

# **ANSWER PAPER INSTRUCTORS EYES ONLY.**

**DO NOT WRITE ON THIS ANSWER PAPER.**

THE BRITISH GLIDING ASSOCIATION.  
BRONZE CERTIFICATE EXAMINATION PAPER.

1997 EDITION

**PAPER NUMBER :-FIVE**

**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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# **ANSWER PAPER INSTRUCTORS EYES ONLY.**

**AIR LAW AND BGA OPERATIONAL REGULATIONS.**

QUESTION 1. Whilst hill soaring which of the following statements is always true?

- A. A glider wishing to overtake another should pass on its left side.
- B. A glider wishing to overtake another should pass on its right side.
- C. A glider wishing to overtake another should pass between it and the hill.**
- D. A glider wishing to overtake another should pass beneath it.

QUESTION 2. What does a double white cross ( ++ ) showing on a runway indicate?

- A. An area where the runway is not available for landing.
- B. Gliders and powered aircraft are using the same runway.
- C. An area that shall only be used for the take off and landing of gliders.**
- D. An area that shall only be used for powered aircraft.

QUESTION 3. Whilst approaching an airfield you notice a red flare fired from the control tower. What should your actions be?

- A. Keep a good look out as there must be another aircraft near by.
- B. Do not land, wait for permission.**
- C. Remain clear of the ATZ.
- D. Continue with the circuit and watch for further instructions.

QUESTION 4. What does a red and yellow striped arrow in the signal square of an airfield indicate?

- A. The direction to follow the taxiway when recovering aircraft or gliders to park.
- B. The direction of thermal turns for gliders.
- C. The direction in which to vacate the runway after landing.
- D. The direction of circuit in use.**

QUESTION 5. What does a white 'T' in the signal square of an airfield denote?

- A. Aircraft landing and taking off will do so in a direction parallel with the shaft of the 'T' and towards the cross arm.**
- B. The location of the tea cabin.
- C. Gliders will be landing at right angles to that of powered aircraft.
- D. Two runways are simultaneously in use.

QUESTION 6. What does a white dumbbell displayed in the signal square signify?

- A. Both gliders and powered aircraft are operating from the airfield.
- B. Movements of aircraft on the ground are confined to paved surfaces.**
- C. Winch launching and aerotows are in progress at the same time.
- D. Paved areas are only available for powered aircraft. Gliders must land on the grass.

QUESTION 7. Which statement is most correct? You should not fly -

- A. Over or within 3000 ft of any open air gathering of more than 1000 people assembled for the purpose of witnessing or participating in any organised event.
- B. Below a height of 2000 ft above the highest fixed obstacle within 1500 ft of the glider.**
- C. Below a height of 2000 ft above any congested area of a city, town or settlement.
- D. At a height where you are not able to glide clear of a congested area to a suitable landing place.

QUESTION 8. Your cross country route takes a line through East Midlands CTA. What must be your actions during the flight?

- A. Maintain VMC whilst in the CTA and keep a good look out.
- B. Cross at the lowest possible level to avoid conflict with other traffic.
- C. Call the ATC unit to inform them of your presence. They will provide separation from other traffic. You must hold a CAA RT license.**
- D. Cross at right angles, maintaining VMC.

QUESTION 9. What is the tug pilot signalling when you see the rudder wagging?

- A. Check your air brakes are not open or drag chute deployed and close or jettison as necessary.**
- B. You are to release immediately.
- C. Wait until the tug tows you overhead the airfield and releases his end of the rope.
- D. Expect the tug to slow down and continue at a slower speed.

QUESTION 10. Other than persons by parachute in an emergency, which is most correct statement with reference to items permitted to be dropped from a glider in flight?

- A. Ballast in the form of water.
- B. Tow ropes at an approved airfield.
- C. Nothing.
- D. Ballast in the form of fine sand or water.**

QUESTION 11. What is the maximum width of an airway that may be crossed by a glider in

VFR conditions?

- A. **10 nautical miles.**
- B. 15 nautical miles.
- C. 5 nautical miles.
- D. Gliders are not allowed to cross airways at all.

QUESTION 12. Under what circumstances is a weak link not required in the winch / auto tow cable?

- A. If the launch is a hill top site where the conditions are likely to be rough and break the weak link on a regular basis.
- B. **The proven breaking strain of the launch cable is lower than that of the weak link strength required by the glider manufacturer.**
- C. The tow car is of low power.
- D. The glider is a heavy two seater with a history of breaking weak links.

QUESTION 13. What are the requirements to fly a newly rigged club aircraft?

- A. Any pilot with the type endorsement in their log book.
- B. You must be an instructor authorised by the CFI or deputy for that purpose.
- C. Any instructor who is self authorising may carry out the task.
- D. **You must be authorised by the CFI or deputy for that purpose.**

QUESTION 14. What are the hours of day light (determined on the ground ) as defined for flying purposes?

- A. Street lights 'off' to street lights 'on'.
- B. **30 minutes before sunrise until 30 minutes after sunset.**
- C. 30 minutes after sunrise until 30 minutes before sunset.
- D. Sunrise until sunset.

QUESTION 15. What are the requirements for keeping an accurate and up to date personal flying log book?

- A. **All pilots up to silver C and all instructors to prove their renewal requirements have been met.**
- B. All pilots.
- C. There are no requirements.
- D. All pilots flying club owned aircraft to prove their currency.

QUESTION 16. What are the rules for flight between FL 245 and FL 660?

- A. There are no restrictions.
- B. Only allowed in certain designated areas (windows) with prior permission.**
- C. No glider flights allowed due to the difficulties in controlling such airspace.
- D. Only allowed with prior permission from the controlling authority.

QUESTION 17. Who has the right of way when two aircraft are landing together?

- A. The faster aircraft.
- B. The lower aircraft. ( unless the other is obviously in distress ).**
- C. The aircraft with the lower performance.
- D. The least experienced pilot.

QUESTION 18. What are the requirements from a glider pilot who is unable to release from the aerotow?

- A. Fly out to the left and rock his wings.**
- B. Fly out to the right and rock his wings.
- C. Try to break the rope.
- D. Call the tug on the radio and inform him of the problem.

QUESTION 19. You are joining below a glider in a thermal. What are your actions?

- A. Leave the thermal and find another.
- B. Turn either direction as long as there is sufficient separation.
- C. Turn in the same direction.**
- D. Remain at a safe distance below the other glider.

QUESTION 20. What are your actions if you suspect any defect or damage to a glider?

- A. Report it to the duty pilot before the next flight.
- B. Report it to the duty instructor before the next flight.**
- C. Note the defect or damage in the DI book before the next flight.
- D. Ground the glider until an inspector can check for defects or damage.

AIRMANSHIP

QUESTION 1. While hill soaring with the hill on your left, you meet a higher performance glider coming the other way. Who has right of way and what actions should you take?

- A. **The other glider has right of way and you should turn right.**
- B. You have right of way being the lower performing glider but should be prepared to give way.
- C. You have right of way but the rules of the ridge dictate that you should give way.
- D. Neither has right of way and both should turn right.

QUESTION 2. After Scuba diving, the guide lines are 'do not fly within 12 hours of swimming using compressed air and avoid flying for 24 hours if a depth of 30 feet has been exceeded'. Which risk is being kept to a minimum?

- A. Hyperventilation.
- B. Hypoxia.
- C. **Decompression sickness.**
- D. Sensory loss.

QUESTION 3. What is the function of the eustachian tube?

- A. To allow the middle ear to drain freely.
- B. **To allow the middle ear to equalize with ambient pressure.**
- C. To allow the inner ear to equalize with ambient pressure.
- D. To allow the inner ear to drain freely.

QUESTION 4. What is the main cause of motion sickness?

- A. Direct effect of movement on the stomach.
- B. **The mismatch between visual and vestibular sensory inputs.**
- C. Changes in blood pressure produced by motion.
- D. Long periods of 'head inside the cockpit'.

QUESTION 5. After an aerobatic session the accelerometer reads +4g and -2.5g. What action do you need to take, if any?

- A. None, as the limit loads have not been exceeded.
- B. **Inform the duty instructor before it flies again, as the placard limits have been exceeded.**
- C. Make an entry in the DI book to record the applied loads.
- D. Inform the CFI at the end of the day.

QUESTION 6. On returning to your home airfield after a long flight, the duty instructor alerts you on the radio, of a strong wind gradient. What should you do?

- A. Watch out for heavy sink on the approach.
- B. Watch for increasing wind strength close to the ground.
- C. Use less airbrake on the later part of the approach.
- D. Increase airspeed well above the normal and be prepared for rapid reduction in airspeed close to the ground.**

QUESTION 7. You are climbing in good wave lift, but your glider is not equipped with oxygen. At what height is it recommended you should abandon your climb?

- A. 12,000 feet.
- B. 10,000 feet.**
- C. 8,000 feet.
- D. 17,000 feet.

QUESTION 8. While on a cross country, you are continually correcting your heading to the right in order to reach your goal. What might this signify?

- A. The wind is from the right of track.**
- B. The wind is from the left of track.
- C. There is probably a magnetic anomaly affecting the compass.
- D. Magnetic variation is particularly strong at this time.

QUESTION 9. What disadvantages, if any, would there be in getting too close to cloud base?

- A. You may lose sight of your next thermal.
- B. You may inadvertently enter cloud and exit in the wrong direction.
- C. You may inadvertently enter cloud and ice up sufficiently enough to lose out on performance, making the extra height gain worthless.
- D. All of the above.**

QUESTION 10. How would you check your chosen field for slope?

- A. Looking for direction of tractor wheel marks.
- B. Looking for water.
- C. Checking the map for contours.
- D. Flying all around the field checking for visual indications.**

METEOROLOGY.

QUESTION 41. What is the cause of katabatic winds?

- A. **Cooling air becomes more dense and therefore sinks. At night this sinking air will flow down hills and through valleys creating the wind.**
- B. Warm air becomes less dense and rises. With the sun on a slope during the day, warm air flows up hill creating the wind.
- C. Exhaust air descending in a high pressure system leads to the creation of the wind.
- D. The wind blowing over a ridge creates a low pressure on the leeward slope which in turn sucks air out of the leeward valley creating the wind.

QUESTION 2. What is the cause of anabatic winds.

- A. Cooling air becomes more dense and therefore sinks. At night this sinking air will flow down hills and through valleys creating the wind.
- B. **Warm air becomes less dense and rises. With the sun on a slope during the day, warm air flows up hill creating the wind.**
- C. Exhaust air descending in a high pressure system leads to the creation of the wind.
- D. The wind blowing over a ridge creates a low pressure on the leeward slope which in turn sucks air out of the leeward valley creating the wind.

QUESTION 3. What is the ICAO standard altimeter setting?

- A. Whatever the regional QNH is on the flight.
- B. Whatever the forecast QNH is on the day.
- C. **1013.2 millibars, ( hectopascals ), regardless of local conditions.**
- D. 1013.2 millibars, (hectopascals ), unless the regional QNH is lower.

QUESTION 4. When an altimeter scale is set to QNH, what does it indicate?

- A. Height above the ground.
- B. Altitude above the ground.
- C. Altitude, which is height above 1013.2 millibars, ( hectopascals).
- D. **Altitude, which is height above mean sea level.**

QUESTION 5. What conditions are usually associated with warm dry air from the continent flowing over the UK in the summer?

- A. Convective cloud, showers and thunderstorms.
- B. Stratus, sea fog and drizzle.
- C. Warm with clear skies.
- D. **Warm with hazy weather.**

QUESTION 6. Which of the following is the most accurate definition of the adiabatic lapse rate?

- A. **The rate of change of temperature with increasing height, taking into account the moisture content, i.e. dry or saturated.**
- B. The rate of change of temperature with increasing height.
- C. The rate of change of pressure with height, taking into account the moisture content, i.e. dry or saturated.
- D. The rate of change of pressure with height.

QUESTION 7. The surface temperature is 15 degrees centigrade and cloud base is 3000'. Assuming 3 degrees for dry and 1.5 degrees for wet, what height is the freezing level within cloud?

- A. 3000 feet.
- B. 5000 feet.
- C. **7000 feet.**
- D. 10,000 feet.

QUESTION 8. At what height is the surface wind measured?

- A. 20 metres. (60 feet).
- B. **10 metres. ( 30 feet).**
- C. 5 metres. (15 feet).
- D. 3 metres. (10 feet).

QUESTION 9. Ice forms over the pitot head during a wave flight. What indications will there be that this has occurred?

- A. The indicated airspeed will remain constant as the pressure in the pitot can no longer change.
- B. The indicated airspeed will rapidly reduce to zero.
- C. The indicated airspeed will remain constant but fluctuate slightly as the static vents are still unblocked.
- D. **The indicated airspeed will slowly reduce to zero.**

QUESTION 10. Since pressure decreases with height, what is the effect on glider instruments above 10,000 feet?

- A. **Little or no effect on the altimeter, however, the airspeed indicator will under read the true airspeed.**
- B. Little or no effect on the altimeter, however, the airspeed indicator will over read the true airspeed.
- C. The altimeter will grossly over read, and the airspeed indicator will under read the true airspeed.
- D. The altimeter will grossly over read, and the airspeed indicator will over read the true airspeed.

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. What is the approximation when using a 1:500 000 scale chart?

- A. 12 statute miles or 10 nautical miles to the inch.
- B. 10 statute miles or 8.5 nautical miles to the inch.
- C. 8 statute miles or 7 nautical miles to the inch.**
- D. 4 statute miles or 3.5 nautical miles to the inch.

QUESTION 7. What is the main limitation when using a 1:250 000 scale aeronautical chart?

- A. The scale is too large for tasks over 100 kms.
- B. Many key ground features are not shown.
- C. Airspace above 3000 ft is not shown.**
- D. Too much information is shown, leading to confusion.

QUESTION 8. What is the importance of reading TNW's (Temporary Navigation Warnings) before flying cross country?

- A. They contain useful information about air shows.
- B. They serve as a reminder of restricted air space.
- C. They contain information on royal flights.
- D. They list important information about notified activities that may effect flight safety.**

QUESTION 9. How often are TNW information bulletins published?

- A. As necessary.
- B. Twice annually.
- C. Fortnightly.
- D. Twice weekly.**

QUESTION 10. Each individual entry in TNW's has a 4 digit code as part of the prefix. What does this code relate to?

- A. The CAA serial number.
- B. The Ordnance Survey grid reference.
- C. The most northerly co-ordinate or latitude.**
- D. The nearest identifying feature as a latitude and longitude.

PRINCIPLES OF FLIGHT.

QUESTION 1. What is the approximate distribution of production of lift on a glider wing?

- A. 50% from above and 50% from below.
- B. 60% from above and 40% from below.
- C. 70% from above and 30% from below.**
- D. 90% from above and 10% from below.

QUESTION 2. What happens to induced drag as airspeed is increased from the stall towards  $V_{ne}$ ?

- A. Induced drag increases approximately as the square of the IAS.
- B. Induced drag reduces towards best L/D then increases again.
- C. Induced drag remains constant.
- D. Induced drag reduces inversely as the square of the IAS.**

QUESTION 3. What happens to zero lift drag as airspeed is increased from the stall towards  $V_{ne}$ ?

- A. Zero lift drag increases approximately as the square of the IAS.**
- B. Zero lift drag reduces towards best L/D then increases again.
- C. Zero lift drag remains constant.
- D. Zero lift drag reduces inversely as the square of the IAS.

QUESTION 4. What happens to total drag as airspeed is increased from the stall towards  $V_{ne}$ ?

- A. Total drag increases approximately as the square of the IAS.
- B. Total drag reduces towards best L/D then increases again.**
- C. Total drag remains constant.
- D. Total drag reduces inversely as the square of the IAS.

QUESTION 5. If the 1 'g' stalling speed is 34 knots, what will be the stalling speed in a steep turn with the accelerometer reading 4 'g'?

- A. 34 knots.
- B. 51 knots.
- C. 57 knots.
- D. 68 knots.**

QUESTION 6. What is the primary purpose of flaps?

- A. To give the required lift at a reduced airspeed.**

- B. To make take off and landing easier by improving forward visibility.
- C. To reduce the stalling speed.
- D. To increase drag.

QUESTION 7. What will be the effect on a gliders induced drag if water ballast is added to the wings?

- A. There will be no change.
- B. It will reduce, as the glider has to fly faster to achieve the same glide angle.
- C. It will reduce, as the glider may now fly at a reduced AoA.
- D. It will increase due to the greater lift required to equal the increase in weight.**

QUESTION 8. What is the main advantage of adding water ballast to the tail of a glider?

- A. To increase the over all weight.
- B. The centre of gravity may be adjusted to place the trimmed elevator in the position for minimum drag.**
- C. Allow the glider to achieve the same glide angle at a higher speed.
- D. To reduce longitudinal stability and therefor increase performance.

QUESTION 9. What is the main advantage of adding water ballast to the wings of a glider?

- A. Lateral stability is increased.
- B. Due to increased weight, the glider has to fly faster to achieve the same performance.**
- C. The gliders performance is increased.
- D. The glider may now alter its performance by jettisoning the ballast.

QUESTION 10. What happens to lift and drag when flaps are moved from a cruise setting to a thermalling setting?

- A. Lift reduces and drag reduces.
- B. Lift reduces and drag increases.
- C. Lift increases and drag reduces.
- D. Lift increases and drag increases.**

#### RADIO TELEPHONY.

QUESTION 1. A glider radio must meet certain standards. Which of the following is a true

statement?

- A. A glider radio must be of a design registered with the BGA.
- B. A glider radio must be of a design registered with the CAA.
- C. A glider radio must meet only electrical safety standards.
- D. A glider radio must comply with CAA specifications.**

QUESTION 2. Which of the following is a ground to ground frequency only?

- A. 129.975 MHZ.
- B. 130.125 MHZ.
- C. 129.9 MHZ.**
- D. 130.4 MHZ.

QUESTION 3. Competition gliding relies heavily on the use of radio. What are the frequencies allocated to competitions?

- A. Primary 130.1 MHZ and secondary 130.125 MHZ.**
- B. Primary 130.1 MHZ and secondary 129.9 MHZ.
- C. Primary 130.125 MHZ and secondary 130.4 MHZ.
- D. Primary 130.4 MHZ and secondary 129.975 MHZ.

QUESTION 4. Which frequency is allocated for the purpose of lead and follow training?

- A. 129.975 MHZ.
- B. 130.1 MHZ.
- C. 130.4 MHZ.
- D. 130.125 MHZ.**

QUESTION 5. What is the main use of the frequency 129.975 MHZ?

- A. Control purposes with in 10 NM radius and up to 3000' at approved sites only.**
- B. Control purposes with in 10 NM radius and up to 3000'.
- C. Control purposes at approved sites only.
- D. Control purposes with no restrictions and at all sites.

QUESTION 6. Which of the following is a true characteristic of aeronautical VHF radio?

- A. Range to the ground station increases with aircraft height.**

- B. Volume increases with range.
- C. Volume must be increased when transmitting over greater distances.
- D. Multiple transmissions on the same frequency may be heard simultaneously.

QUESTION 7. Your cross country route takes you through class D airspace. Which of the following is the most true statement?

- A. You may legally cross without the use of radio.
- B. You may legally cross without the use of radio but are advised to call the controlling agency.
- C. **You must call the controlling agency and hold a current RT licence.**
- D. You must seek the permission of the controlling agency before entering.

QUESTION 8. While flying you note that the previously busy gliding frequency you have been monitoring is completely silent. What should your actions be?

- A. Enjoy the peace and quiet.
- B. **Check that your transmit button is not jammed in the transmit position.**
- C. Conclude that you are out of range of other gliders.
- D. Presume that everyone is busy due to the deteriorating weather.

QUESTION 9. Aviators use a system of 'Q' codes to speed communications. Which of the following codes denotes atmospheric pressure at aerodrome level?

- A. QNE.
- B. QFH.
- C. **QFE.**
- D. QDM.

QUESTION 10. Aviators use a system of 'Q' codes to speed communications. Which of the following codes denotes the sea level pressure setting on the altimeter sub-scale?

- A. QFE.
- B. **QNH.**
- C. QNE.
- D. QTE.

NAVIGATION part 2. Assume through out 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 through out 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**