

ANSWER PAPER INSTRUCTORS EYES ONLY.

DO NOT WRITE ON THIS ANSWER PAPER.

THE BRITISH GLIDING ASSOCIATION.
BRONZE CERTIFICATE EXAMINATION PAPER.

1997 EDITION

PAPER NUMBER :-ONE

NAVIGATION PART 2 REQUIRES CANDIDATES TO BE IN POSSESSION OF ONE OF THE FOLLOWING CURRENT 1:500 000 SCALE ICAO CHARTS

- ◆ *SOUTHERN ENGLAND AND WALES*
- ◆ *NORTHERN ENGLAND AND IRELAND*
- ◆ *SCOTLAND, SHETLAND AND ORKNEY*

AND A MARKER PEN, RULER AND PROTRACTOR.

AN 'X' SHOULD BE PLACED IN THE BOX OF THE CANDIDATES CHOICE FOR EACH QUESTION.

IF THEY CHANGE THEIR MIND, THE WRONG ANSWER SHOULD BE CIRCLED AND A NEW CHOICE SELECTED BY PLACING THEIR 'X' IN THE APPROPRIATE BOX.

70 % CORRECT IN EACH SECTION IS REQUIRED TO ACHIEVE A PASS.

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AIR LAW AND BGA OPERATIONAL REGULATIONS.

QUESTION 1. What are the minimum requirements to permit cloud flying in gliders?

- A. **The occupants must wear a serviceable parachute and have been instructed in its use.**
- B. The pilot must have received instruction in the use of blind flying instruments.
- C. Before entering cloud, the pilot must transmit his position and height (QNH) on 130.4 MHZ.
- D. All the above.

QUESTION 2. What are the dimensions of an air traffic zone at an airfield where the longest runway is greater than 1850 metres?

- A. **2000 feet and 5 miles in diameter centred on the mid point of the runway.**
- B. 2500 feet and 5 miles in diameter centred on the mid point of the runway.
- C. 2000 feet and 4 miles in diameter centred on the mid point of the runway.
- D. 2500 feet and 4 miles in diameter centred on the mid point of the runway.

QUESTION 3. You are approaching a strange airfield and received red flashes from the ground, what would your actions be?

- A. Give way to other aircraft and continue circling.
- B. Land immediately.
- C. **Do not land as the airfield is not available for landing.**
- D. Move clear of the landing area.

QUESTION 4. What must all glider pilots carry on flights over 5 nautical miles from their gliding site?

- A. **A current edition 1:500 000 chart.**
- B. A low level navigation chart.
- C. A flight plan.
- D. A serviceable parachute.

QUESTION 5. Whilst planning a cross country flight you notice a purple airway has been 'notamed' along your intended route during the period 1300 to 1500 Hrs. What should your actions be?

- A. Continue as planned as it only applies to powered aircraft.
- B. **Change your route to remain clear of the airway during the notified period.**
- C. Continue as planned and cross the airway in VMC conditions at right angles.
- D. Cross the airway as low as possible to avoid conflict with the royal aircraft.

- QUESTION 6. What are the VMC rules when flying in class D airspace?
- A. 1500 ft horizontally, 1000 ft vertically, clear of cloud and in a flight visibility of more than 8 Km.
 - B. 1500m horizontally, 1000 ft vertically, clear of cloud and in a flight visibility of more than 8 Km.**
 - C. 1000m horizontally, 1500 ft vertically, clear of cloud and in a flight visibility of more than 8 Km.
 - D. 1500m horizontally, 1000 ft vertically, clear of cloud and in a flight visibility of more than 5 Km.

- QUESTION 7. When is there an exemption to the 1500 foot rule?
- A. Never, the rule is rigid and must be adhered to at all times.
 - B. During normal take-off and landing and for life saving, hill soaring**
 - C. Only when excellent soaring conditions exist.
 - D. Only during a field landing.

- QUESTION 8. What are the restrictions imposed on gliders flying within a MATZ. (Military Air Traffic Zone)?
- A. None, the zone is there for military aircraft.
 - B. No entry while the MATZ is active.
 - C. None, so long as the ATZ is not penetrated.**
 - D. None.

- QUESTION 9. When two aircraft are approaching head on, each shall alter its course in which direction?
- A. To the left.
 - B. Only the first to see the other need take avoiding action to the right.
 - C. Only one alters course to the right to save any confusion.
 - D. To the right.**

- QUESTION 10. When two aircraft are converging at approximately the same height, who has the right of way?
- A. The aircraft which has the other on its right has right of way.
 - B. The aircraft on the left.
 - C. Neither. Both must take avoiding action.
 - D. The aircraft which has the other on its right shall give way.**

QUESTION 11. Who has command of a tug / glider combination?

- A. **The tug pilot.**
- B. The glider pilot.
- C. Neither, as there must be a captain of each aircraft.
- D. The most senior of the two pilots.

QUESTION 12. Which of the following statements is most correct?

- A. **Gliders shall give way to airships and balloons.**
- B. Gliders shall give way to balloons.
- C. Balloons shall give way to gliders.
- D. Gliders shall give way to aerotow combinations only.

QUESTION 13. Above what height must oxygen equipment be carried and what height is recommended for it's use?

- A. 10,000 ft amsl and use above 12,000 ft amsl.
- B. **12,000 ft amsl and use above 10,000 ft amsl.**
- C. 10,000 ft amsl and use above 10,000 ft amsl.
- D. 12,000 ft amsl and use above 12,000 ft amsl.

QUESTION 14. You are following a line feature to aid with cross country navigation. What rules should you follow?

- A. Keep the line feature on the right.
- B. None. The line feature rule does not apply to gliders.
- C. **Keep the line feature on the left.**
- D. None. Due to the nature of the sport, gliders always follow the energy.

QUESTION 15. Any accident resulting in death, serious injury or substantial damage to an aircraft must be reported to whom?

- A. The BGA within 24 hours.
- B. The department of transport AAIB.
- C. The police.
- D. **The police and the department of transport AAIB.**

QUESTION 16. What is the maximum launch height allowed by the winch method?

- A. There is no limit.
- B. 2000 ft.
- C. 60 metres.
- D. 2000 ft, but up to 3000 ft at a few notified sites.**

QUESTION 17. A glider is defined as being in flight during what period?

- A. From when it leaves the ground until it touches down again.
- B. From the signal 'take up slack' until it comes to rest after landing.
- C. From when it first moves to take-off until it comes to rest after landing.**
- D. From the signal 'all out' until it touches down again.

QUESTION 18. A continuous green light to an aircraft in flight means what?

- A. Land immediately.
- B. You may land.**
- C. Land when safe to do so.
- D. Do not land.

QUESTION 19. Which of the following is not recommended for flight?

- A. Rain on the wings when the air temperature is close to freezing.
- B. Frost on the wings.
- C. Snow on the wings.
- D. All of the above.**

QUESTION 20. When aerotowing, the tug rocks its wings laterally. What does this mean?

- A. Release, your at 2000 ft.
- B. Release immediately.**
- C. Your air brakes are open.
- D. The tug can't release.

AIRMANSHIP

QUESTION 1. You have just heavy landed your glider. What are the correct actions?

- A. Place an entry in the log book advising the requirement for an inspection at the next convenient opportunity.
- B. Inform the duty instructor before the aircraft flies again.**
- C. Inspect the aircraft in the workshop at cease flying.
- D. Inform the next pilot of a possible problem on the next flight.

QUESTION 2. What will happen to the eyes when a pilot is operating at altitude or above cloud with an empty field of view?

- A. They will tend to focus at infinity.
- B. They will naturally focus at the ideal point to detect other aircraft.
- C. They will focus on the instruments only.
- D. They will tend to focus at a point 1 to 2 metres away.**

QUESTION 3. What will happen to the pilot who accepts a seating position that is too low in the cockpit?

- A. They will lose from view, a part of the approach area under the nose of the glider.**
- B. They will not suffer any disadvantage.
- C. They will have a tendency to undershoot.
- D. They will be able to see much further ahead of the glider.

QUESTION 4. On arrival at a strange airfield, you call on the notified frequency but get no reply. Your radio is serviceable, what should your actions be?

- A. Land anyway, regardless of no radio contact.
- B. Land outside the boundary as the airfield is probably closed.
- C. Watch for any other traffic and follow suit.**
- D. Try and soar back to your home site.

QUESTION 5. What are the correct actions on joining a thermal?

- A. Turn the same direction as others and keep a good lookout.**
- B. Keep a good lookout and centre in the lift, regardless of others.
- C. Centre as quickly as possible to make most use of the lift.
- D. Always turn left in the northern hemisphere.

QUESTION 6. While ridge soaring with the hill on your right, you have to overtake another glider. What should your actions be?

- A. Descend underneath, but staying in the lift.
- B. Overtake on the right.**
- C. Overtake on the left.
- D. Pass on either side as it doesn't matter.

QUESTION 7. While watching a glider about to launch with a senior instructor on board, you notice something that doesn't look quite right. What should you do?

- A. Stay quiet so as not to look the fool.
- B. Ask the advise of the duty pilot.
- C. Stop the launch and bring it to the attention of the duty instructor.**
- D. Nothing, as the senior instructor probably knows about it.

QUESTION 8. You have flown every week-end for six months but missed the last four weekends. What should your actions be?

- A. Continue as normal, lack of currency is not an issue.
- B. Ask for a check flight.**
- C. Fly dual if there is a two seater available.
- D. Fly the single seater to regain currency.

QUESTION 9. You notice on the daily inspection that the radio keeps blowing fuses. What should you do?

- A. Tell the duty instructor before you fly the glider.
- B. Replace with a larger fuse until the problem is solved.
- C. Get a qualified person to take a look at the problem before the glider flies.**
- D. Make an entry in the limitations section of the log book.

QUESTION 10. In a cross wind you notice that the aero tow rope is considerably shorter than normal as you are about to launch on the belly hook (the nose hook is u/s). What should you do?

- A. Continue, as the short rope will help with the cross wind.
- B. Ask the wing tip holder to hold back on the down wind wing.
- C. Refuse the launch as it is getting dangerous to continue under the circumstances.**
- D. Tell the duty instructor about the rope at the end of the flying day.

METEOROLOGY.

QUESTION 1. At the passage of a cold front, what will the wind do?

- A. Veer and decrease.
- B. Back and decrease.
- C. Veer and increase.**
- D. Back and increase.

QUESTION 2. What type of cloud is associated with moist air flowing over a hill?

- A. Anabatic cloud.
- B. Radiation cloud.
- C. Advection cloud.
- D. Orographic cloud.**

QUESTION 3. What does 'Buys Ballots' law state of the northern hemisphere?

- A. If you stand with your back to the wind the low is on your left.**
- B. If you stand with your back to the wind the low is on your right.
- C. Low pressure systems rotate clockwise when viewed from above.
- D. Temperature decreases with height at a rate of 1.7 degrees per 1000 ft.

QUESTION 4. What is usually the first sign of an approaching warm front in the summer months?

- A. Cumulus nimbus rapidly approaching from the west.
- B. High layer cloud slowly approaching, with weakening soaring conditions.**
- C. Rain, heavy at first, slowly dying out as the front approaches.
- D. Increasing winds, but little prospect of rain.

QUESTION 5. What weather associated with cumulus nimbus is considered to be the worst hazard to gliding?

- A. Lightning, blinding pilots and damaging gliders.
- B. Hail stones, puncturing fabric covered aircraft in flight.
- C. Ice, making height gains treacherous.
- D. Increased wind strength together with rapid direction changes, making landing in particular, very difficult.**

QUESTION 6. What is the cause of radiation fog?

- A. Warm dry air, flowing over cold wet ground.
- B. Warm moist air, flowing over cold dry ground, being cooled from beneath.
- C. The sun, warming cold moist ground.
- D. **Moist air, cooling over night to below the dew point with light winds.**

QUESTION 7. What is the cause of advection fog?

- A. Warm dry air, flowing over cold wet ground.
- B. **Warm moist air, flowing over cold dry ground, being cooled from beneath.**
- C. The sun, warming cold moist ground.
- D. Warm moist air, flowing over a hill or ridge.

QUESTION 8. Wind gradient is a problem for glider pilots, but why?

- A. Rapid changes in wind direction with height.
- B. Turbulence, due to the fast flow close to the ground.
- C. Loss of airspeed on the winch launch.
- D. **Rapid reduction in wind strength close to the ground.**

QUESTION 9. A high pressure inversion in summer will have what effects on soaring?

- A. Prevention of the formation of thermals.
- B. **Prevention of the formation of cumulus, once the inversion is below the dew point.**
- C. Increase the overall average thermal strength due to lack of cloud shadow.
- D. Allow thermals to continue later into the evening.

QUESTION 10. What is the overlapping of a warm and cold front called?

- A. **An occlusion.**
- B. A col.
- C. A depression.
- D. An inversion.

NAVIGATION part 1.

QUESTION 1. The first leg of an out and return cross country flight is 045 degrees true. Magnetic variation is 5 degrees west. What will the reciprocal heading be?

- A. **230 Magnetic.**
- B. 225 Magnetic.
- C. 220 Magnetic.
- D. 235 True.

QUESTION 2. The forecast wind is 230/10. You are on a 50km flight where the desired track is 178 degrees true. What effect will the wind have on the glider?

- A. **Drift to left of track with low ground speed.**
- B. Drift to right of track with low ground speed.
- C. Drift to left of track with high ground speed.
- D. Drift to right of track with high ground speed.

QUESTION 3. What is the difference between track and heading?

- A. Track is the way the glider points / heading is the route over the ground.
- B. **Heading is the way the glider points / track is the route over the ground.**
- C. Due to the low speeds involved with gliding they are assumed to be the same.
- D. Track takes into account wind direction and strength. Heading doesn't.

QUESTION 4. Your airfield is 270 feet above mean sea level (amsl). If the airfield pressure (QFE) is 998 millibars (hectopascals), what height above the airfield is flight level 55? (Assume 1 millibar = 30 feet).

- A. 5500 feet.
- B. 5950 feet.
- C. 5450 feet.
- D. **5050 feet.**

QUESTION 5. During a final glide, the optimum speed to fly gives you a ground speed of 90 kts. How far from your goal airfield do you make the 5 min and 2 min calls?

- A. 5 nautical miles and 2 nautical miles.
- B. **7.5 nautical miles and 3 nautical miles.**
- C. 10 kilometres and 5 kilometres.
- D. 7.5 kilometres and 3 kilometres.

- QUESTION 6. Which of the following defines visual flight rules below 3000 feet?
- A. 1000 feet vertically and 5 nautical miles horizontally from cloud and in sight of the ground.
 - B. 1500 feet vertically and 1000 feet horizontally from cloud and in sight of the ground.
 - C. 1000 feet vertically and 1500 feet horizontally from cloud and in sight of the ground.
 - D. **Clear of cloud, in a flight visibility of 1500 metres and in sight of the ground when airspeed is less than 140 Kts.**

- QUESTION 7. Your cross country track takes you through a MATZ. What should your actions be?
- A. **Fly through the MATZ but be aware of the ATZ within.**
 - B. Call the controlling authority and ask for permission to penetrate the MATZ.
 - C. Put in a 'dog leg' to avoid the MATZ.
 - D. Remain VMC whilst in the MATZ.

- QUESTION 8. After a long busy period in a weak thermal, you are unaware of your exact location. What are the correct actions?
- A. Check your GPS for an accurate fix.
 - B. Carry on with the original heading as you shouldn't have drifted too far.
 - C. **Find three features on the ground and look for them on the map to identify your exact position.**
 - D. Find three features on the map and look for them on the ground to identify your exact position.

- QUESTION 9. When is the E2B or Airpath compass most reliable for gliding?
- A. On an east or west heading.
 - B. On a north or south heading.
 - C. **Flying level at a constant speed.**
 - D. Stationary at the equator.

- QUESTION 10. The time is 1600 hrs UTC. You are on the second leg of a 300 kilometre triangle and the track for the leg is 275 degrees. Where should the sun be?
- A. Behind.
 - B. On your right side.
 - C. **Left of straight ahead.**

- D. In your five O'clock position.

PRINCIPLES OF FLIGHT.

QUESTION 1. When is total drag at a minimum?

- A. At the stall.
- B. At velocity never exceed.
- C. At best glide (best L/D).**
- D. At minimum sink.

QUESTION 2. What causes induced drag?

- A. Wing tip vortices.
- B. The frontal area resisting the airflow.
- C. Span wise airflow leading to trailing edge and wing tip vortices.**
- D. Rough surfaces on the glider.

QUESTION 3. What is the aspect ratio of a glider?

- A. Wing span : mean chord.**
- B. Wing span : surface area.
- C. Weight : wing area.
- D. Total lift : weight.

QUESTION 4. Which two quantities are required to be present for a glider to spin?

- A. Roll and yaw.
- B. High angle of attack and yaw.**
- C. Nose high attitude and yaw.
- D. High angle of attack and roll.

QUESTION 5. Below what maximum speed is it safe to use full deflection of any one control, regardless of the situation?

- A. V_d . Maximum dive speed, by design.
- B. V_{ne} . Velocity never exceed.
- C. V_b . Maximum rough air speed.
- D. V_a . Maximum manoeuvre speed.**

QUESTION 6. What effect do air brakes have on a glider?

- A. Increase drag only.
- B. Reduce lift only.
- C. Increase stability, reduce lift and increase drag.**
- D. Reduce lift and increase drag.

QUESTION 7. On a silver duration flight, the weather starts to decay after four hours. What is the best speed to fly in order to complete the flight?

- A. Minimum sink.**
- B. Best glide (best L/D).
- C. Just above the stall.
- D. It is irrelevant, as the weather will cause the flight to be terminated early.

QUESTION 8. With regard to any aeroplane or glider, what is the standard spin recovery for minimum height loss?

- A. Stick forward, full opposite rudder, centralise the controls when the spinning stops and recover from the dive.
- B. Ailerons neutral, full opposite rudder, stick centrally forward until the spin stops, centralise the controls and recover from the dive.**
- C. Let go the controls as the aircraft will exit the spin on its own.
- D. Full opposite rudder, stick centrally forward until the spin stops, centralise the controls and recover from the dive.

QUESTION 9. While maintaining the normal gliding attitude you notice that the air speed indicator is reading low and erratic. What is most likely the cause?

- A. Water in the static system.
- B. Water in the Pitot system.**
- C. Ice in the static system.
- D. Ice in the Pitot system.

QUESTION 10. 'Wash out' is a term used to describe a particular design feature of a glider. What does it describe?

- A. A twist in the wing, such that the inboard part of the wing stalls before the outboard, hence preventing wing drop at the stall.**
- B. The angle that the top and bottom surfaces make at the trailing edge, thus reducing induced drag.
- C. The amount of airflow deflected over the ailerons due to the air brakes being

open.

D. The angle that the wings sweep forward from the root to tip, as in the ASK 13.

RADIO TELEPHONY.

QUESTION 1. The frequency 130.4 MHZ is allocated for what purpose?

- A. Competition only.
- B. Ground to ground only.
- C. Training purposes only.
- D. Cloud flying and related cross country messages only.**

QUESTION 2. What are the requirements with which you must comply to operate a radio in a glider on the gliding frequencies?

- A. A licence for the radio and an RT licence for the pilot.
- B. A licence for the radio only.**
- C. An RT licence for the pilot only.
- D. A citizens band radio licence.

QUESTION 3. What should be the actions of a pilot before entering cloud?

- A. Make a general announcement on 130.1 MHZ if within 5 Nms of a gliding site.
- B. Make a general announcement on 130.4 MHZ stating position and flight level.
- C. Make a general announcement on 130.125 MHZ stating position and altitude.
- D. Make a general announcement on 130.4 MHZ stating position and altitude.**

QUESTION 4. What are the requirements for a glider pilot to transmit in the aeronautical VHF band?

- A. No radio operators licence required if only BGA gliding frequencies are used.**
- B. No radio operators licence required regardless of frequency used.
- C. No radio operators licence required regardless of frequency used, so long as the set complies with the CAA regulations.
- D. A radio operators licence is required regardless of frequency used.

QUESTION 5. A radio installed in a motor vehicle for the purpose of communication with gliders must have a licence. Who issues the licence?

- A. The Civil Aviation Authority.**
- B. National Air Traffic Service.
- C. The Post Office.
- D. The Home Office.

QUESTION 6. What are the requirements for a radio transmitting set installed in a retrieve car?

- A. Need not be licenced if operated on the BGA frequencies only.
- B. Need not be licenced so long as it complies with CAA regulations.
- C. Must be licenced with the Civil Aviation Authority.**
- D. Must be licenced with the Ministry of Transport.

QUESTION 7. Which of the following is correct for a gliders initial transmission to a ground station? (Glider call sign = Alpha Charlie Zulu. Ground station = Bicester)

- A. Alpha Charlie Zulu to Bicester base.
- B. Bicester base this is Alpha Charlie Zulu.**
- C. Bicester this is Charlie Zulu.
- D. Alpha Charlie Zulu calling Bicester.

QUESTION 8. Before entering cloud, the pilot of a glider should make a general announcement of his height and position. Which frequency should he use?

- A. 130.125 MHZ or 130.4 MHZ which ever is available.
- B. 121.5 MHZ .
- C. 129.9 MHZ .
- D. 130.4 MHZ.**

QUESTION 9. Which of the following frequencies is shared with other users?

- A. 129.975 MHZ .
- B. 130.125 MHZ .
- C. 129.9 MHZ .**
- D. 130.1 MHZ .

QUESTION 10. Which of the following frequencies is solely for gliding use?

- A. 129.9 MHZ .
- B. 130.125 MHZ .**
- C. 121.5 MHZ .
- D. 131.4 MHZ .

NAVIGATION part 2. Assume throughout that magnetic variation is 5 degrees west.
You require a pen, ruler, protractor and a copy of the ICAO 1:500 000 scale aeronautical chart **SOUTHERN ENGLAND AND WALES.**

1. The task is an out and return from Lasham. Draw a line on your map from Lasham (N 51-11.33'. W 001-01.81') to Didcot power station (N 51-37.27'. W 001-15.57').

QUESTION 1. What is the out bound true track and the return magnetic track?

- A. **342 T and 167 M.**
- B. 342 T and 162 M.
- C. 347 T and 167 M.
- D. 347 T and 162 M.

QUESTION 2. Just south of Didcot is an area marked P106/2.5. What rules apply to a glider when flying in the vicinity of this area?

- A. I may fly overhead at greater than FL 2.5.
- B. **I may fly overhead at greater than 2500 ft above mean sea level.**
- C. I may fly overhead at greater than 2500 ft above ground level.
- D. I am prohibited from overflying the area.

QUESTION 3. What is the approximate distance of each leg?

- A. 32 nautical miles or 50 kilometres.
- B. 32 nautical miles or 40 kilometres.
- C. 27 nautical miles or 40 kilometres.
- D. **27 nautical miles or 50 kilometres.**

QUESTION 4. How high above the ground is the tallest part of Didcot power station?

- A. **654 ft.**
- B. 832 ft.
- C. 178 ft.
- D. 1486 ft.

QUESTION 5. How will the M4 be of assistance as a navigational aid?

- A. **It will help with assessing progress along track.**
- B. It will help with drift assessment.
- C. It will confirm that the right direction is being followed.

D. It will be of limited use as a navigational feature.

QUESTION 6. Approximately half way along the first leg the chart shows an area annotated LTMA 4500' ALT +. What indication would you expect on your altimeter, assuming it was set to zero before take off, at the base of the airspace?

- A. 5120 ft.
- B. 4500 ft.
- C. 3880 ft.**
- D. 3500 ft.

QUESTION 7. With the altimeter set to 618 ft before take off, how high can you climb before commencing the task?

- A. 6118 ft.
- B. FL 55.
- C. 4882 ft.
- D. 5500 ft.**

QUESTION 8. Assuming the altimeter is set to the Lasham QNH, what is the lowest indicated height allowed when crossing R101/2.4?

- A. 2400 ft.**
- B. 1780 ft.
- C. 3000 ft.
- D. 240 ft.

QUESTION 9. What will be the duration of the task if the average speed is 50 Kph?

- A. 1 hour 30 minutes.
- B. 2 hours.**
- C. 2 hours 30 minutes.
- D. 3 hours.

QUESTION 10. If the glide ratio is 1:30, and assuming there is nil wind, what height will be needed for the 4 Nm final glide when crossing the M3 at Basingstoke to arrive at 800 ft?

- A. 1350 ft above Lasham.
- B. 1450 ft above Lasham.
- C. 1600 ft above Lasham.**
- D. 1800 ft above Lasham.

NAVIGATION part 2. Assume throughout that magnetic variation is 5 degrees west.
You require a pen, ruler, protractor and a copy of the ICAO 1:500 000 scale aeronautical chart
NORTHERN ENGLAND AND NORTHERN IRELAND.

1. The task is an out and return from Camphill. Draw a line on your map from Camphill (N 53-18.29'. W 001-43.66') to Rufforth (N 53-46.57'. W 001-11.20').

QUESTION 1. What is the out bound true track and the return magnetic track?

- A. **034 T and 219 M.**
- B. 039 T and 219 M.
- C. 034 T and 214 M.
- D. 039 T and 214 M.

QUESTION 2. Just south of Rufforth is an area marked MATZ. What rules apply to a glider when flying in the vicinity of this area?

- A. I may fly overhead at greater than FL 3.0.
- B. **I may fly within the MATZ but must not penetrate the ATZ.**
- C. I may fly overhead at greater than 3000 ft above ground level.
- D. I am prohibited from flying within the area.

QUESTION 3. What is the approximate distance of each leg?

- A. 32 nautical miles or 50 kilometres.
- B. 34.3 nautical miles or 65.5 kilometres.
- C. 34 nautical miles or 60 kilometres.
- D. **34.3 nautical miles or 63.5 kilometres.**

QUESTION 4. How high above the ground is the tallest part of the mast between Castleford and Knottingley?

- A. **654 ft.**
- B. 684 ft.
- C. 710 ft.
- D. 624 ft.

QUESTION 5. How will the M1 be of assistance as a navigational aid?

- A. **It will help with assessing progress along track.**
- B. It will help with drift assessment.

- C. It will confirm that the right direction is being followed.
- D. It will be of limited use as a navigational feature.

QUESTION 6. Approximately half way along the first leg the chart shows an area annotated CTA 3000' - FL85. What indication would you expect on your altimeter, assuming it was set to zero before take off, at the base of the airspace?

- A. 1350 ft.
- B. 2730 ft.
- C. 1650 ft.**
- D. 3000 ft.

QUESTION 7. With the altimeter set to 1013.2 millibars before take off, how high can you climb before commencing the task?

- A. 6350 ft.
- B. 5150 ft.
- C. 5500 ft.
- D. 6500 ft.**

QUESTION 8. Assuming the altimeter is set to the Camphill QNH, what is the lowest indicated height allowed if crossing the Church Fenton ATZ?

- A. 2029 ft.**
- B. 2000 ft.
- C. 3000 ft.
- D. 679 ft.

QUESTION 9. What will be the duration of the task if the average speed is 50 Kph?

- A. 1 hour 16 minutes.
- B. 2 hours 32 minutes.**
- C. 2 hours.
- D. 2 hours 52 minutes.

QUESTION 10. If the glide ratio is 1:30, and assuming there is nil wind, what height will be needed for the 16.5 Nm final glide when crossing the M1 at Barnsley to arrive at 800 ft?

- A. 3344 ft above Camphill.
- B. 3200 ft above Camphill.
- C. 4000 ft above Camphill.
- D. 4144 ft above Camphill.**

NAVIGATION part 2. Assume through out that magnetic variation is 6 degrees west.
You require a pen, ruler, protractor and a copy of the ICAO 1:500 000 scale aeronautical chart
SCOTLAND, ORKNEY AND SHETLAND.

1. The task is an out and return from Portmoak. Draw a line on your map from Portmoak (N 56-11.33'. W 003-19.23') to Aboyne (N 57-04.53'. W 002-50.48').

QUESTION 1. What is the out bound true track and the return magnetic track?

- A. **016 T and 202 M.**
- B. 016 T and 196 M.
- C. 022 T and 202 M.
- D. 022 T and 196 M.

QUESTION 2. Just south of Dundee is an area marked MATZ. What rules apply to a glider when flying in the vicinity of this area?

- A. I may fly overhead at greater than FL 3.0.
- B. **I may fly within the MATZ but must not penetrate the ATZ.**
- C. I may fly overhead at greater than 3000 ft above ground level.
- D. I am prohibited from flying within the area.

QUESTION 3. What is the approximate distance of each leg?

- A. 50.4 nautical miles or 95 kilometres.
- B. 56.5 nautical miles or 100 kilometres.
- C. 60.2 nautical miles or 110 kilometres.
- D. **55.6 nautical miles or 103 kilometres.**

QUESTION 4. How high above the ground is the tallest part of the mast approximately 5 nm due north of Dundee?

- A. **784 ft.**
- B. 1811 ft.
- C. 1493 ft.
- D. 1116 ft.

QUESTION 5. How will the river Tay be of assistance as a navigational aid?

- A. **It will help with assessing progress along track.**
- B. It will help with drift assessment.

- C. It will confirm that the right direction is being followed.
- D. It will be of limited use as a navigational feature.

QUESTION 6. At the end of the first leg the chart shows an area annotated Aberdeen CTA 3000' to FL115. What indication would you expect on your altimeter, assuming it was set to zero before take off, at the base of the airspace?

- A. 2460 ft.
- B. 3360 ft.
- C. 2640 ft.**
- D. 3000 ft.

QUESTION 7. With the altimeter set to 1013.2 millibars before take off, how high can you climb before commencing the task?

- A. 6350 ft.
- B. 5150 ft.
- C. 5500 ft.
- D. 6500 ft.**

QUESTION 8. Assuming the altimeter is set to the Portmoak QNH, what is the lowest indicated height allowed if crossing the Perth ATZ?

- A. 2397 ft.**
- B. 2000 ft.
- C. 3000 ft.
- D. 1612 ft.

QUESTION 9. What will be the duration of the task if the average speed is 50 Kph?

- A. 2 hour 4 minutes.
- B. 4 hours 7 minutes.**
- C. 4 hours.
- D. 4 hours 20 minutes.

QUESTION 10. If the glide ratio is 1:30, and assuming there is nil wind, what height will be needed for the 14 Nm final glide when passing abeam Errol to arrive at 800 ft?

- A. 2840 ft above Portmoak.
- B. 3844 ft above Portmoak.
- C. 4000 ft above Portmoak.
- D. 3640 ft above Portmoak.**

INSTRUCTORS EYES ONLY
ANSWERS

INTENTIONALLY LEFT BLANK

ANSWERS
INSTRUCTORS EYES ONLY