GLIDING NEW ZEALAND
QUALIFIED GLIDER PILOT CERTIFICATE
METEOROLOGY EXAMINATION

Time Allowed: 1 Hour

INSTRUCTIONS:

1. Do not write on this examination paper.
   Write only on the answer sheet provided.

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

This is 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.
   eg. 7. A. 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.
   eg. 7. A. B. C. D.

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

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 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

1. 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 right to being obviously wrong!

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

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

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

METEOROLOGY

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 “Fohn 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 windshears 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…… 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:

(a) Warm sea air flows in over the cooler land early in the morning before thermic heating warms the land.

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

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

(d) As 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 of large areas of wet terrain; eg. swamps.

(b) Moist air flows over cool ground particularly after a clear nigh

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

(d) When 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 4000 ft.

(c) At 8000 ft.

(d) At 7000 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 either 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.

Answers to Meterology questions:

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