

ANSWER PAPER INSTRUCTORS EYES ONLY.

DO NOT WRITE ON THIS ANSWER PAPER.

THE BRITISH GLIDING ASSOCIATION.
BRONZE CERTIFICATE EXAMINATION PAPER.

1997 EDITION

PAPER NUMBER :-FOUR

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. 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 2. 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 3. 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 4. 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 5. 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 6. 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 7. 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 8. 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 9. 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 10. 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.

QUESTION 11. 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 12. 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 13. 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 14. 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 15. 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 16. 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 17. 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 18. 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 19. 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 20. 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.**

AIRMANSHIP

QUESTION 1. What actions should be taken when flying through an area of sink?

- A. Slow down so as to reduce the rate of descent.
- B. Increase speed so as to spend as little time in the sink as possible.**
- C. Continue as normal because the lift on the other side of the sink will compensate for the height loss.
- D. Slow down and turn away from the sink.

QUESTION 2. What is the approximate time required to eliminate 1 unit of alcohol from the blood?

- A. 30 minutes.
- B. 60 minutes.**
- C. 90 minutes.
- D. 120 minutes.

QUESTION 3. When keeping a good lookout, how is the most effective scanning achieved?

- A. A series of short, regularly spaced eye movements, progressing across the field of view.**
- B. Rapidly and smoothly sweeping the entire field of view.
- C. A random scan of the most likely areas of conflicting traffic.
- D. Alternating between three or four different areas.

QUESTION 4. During a solo flight you notice the handling appears to be different from the last time you flew it. What action, if any, should you take after landing?

- A. None.
- B. Check the log book to see if any ballast weight has been added or removed.
- C. Bring it to the attention of the duty instructor before it flies again.**
- D. Let the next person to fly the glider know of the problem.

QUESTION 5. While flying in cloud you notice the ASI reading slowly reduces to zero. What is the most likely cause?

- A. You are fully stalled.
- B. There is ice in the static system.
- C. There is water in the pitot system.
- D. There is ice in the pitot system.**

QUESTION 6. You are down wind to land at your home site when you are overtaken by a

higher performance glider with only one airbrake extended. Who has right of way?

- A. **The other glider, as there is an emergency.**
- B. You have right of way as the lower performing glider.
- C. The other glider, due to its faster circuit speed.
- D. You have right of way, even though there is an emergency in progress.

QUESTION 7. You are half way up the winch launch when the speed increases above max winch launch. What should be your immediate actions?

- A. **Lower the nose slightly and give the too fast signal. If, after a few seconds, you are still too fast, then abandon the launch.**
- B. Pull back so as to load the winch and reduce the speed.
- C. Release immediately.
- D. Maintain the climbing attitude and wave off.

QUESTION 8. You are soaring in a westerly wind, a ridge which runs north west to south east when orographic cloud forms all around. Which compass heading and speed should you fly?

- A. 180 degrees at best L/D.
- B. 270 degrees at min sink.
- C. 245 degrees at min sink.
- D. **245 degrees at best L/D.**

QUESTION 9. You are about to join a thermal with two gliders circling in opposite directions. Which way do you turn?

- A. Same direction as the higher glider.
- B. Same direction as the lower glider.
- C. Either direction as the thermal would seem to be a free for all.
- D. **Same direction as the closer glider.**

QUESTION 10. You are about to land as there is thunder storm activity close by. What should you be aware of?

- A. Lightning flashes which may blind temporarily.
- B. **Rapid changes in wind strength and direction.**
- C. Reducing visibility due to low cloud base.
- D. Reduction in performance due to wet wings.

METEOROLOGY.

QUESTION 1. What is meant by the term 'stable air mass'?

- A. The pressure is high, and therefore no thermal activity will be present.
- B. There is little or no temperature differences and therefore no mixing of layers within the atmosphere, hence no thermals.**
- C. The airmass is dry, therefore no thermals or cumulus cloud.
- D. There is little chance of weather change due to a lack of nearby weather systems.

QUESTION 2. What is the name given to the wind effect that increases temperature and raises cloud base in the lee of a hill?

- A. The orographic wind effect.
- B. The foehn wind effect.**
- C. The geostrophic wind effect.
- D. The lee wave rotor wind effect.

QUESTION 3. What is the official definition of fog?

- A. Visibility reduced to below 5000 metres.
- B. Visibility reduced to below 1000 metres.**
- C. Visibility reduced to below 2000 metres.
- D. Visibility reduced to below 3000 metres.

QUESTION 4. Icing effects, in particular, aerodynamics. What other effects does icing have on a glider?

- A. Pitot tubes & static vents may become blocked.
- B. Weight is increased which may alter the C of G position.
- C. Weight is increased which may alter the C of G position and pitot tubes & statics may become blocked.
- D. Weight is increased which may alter the C of G position, pitot tubes & statics may become blocked and radio communications may be degraded.**

QUESTION 5. A large depression is centred over the north of Scotland. What will be the wind direction over central & southern England?

- A. From the North.
- B. From the East.
- C. From the South.
- D. From the West.**

QUESTION 6. Three conditions are necessary for a thunderstorm to develop. If deep

instability is forecast with a high moisture content, what is the third condition required?

- A. Light winds and little cloud shadow.
- B. Light winds aloft so as to allow vertical development of the cumulus.
- C. An already high cloud base with large cumulus developing.
- D. **A trigger action such as a front forcing the air aloft, a mountain forcing the air aloft or strong heating of the lower air mass.**

QUESTION 7. What are the three main stages called in the life cycle of a thunderstorm?

- A. **The cumulus stage, the mature stage and the dissipating stage.**
- B. The cumulus stage, the mature stage and the precipitation stage.
- C. The cumulus stage, the precipitation stage and the dissipating stage.
- D. The precipitation stage, the gust front stage and the dissipating stage.

QUESTION 8. What causes hail to form?

- A. Rain freezing as it falls through a cold atmosphere.
- B. Rain falling through a temperature inversion.
- C. **Water molecules freezing in the up draughts of a Cb, growing with each cycle until too heavy to be sustained by the rising air.**
- D. Ice crystals in the upper cloud falling to the ground before they have time to melt.

QUESTION 9. Is it possible for thermals to develop under an extensive layer of strato-cumulus?

- A. **Yes, if there is sufficient instability in the atmosphere.**
- B. No, there will be insufficient energy from the sun reaching the ground.
- C. No, strato-cumulus normally forms in stable conditions.
- D. Yes, but only where the layer cloud is broken or thin enough to allow the sun's energy through.

QUESTION 10. What is the cause of a sea breeze front?

- A. Sea heating more quickly than the land which causes the air to rise over the sea. This in turn leads to advection and the sea breeze.
- B. Warm air over land against cooler sea air creates the frontal system.
- C. **Land heating more quickly than the sea which causes the air to rise overland which in turn leads to advection and the sea breeze.**
- D. Warm air over the sea against cooler land air creates the frontal system.

NAVIGATION part 1.

QUESTION 1. What will be the effect of a steel object being placed close to an aircraft compass?

- A. The compass will seem sluggish.
- B. The compass variation will be effected.
- C. The compass deviation will be effected.**
- D. There will be little or no effect on a modern compass.

QUESTION 2. With 15 nm to go and a glide angle of 30:1 at 60 Kts, what height is required to arrive at the goal with 1000 ft to spare?

- A. 3000 ft.
- B. 2500 ft.
- C. 5000 ft.
- D. 4000 ft.**

QUESTION 3. What is your estimated heading on a long final glide where the track is 050 degrees and there is a cross wind of 15 Kts from the right.

- A. 050 degrees.
- B. More than 050 degrees.**
- C. Less than 050 degrees.
- D. Not possible to predict.

QUESTION 4. After the first leg of a 200 Km flight you notice that your average speed is 50 Kph. If conditions remain the same, approximately how long will the flight take?

- A. 2 hours.
- B. 3 hours.
- C. 3 hours 30 mins.
- D. 4 hours.**

QUESTION 5. On a 40 nm final glide at 50 Kts indicated airspeed you notice there is a 10 Kt tail wind. How long will the last 20 nms take?

- A. 15 minutes.
- B. 20 minutes.**
- C. 25 minutes.
- D. 30 minutes.

QUESTION 6. While on a task in the UK you notice the compass appears to be a bit

erratic. The time is 1300 UTC and the desired track is 090 degrees. Where is the sun?

- A. Ahead.
- B. On the right.**
- C. On the left.
- D. Behind.

QUESTION 7. What is your average cross country speed if you cover 30 Kms in the first 40 minutes of a flight?

- A. 35 Kph.
- B. 40 Kph.
- C. 45 Kph.**
- D. 50 Kph.

QUESTION 8. The airfield from which you are flying is 600 ft AMSL. With the altimeter set to zero before flight, the subscale reads 1007 millibars. What will the altimeter read at the base of an airway extending from FL 45 upwards. (Assume 30 ft per millibar).

- A. 4320 feet.**
- B. 4680 feet.
- C. 3900 feet.
- D. 4500 feet.

QUESTION 9. What are the legal requirements required to fly a glider cross country?

- A. You carry a 1:250 000 scale map.
- B. The glider has a serviceable radio.
- C. The glider has a serviceable navigational aid.
- D. You carry a 1:500 000 scale ICAO aeronautical chart.**

QUESTION 10. What is the purpose of a compass card in a glider?

- A. To take into account the errors present after the compass has been swung.**
- B. To act as a reminder of bearings versus cardinal headings.
- C. To act as a reminder of task leg directions when flying cross country.
- D. To take into account any errors due to wind drift.

PRINCIPLES OF FLIGHT.

QUESTION 1. What is the centre of pressure?

- A. It is the same point as the centre of gravity.
- B. The point on the fuselage through which the force of lift is said to act.
- C. The point on the chord line where the average lift strength may be found.
- D. **The point on the chord line through which the force of lift is said to act.**

QUESTION 2. What happens to the centre of pressure as the AoA is increased from zero degrees?

- A. **It moves forward until the stall, then moves rapidly rearwards.**
- B. It moves slowly forward then stagnates at the stall.
- C. It increases in intensity until the stall then reduces again.
- D. It moves slowly rearwards until the stall then moves rapidly forward.

QUESTION 3. What is the purpose of wing sealing tape?

- A. Helps to reduce form drag.
- B. **Helps to reduce interference drag.**
- C. Helps to reduce surface friction.
- D. Helps prevent the inboard from stalling before the tip.

QUESTION 4. What is the importance of indicated airspeed (IAS) and true airspeed (TAS), when flying at altitude?

- A. **IAS is always less than TAS therefore the ASI under reads.**
- B. TAS is always less than IAS therefore the ASI under reads.
- C. IAS is always less than TAS therefore the ASI over reads.
- D. TAS is always less than IAS therefore the ASI over reads.

QUESTION 5. You suspect the glider battery is low on power. You are faced with a cloud descent, how will the turn indicator be effected as the battery reaches the point where it can no longer supply enough power?

- A. The turn indicator will run down and display the 'off' flag.
- B. The turn indicator will become less sensitive before it topples.
- C. **The turn indicator will become more sensitive before it topples.**
- D. The turn indicator will topple before displaying the 'off' flag.

QUESTION 6. What happens to the stalling speed in a turn?

- A. **The stalling speed increases in the turn due to a component of total lift now acting in the direction of the turn..**
- B. The stalling speed increases in the turn due to the extra loading.
- C. The stalling speed remains the same as long as the load remains at 1'g'.
- D. The stalling speed increases in the turn due to extra drag from manoeuvring.

QUESTION 7. Why is there a relationship between flap movement and pitch?

- A. Flaps down and glider will pitch nose up due to increased drag.
- B. **Flaps down and glider will pitch nose down due to centre of pressure moving rearwards.**
- C. Flaps down and glider will pitch nose up due to centre of pressure moving forwards.
- D. Flaps down and glider will pitch nose down due to increased drag.

QUESTION 8. What is meant by the term 'angle of attack'?

- A. The angle at which the wings are fixed onto the glider.
- B. The angle at which the airflow meets the leading edge.
- C. The angle between the wing and the relative airflow.
- D. **The angle between the chord line and the relative airflow.**

QUESTION 9. What are the two main types of airflow over a wing?

- A. Smooth and laminar.
- B. Smooth and rough.
- C. **Laminar and turbulent.**
- D. Smooth and turbulated.

QUESTION 10. When using flaps, what is the basic rule when changing speed?

- A. **Increase speed with flaps then stick, reduce speed with stick then flaps.**
- B. Increase speed with flaps then stick, reduce speed with flaps then stick.
- C. Increase speed with stick then flaps, reduce speed with flaps then stick.
- D. Increase speed with stick then flaps, reduce speed with stick then flaps.

RADIO TELEPHONY.

QUESTION 1. Which of the following call signs does not comply with the ICAO phonetic alphabet?

- A. Bravo..... Delta.....Foxtrot.
- B. Echo.....Golf.....Papa.
- C. **Oscar.....Quebec.....Sugar.**
- D. Romeo.....Tango.....Victor.

QUESTION 2. Which of the following frequencies will help with navigational assistance in the event that you become lost?

- A. 130.1 MHZ.
- B. 129.975 MHZ.
- C. 134.3 MHZ.
- D. **121.5 MHZ.**

QUESTION 3. What should your actions be on hearing a distress or urgency transmission intended for a ground station?

- A. Maintain radio silence.
- B. **Maintain radio silence, but note all the details in case you should have to relay the message.**
- C. Leave the frequency immediately.
- D. Continue with normal transmissions.

QUESTION 4. Which of the following call signs complies with the ICAO phonetic alphabet?

- A. **Alpha.....Charlie.....Hotel.**
- B. Indigo.....Kilo.....Juliet.
- C. Foxtrot.....Mark.....November.
- D. Delta.....Noddy.....Uniform.

QUESTION 5. You are unfortunate enough to require urgent medical assistance after a field landing accident. Your radio has remained serviceable. Which frequency should be used to make your Mayday call?

- A. That of the nearest airfield.
- B. 119.0 MHZ.
- C. **121.5 MHZ.**
- D. 129.9 MHZ.

QUESTION 6. You have made contact with a ground station to pass the details of a

distress message. Which of the following should you transmit?

- A. Your call sign and nature of the emergency.
- B. Your intentions.
- C. Your position, heading and altitude.
- D. All of the above.**

QUESTION 7. What is the purpose of a 'blind transmission'?

- A. To pass information to a station you believe can hear you although you cannot hear them.**
- B. To pass information when flying 'blind' in cloud.
- C. To pass information on a frequency in the hope that the intended recipient will get the message.
- D. To pass information when no reply is required.

QUESTION 8. A station you are calling complains of poor reception. What should your actions be?

- A. Keep trying until they get your message.
- B. Wait and try again when lower down.
- C. Wait and try again when higher up.**
- D. Shout into the microphone.

QUESTION 9. Which of the following frequencies gives a continuously updated meteorological report for the UK?

- A. 128.6 MHZ.
- B. 126.6 MHZ.
- C. 135.375 MHZ.**
- D. 125.725 MHZ.

QUESTION 10. 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.

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