GLIDING NEW ZEALAND
QUALIFIED GLIDER PILOT CERTIFICATE
METEOROLOGY EXAM

Time Allowed: 1 hour

INSTRUCTIONS:

1. Do not write on this examination paper. Write only on the answer sheet provided. It should be Form OPS-02 and is available on the Gliding NZ web site under "Operations Forms".

2. On the answer sheet, enter your name, date, club and subject.

This is a SAMPLE Meteorology Exam.

3. Questions are of the multiple choice answer type and are to be answered by placing a cross on the answer sheet and over the appropriate letter (A, B, C or D) at the number corresponding to the question.

e.g. 7. X B C D

4. If you make an error and wish to change your choice of answer, circle the error and place a cross on the new answer chosen.

e.g. 7. (X) B X D

5. The paper consists of twenty questions. Read all the questions carefully before making your choice of the possible answers. To attain a pass you must answer at least fourteen questions correctly.

6. You must return both the examination paper and the answer sheet to the supervisor at the completion of the exam.

7. If you consider that any aspect of this examination requires amendment or can be improved upon, please do not hesitate to advise the National Operations Officer

Tips On Exam Technique

This is a multi choice exam where you have 4 possible answers. Only one will be completely correct. The other answers may range from being partly or nearly correct to being obviously wrong!

Read all the answers before committing yourself to the answer you consider correct.

Work out how much time to allow for each question then keep track of time.

Don’t get hung up on one particular question - move on and complete those where you are confident you know the right answer - then come back to those you left.

1. Which of the following statements is correct?

   a) a cool wind flowing down a slope is an Anabatic wind.

   b) wind velocity usually decreases with altitude during the morning and increases in the afternoon.

   c) higher wind speeds are normally associated with low pressure weather systems.

   d) when the isobars are close in the surface analysis chart, the winds are likely to be light.

2. Anabatic wind is

   a) wind flowing into anabatic thermals.

   b) wind flowing up a slope that has been heated by the sun.

   c) the gusty wind flow out of a vigorous thunderstorm cloud.

   d) wind flowing down a slope due to surface cooling.

3. A Föhn Gap

   a) may close rapidly in moist wave conditions.

   b) is the gap formed between the leading edge of a front and a roll cloud.

   c) is the gap that forms between cloud streets in strong wind thermal conditions.

   d) forms when a sea breeze moves inland leaving clear skies behind as thermal conditions die.

4. Thermals cool at the Dry Adiabatic Lapse Rate (DALR) of

   a) 1.5 degrees C per 1000 ft.

   b) 2 degrees C per 1000 ft.

   c) 2.5 degrees C per 1000 ft.

   d) 3 degrees C per 1000 ft.

5. The prevailing wind in NZ is westerly. If strong, downwind of any ranges we may get standing lee waves. When gliding in these conditions, you should be alert for

a) microburst-induced wind shears under the line of wave.

b) light surface winds near the ground as the air flows in waves at higher level.

c) stratus and nimbo-stratus cloud marking the lines of wave and rotor.

d) big variations in wind strength and direction at different places on the ground.

6. Soaring conditions can be affected by *over-development* which is

a) excessive wind breaks up the thermals at low level.

b) when the air is moist and unstable and the buildup of cloud blocks out the sun.

c) unstable air flows over built-up areas like cities and towns.

d) moist air flows over ranges and forms a line of cap cloud that blocks out the sun.

7. The wind direction in an area forecast is given in degrees _____ and that given on an ATIS or from the control tower is in degrees _____

a) true / magnetic.

b) true / true.

c) magnetic / magnetic.

d) magnetic / true.

8. Sea breeze fronts are common in NZ and occur when

a) warm sea air flows in over cooler land early in the morning before the sun warms the land.

b) wind blowing in from the sea is forced up over high terrain.

c) cool air flows in from the sea and meets the warmer air over the land.

d) a cold front comes off the Tasman Sea and hits the warmer west coast shoreline.

9. With the passage of a cold front you can expect the surface wind to

a) increase and swing towards the axis of the frontal line.

b) veer.

c) back.

d) not change.

10. Wind gradient occurs when

a) the surface wind is slowed by surface friction.

b) the wind changes direction with increasing altitude, generally backing to the west in NZ.

c) wind flows down any gradient towards flatter land.

d) the temperature gradient creates a breeze away from the cooler, denser area.

11. In the Southern Hemisphere the wind flows _____ around areas of High Pressure and _____ around areas of Low Pressure. The closer the isobars, the _____ the wind.

a) clockwise / anticlockwise / stronger.

b) anticlockwise / clockwise / weaker.

c) clockwise / anticlockwise / weaker.

d) anticlockwise / clockwise / stronger.

12. Unsecured gliders have been destroyed by line squalls. Line squalls are associated with

a) lines of low level Cirro-stratus as a warm front approaches.

b) frontal lines of Cumulo-nimbus as an active cold front approaches.

c) lines of lenticulars in lee wave conditions.

d) lines of hail falling from pre-frontal Nimbo-stratus.

13. Blue thermals occur when

a) circling over large areas of wet terrain, such as swamps.

b) moist air flows over cool ground particularly after a clear night.

c) the dry adiabatic lapse rate exceeds the dew point on a clear day.

d) there is insufficient moisture in the air to condense to form visible cloud.

14. Wind shadow thermals form when

a) wind blows on to areas shadowed from the sun.

b) areas sheltered from the wind are heated by the sun faster than the surrounding area.

c) the sun heats shoreline areas as a sea breeze approaches.

d) thermals are formed in the shadow of a line of towering cumulus cloud.

15. Icing can form on the surfaces of a glider

a) any time the ambient temperature is below zero.

b) only when flying in cloud.

c) any time the ambient temperature is below zero and there is visible moisture present.

d) only when flowing in or through an isothermal layer.

16. The surface temperature is 21 degrees C, cloudbase is 4000 ft, what is the freezing level?

a) at 10,000 ft.

b) at 4,000 ft.

c) at 8,000 ft.

d) at 7,000 ft.

17. Radiation fog is caused by

a) moist air under clear skies flowing gently over cool ground.

b) moist air being cooled by the earth at night.

c) warm air from daytime heating moving out over the sea.

d) the presence of stratus cloud under a full moon.

18. Hail, lightning and severe turbulence are likely in and around which of the following?

a) cumulo-cirrus.

b) cumulo-nimbus.

c) cirro-cumulus.

d) nimbo-stratus.

19. Lightning

a) only strikes metal gliders.

b) only strikes a glider if it is in cloud.

c) will not damage a “bonded” glider.

d) Can strike and damage any glider in or near an active cumulo-nimbus cloud.

20. Lee waves form when

a) the low level wind over the ranges is 15 knots or greater.

b) the wind direction is within 30 degrees of right angles to the ranges.

c) the wind speed increases with altitude.

d) all of the above.

Question	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Answer	C	B	A	D	D	B	A	C	C	A	D	B	D	B	C	A	A	B	D	D