www.ifis.airways.co.nz. This is amended every 28 days. All HG/PG Clubs should download the AIP information from IFIS and pass on the information to its members. If in doubt ask NZHGPA for the latest information. If still in doubt ask ATC.

Q1 CAR = Civil Aviation Rule(s). Rules state the minimum level of safety, and if you are not operating at or above these levels you are breaking the law. The rules are so that every one shares the right of way to operate. You need to be familiar with the rules that relate to Hang Gliding and Paragliding, in particular air space and Right of Way rules. A booklet called "How To Navigate the Rules" is available from CAA or at your local Aero Club - free for the asking. The CAA rules are available for free from the CAA web Site at www.caa.govt.nz

Q2 AMSL = Above Mean Sea Level. MSL is the reference datum from which altitude is measured (in feet). Note: The term altitude refers only to the height measured from MSL (or its abbreviation 'AMSL'). The term "height" (also expressed in feet) may be used AMSL, and AGL. It is conventional practice to specify an aircraft's vertical position in altitude. However, if "height" is used it is important to specify the datum used to prevent confusion. See Q3. AGL.

Q3 AGL = Above Ground Level. The height (not 'altitude') of a defined point or object in the sky measured vertically (in feet) from a specified location (or obstruction) on the ground. Minimum Safe Height is measured from the highest terrain object within 2000ft laterally of an aircraft, except that this shall not apply to any aircraft taking off, or if landing safely. The regulatory catch-net may still charge a pilot with an 'infringement' notice if he or she causes injury or damage to property while landing in a populous area. See Figure 1.

Q4 FT The lineal measurement of 'feet' is used by international convention, for defining altitude (AMSL), and height (AGL). Aviation charts show ground objects and elevations in 'feet'. (The only lateral measurement where 'feet' are used is in the lateral determination of Minimum Safe Heights above ground obstructions.) Objects on most types of maps (including marine charts) are shown in metres. Aviation lateral (horizontal) distances (for clear visibility and distance from cloud) are also measured in metres! (More details on this 'conventional' confusion in Q.19)

Q5 NM - Nautical Mile, which is one 'minute' of distance (not time). This is one-sixtieth of one degree of longitude; or one 60 x 360 (=1/2 1600) part of the polar distance around the earth. NM's are shown as divisions on the vertical grid lines (longitudinals) on charts. These divisions are the latitudes or parallels of latitude.

With the use of callipers any distance can be measured on the chart, using latitudes since 1 minute of latitude equals one NM. Caution: do not use the horizontal graticles (on latitudinal lines) for distance measurement. The latter diminish to nothing at the poles!

Q6 CTA – Control Area. Most controlled airspace is ‘Transponder Mandatory’.

It is generally not possible for HG/PG’s to enter these. A transponder is a piece of electronics that responds to radar scans, and sends back identification to the radar. The limits of Class “C” & “D” Airspace are shown in detail on the Visual Navigation Charts (VNC’s) e.g. for Auckland, Ohakea, Wellington, and Christchurch etc. It must be understood by PG/HG pilots that the normal minimum requirement for entry into Controlled Area is an Aviation Band Radio, when and if air traffic control allows an entry clearance without a transponder. The VNC (charts) show all air space that are TM (transponder mandatory). This means that aircraft require an operative transponder or an air traffic control (ATC) dispensation for having no transponder when receiving the ATC clearance for entry.

Q7 CTR - Control Zone. These extend from aerodrome ground level, to a specified height (usually either 1500ft, or 2500ft AMSL). The lower level of a CTA (Control Area) is shown on VNC’s, i.e., “C” Airspace. Aircraft not fitted with transponders are not allowed to enter class C or D airspace designated as TM unless ATC approves. Class “C” airspace is used at major aerodromes such as Auckland and Ohakea. Class “D” zones cover regional aerodromes such as Whenuapai, Ardmore, and Woodbourne.

Q8 CAA -Civil Aviation Authority. This Crown Owned Entity was established in 1992 to assume most of the responsibilities of the former Air Transport Division (ATD). The Authority is responsible to the Minister of Transport. Its principal function is “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 (\$133/hr in 1998) 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)

If you think you might be flying in a GAA, you need to find out (ask your local club safety officer) what type of GAA it is. 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. The VNC's are printed front and back - four sheets per island as follows: -

- Northland, Auckland
- Waikato, Taupo
- East Cape (note this chart is changing name to Bay of Plenty this year) - Hawkes Bay
- Taranaki, Manawatu
- Wellington, Cook Strait
- Nelson, West Coast
- Christchurch, Canterbury
- Alps, Queenstown
- Otago, Southland

Also two Visual Planning Charts- one for each Island, which are for flight planning. These are Available from ACNZ. For address see Q & A 13.

Q11 A I P SUPPLEMENT: Aviation Information Supplements

Q12 A I P provide aeronautical information such as warnings, area closures, notices of military exercises, notice of changes to regulations or airspace, often of an urgent or temporary nature. NZHGPA provides notice of major flying events (champs) to Airways Corporation 11 weeks in advance, so that air operators have prior warning of extraordinary HG/PG activity. Control Towers will also provide on-the-day warning to aircraft logging flights through their airspace if HG/PG's are active near the area.

Q13 VNC show controlled airspace up to 9500ft. and includes.

Airspace - Controlled

1. CTA Controlled *Areas*
2. CTR Control Zones
3. Control Zone Sectors
4. VFR Transit Lanes (V)
5. General Aviation Areas (G)

Airspace- Special Use such as: Restricted (R), Danger (D), Military (M), Mandatory Broadcast Zones (C), Low Flying (L) PLA's (Parachute Landing Area) (P)
(Note that MBZs will change to a "B" at the end of year 2003)

VNCs may be purchased by post from:

Aviation Publishing also sales. publishing@airways.co.nz

P0 Box 294

Wellington

NEW ZEALAND

Ph 0800 500 045. Fax 0800 686 867

C.A.R.'s can be downloaded free of charge from the CAA website; www.caa.govt.nz You will require Adobe Acrobat reader which can be downloaded free of charge. Take care as some are due for updating.

Q14 CHART CHARACTERS:

- | | | | |
|----------|----------------|----------|--------------------------|
| A | HG/PG activity | B | Wire Hazard |
| C | An airfield | D | A parachute landing Area |

(These can be found on your VNC. You do have one to refer to, don't you?)

Q15 CONTROL ZONES extend from ground Zero TRUE.

NZ International Airports AA, WN, CH, are **CTR/C** (controlled airspace class "C".) No small aircraft may enter these zones unless its transponder is operative. Other domestic (public) airfields and all military airfields such as FIN, OH, WB, are **CTR/D**.

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

Q17 DESCRIBE CLASSES OF AIRSPACE:

Class C: - CTA's at (one aerodrome example should do). CTA's at AA, WN, OH, CH. (Transponders). Upper CTA's are generally above 9500ft. (Not 4U!).

Class D: - All other CTA's. (Includes some military aerodromes.)

Class G: - Unrestricted Airspace, expect where there is special use airspace. VFR operating traffic including HG/PG's, i.e. observing VFR visual clearance distances from cloud, etc. (note there is no such thing as a UTA anymore)

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

5280ft is a land mile, or 'statute' mile. An archaic unit of land measurement used only in the USA.

Q19 UNITS FOR MEASUREMENT OF HEIGHTS AND DISTANCES:

- Aviation heights: - Feet. (by International Convention.) (It's too risky to change it!)
- Land Contours: - Metres.
- Visibility for VFR: - Kilometres. (Estimating your clear visibility distance of 5 km or 8 km seems a hazy process.)
- Aviation horizontal distances : - Nautical miles (NM). NM's are used in the estimation (of lateral distances) from cloud. NMs are also used for the measurement of point-to-point distances on aeronautical charts for navigation and for estimating XC distances

Q20 VERTICAL CLEARANCE from CLOUD

- CLASS/G AIRSPACE, UNDER 3000ft AMSL, BELOW 1000 ft AGL:
ans= Clear of clouds and in sight of ground or water.
- CLASS/G AIRSPACE. HIGHER THAN "a". : ans= 500ft.
- IN CONTROLLED AIRSPACE: ans 1000ft.

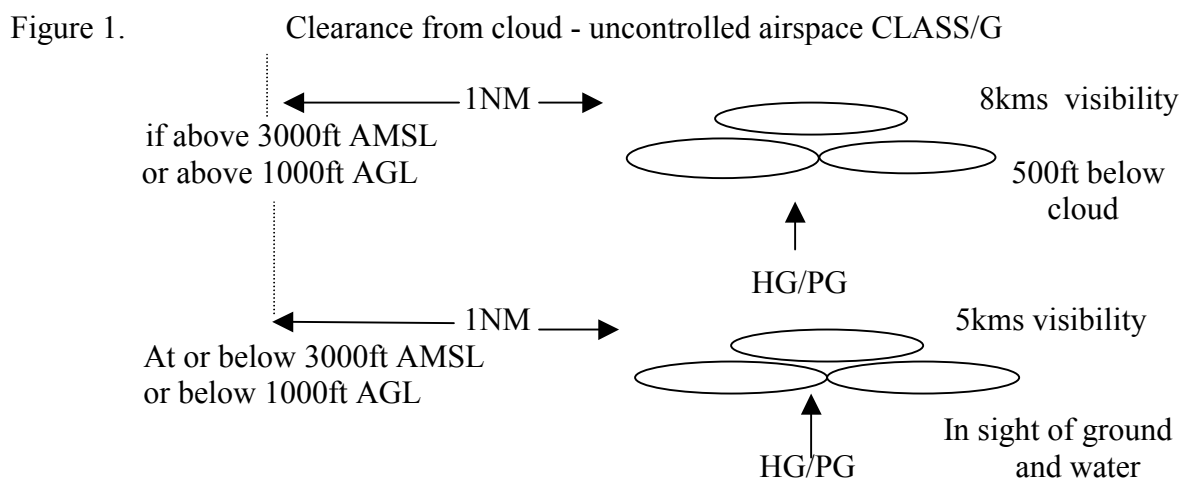
A BROADER PERSPECTIVE: I've yet to find any pilot who can remember the VFR table for one month past the test. It's a bit confusing. What is important to understand, is the difficulty of collision avoidance if either aircraft is not perfectly in the clear. A fixed-wing aircraft which is approaching at 120 knots is traveling in excess of 200ft every second. That's equivalent to 16.5 seconds per kilometre. Some small aircraft go a lot faster.

The second consideration is that many aircraft operate IFR (not visual). This leaves collision avoidance maneuvering to the relatively slow moving hangglider. Under average 'clear visibility' conditions (VMC) it is often difficult to see another aircraft merely one kilometre away. This timing is uncomfortably close for collision avoidance.

The third consideration is the nature of sound waves which precede fast moving aircraft. Often you don't hear a directly approaching aircraft if it's more than twenty seconds away; or 1.3kms! If you're not already clearly visible to each other by the time you hear the aircraft, you're not likely

to be able to change your situation very much before one of you, or both, are in for an unpleasant shock!

Vertical clearance from cloud is precisely stated. Most often HG/PG pilots concern themselves little about this. Their primary concern is to attain height to ensure that flight is maintained, and that a safe landing place is always available. Secondly, most HG/PG pilots do not know the height of cloud base, therefore can't determine 500ft or 1000ft below cloud without first flying up to measure it! Perhaps an amusing perspective. But this is where our practices display poor airmanship ALL WE NEED TO DO IS TO OBTAIN A LOCAL METEOROLOGICAL REPORT BY PHONING A LOCAL CONTROL TOWER, or by listening on VHF to ATIS (Air Traffic Information Service), as other aviators do! Unfortunately, the risk that you may decide to take for yourself, also unwittingly involves someone else who is unaware of a decision that has been made on their behalf! The possibility of passengers being affected worsens that risk.



Q21 CLASS/G AIRSPACE, MIN.FLIGHT VISIBILITY (Laterally) WHEN ABOVE 3000FT AMSL/1000FT AGL: ans= 8 kms.

Q22 (refer Q9)

- 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)

Q23 PILOT QUALIFICATIONS ans = d

Q24 DEFINE BAROMETRIC HEIGHT

: ans= b). Zero set to present sea level barometric pressure.

Q25 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.

Q26 HEIGHT FLOWN BEFORE VFR PASS IS REQUIRED: ans= 500ft AGL.

Q27 CONFLICT ABOUT AIRSPACE SCHEDULED FOR MILITARY EXERCISES:

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

Q28 MINIMUM DISTANCE FROM AERODROMES

There is no minimum distance that HG/PG's must fly from an aerodrome. You may land or fly over BUT ALWAYS ASK FOR PERMISSION. This should be by radio but most HG/PG pilots do not have a licence to operate them therefore you must phone them. Report PG/HG PIN number, position, altitude and time.

If the aerodrome is within a MBZ you will be required to use a radio. If the aerodrome is controlled by ATC, you will need ATC clearance to enter controlled air space. Take care, as the control towers are often aware of your flights.

Q29 FLYING IN GAA's You must open and close the area with ATC by phoning them at Christchurch 0800 626 756 or radio (120.9) and ask for the Duty Supervisor. Be prepared to answer questions. CAA keeps a record of their use. USE IT OR LOOSE IT at the next Air Space Review.

Q30 REQUIREMENT TO CARRY A SERVICEABLE ALTIMETER AT ALL TIMES:

ans= true. Note that metres on an altimeter is not legal.

Q31 RESTRICTION ABOUT FLYING OVER TOWN or POPULOUS AREA

ans= yes the minimum height is 1,000 ft.

Q32 MEMBERSHIP REQUIRED IF FLYING PRIVATE PROPERTY

ans= yes! It makes no difference where you fly in NZ- you're in NZ airspace once you've levitated off Joe Farmer's kumara patch.

However you must have his consent, too, or he can throw the fertiliser at you.

Q33 WHICH DOCUMENTS MUST ALL PG/HG PILOTS HAVE READ AND

UNDERSTOOD: ans= NZHGPA OPM, CAA Rules- that are referring to Gliders, VFR, and Airspace. Note that these are on the CAA web site and are at times just as in need of updating as this exam.

Q34 TWO WAYS OF ESTIMATING WIND DIRECTION DURING X-C FLIGHT: ans=

wave motion on water; tree bend or movement; smoke drift; movement on long grass (before hay is cut!). Also Toitoi (or the similar looking Pampas grass) has a large white-feathered head, which is visible from a thousand feet AGL.

Q35 ACCIDENT REPORTING, WHO TO:

- a. Fatality: Safety Officer, Operations Manager, CAA Search & Rescue, Police (Inform all these people IMMEDIATELY) (important; see below)
- b. Injured requiring hospitalisation: (ditto except for police)
- c. Aircraft damage or structural failure: Safety Officer (within 48 hrs), Operations Manager (within 48 hrs). CAA Search & Rescue (immediately)
- d. Sail/canopy tears in flight: Safety Officer (within 14 days), Operations Manager (within 30 days).
- e. 'A'-frame bent. NIL (or thee to Sunday confession!)
- f. Third party damage: Safety Officer (within 24 hrs), Operations Manager (within 24 hrs)

Comments:

- a, b) Civil Aviation & Search & Rescue are contactable on 0508 ACCIDENT (0508 222 4336) Search & Rescue, as the representative of C.A.A., must be notified of reportable accidents, even where their assistance is not required. Their permission is needed before 'moving or interfering with wreckage', other than to remove persons or secure the craft. Accident

Report information required is not intended to apportion blame or legal liability. It is used for investigating the accident/incident to draw conclusions and make recommendations to increase safety in the sport.

- c) Ordinary damage remains notifiable for consideration of airworthiness (WOF). Upon damage (or any 'modification') the WOF and Certification becomes void.
- d) These may indicate a serious problem with the fabric in terms of a manufacturing weakness, UV degradation, porosity, poor maintenance (nil WOF?), etc. Ref OPMF 36 and OPMF 22
- f) This is important, and could save the pilot, the local Club, or the Associations being sued. The cost of litigation knocks your pants off.

Q36 DEFINE ACCIDENTS INVOLVING:

- a. Injury - If hospitalisation is required. (But these days hospitals expel you before you arrive. If they keep you it's to gas you, or freeze you.)
- b. Aircraft damage - main airframe or structural. (Does not include D-T's which is 'privileged' wreckage.)
- c. 3-rd party damage - where a claim for costs of repair to other persons' property could follow as result of the accident. (see OPM for full details)

(Formal answers to Q's. 37, 38, 39, 40, 41, are contained in the VFG pink pages on emergency procedures.)

Q37 GROUND SIGNAL FOR ASSISTANCE AT ACCIDENT:

ans= V(Can use a glider-bag anchored by stones)

Q38 GROUND SIGNAL SIZE: ans= 1.8m (or 6ft for the oldies).

Q39 GROUND SIGNAL FOR MEDICAL ASSISTANCE: ans= X (2 batten socks)

Q40 GROUND SIGNAL FOR ALL IS WELL: ans LL (20 fresh pairs of luminous sox)

Q41 AIRCRAFT'S SIGNAL CONFIRMING GROUND SIGNALS UNDERSTOOD: ans

Rocking of wings; Flashing of landing lights. If pilot starts flashing' you're best staying put.

Q42 WHAT MAY BE DROPPED FROM A PG/HG?: ans= Anything that does no harm to

anyone.

Q43 APPROACHING ANOTHER AIRCRAFT HEAD ON, WHAT SHOULD YOU DO: ans

b). turn right, right? Once in the air you're driving international rules. It was the medieval Pommy horsemen who opted for keeping to the left to pass because this left them able to draw their swords (if right handed!) to face highway robbers. But in a hangglider it's easier to fire an apple core to the left, which strengthens the importance of passing head-on by veering to the right.

Q44 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.

Q45 WHICH AIRCRAFT HAS RIGHT OF WAY; OVERTAKING OR OVERTAKEN? ans

Overtaken. (But don't change speed or course unless it further distances you from the other aircraft.)

Q46 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.

Q47 DOES A GLIDER WITH ITS RIGHT WING TO THE RIDGE HAVE RIGHT OF WAY? ans= Yes; true.

Q48 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 him head on.) And unless you are the only person in it, you keep going that way.

Q49 WHEN MAY YOU FLY A SITE ABOVE YOUR RATING? ans= If under the direct supervision of an instructor.

Q50 WHEN IS AN HG/PG PERMITTED TO FLY IN CLOUD? ans= Never! It's never-never land. (If you get this one wrong, Foggy, return to Ans 20.)

Q51. WHAT SIGNIFICANCE IS C.E.T (Civil Evening Twilight) TO HG/PGs? ans= This is 30 minutes after natural sunset, and is the time by which all VFR flights must be terminated (and car's headlights turned on).

MARKING:

Failure to correctly answer any one of the "Rules of the Air" questions must result in a fail. These are questions: 43, 44, 45, 46, 47.

95% pass mark.

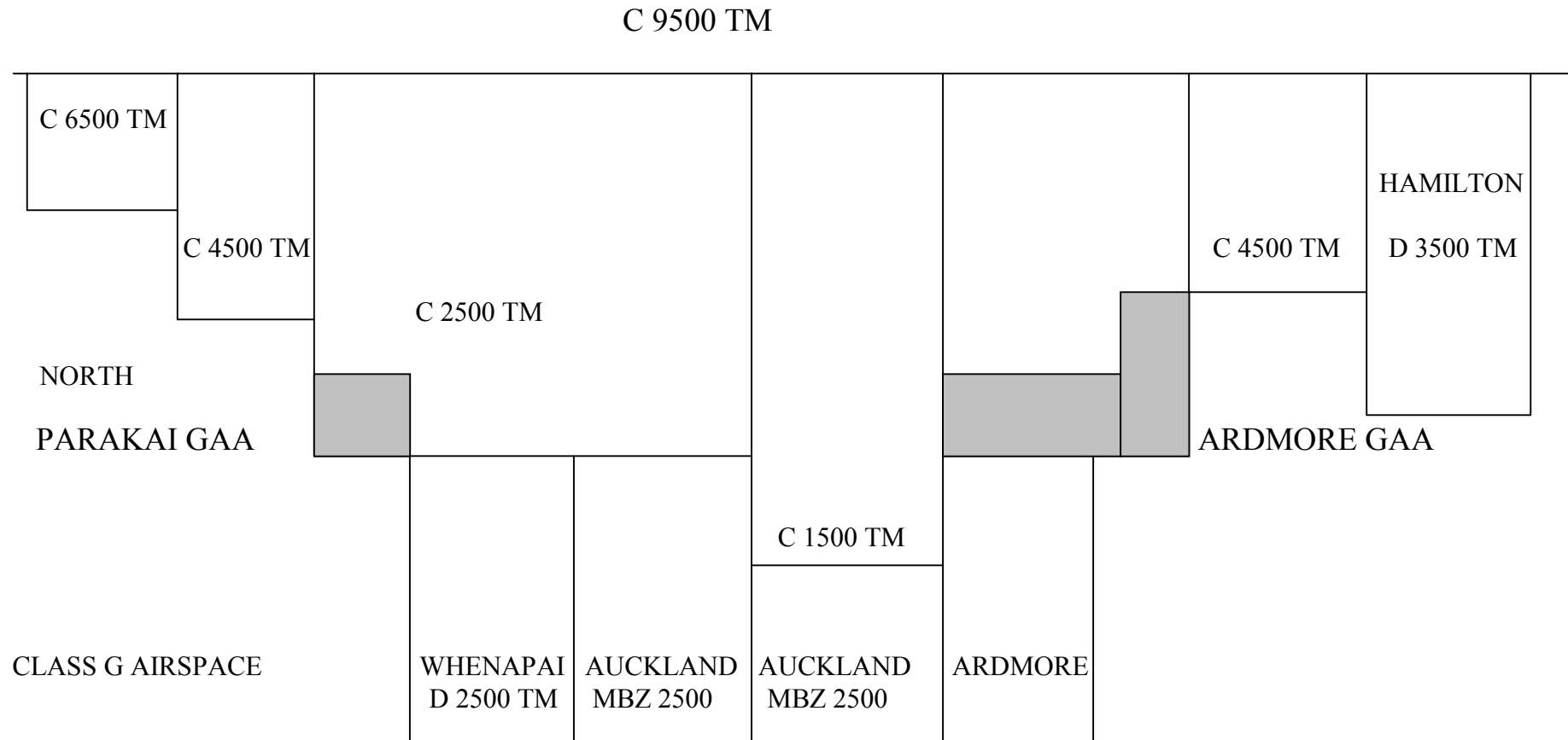
One mark per response produces a total of 80 marks. A 95% pass thus means a total of greater than 76/80 To calculate a PERCENTAGE multiply the answer by 10 and divide by 8.

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"

Figure 2: Simplified Auckland diagram as viewed from the West. The Auckland region was chosen as this is the area of the largest population.

It is permitted to fly HG/PG below the levels shown and outside the boxed areas i.e. Class G airspace.



Class G transit lanes exist to the west and east of the Whenuapai CTR, as well as to the east of the Auckland CTR.

