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**Hale Hall Model Aircraft Club**

**A & B Certificate Question Bank**

**Fixed Wing & Helicopter**

**Issue 3**

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Note: You need to read CAP658 and the BMFA Handbook which can be found at – https//bmfa.org/Downloads.

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**Mandatory Questions**

**M 1 Can you fly your model aircraft or drone out of sight behind trees?**

**Answer: No, because you must be able to see your aircraft at all times.**

**M 2 You should never fly above what height without appropriate permission or an authorisation?**

**Answer: 400ft.**

**M 3 What is the main reason for not flying above 400ft without permission or an authorisation?**

**Answer: Because the airspace above 400ft is used by other aircraft.**

**M 4     When do you need permission from an airport to fly a model aircraft or drone?**

**Answer: When you wish to fly in a flight restriction zone.**

**M 5     If you are flying your glider, which has a mass of more than 7.5kg but less than 14kg, from the top of a 150 ft high hill, how high can you fly from where you are standing?**

**Answer: 400ft**

**M 6    You arrive at a site and want to get ready to fly your model aircraft. What four things must you check?**

**Answer: That the weather is going to be suitable for your flight.**

**That you are ‘fit to fly’**

**That you make sure there are no airspace restrictions where you intend to fly.**

**That your aircraft is in a safe condition to complete the flight safely.**

**M 7 When can you fly your model aircraft or drone using First Person View equipment without a competent observer?**

**Answer: If you are flying at a drone racing event within a ‘sterile area’ and you do not fly above 160 feet (50m).**

**M 8 You are flying your model aircraft or drone using FPV equipment accompanied by a competent observer, what four conditions must you comply with?**

**Answer: The take-off mass of your aircraft must be less than 3.5kg**

**You must not fly above 1000 feet**

**You must not fly above 400 feet if you are flying a rotorcraft with more than one propellor.**

**Your competent observer must maintain direct unaided visual contact with your aircraft.**

**M 9 Within the full terms of the Article 16 Authorisation, what is the minimum age for an unsupervised Remote Pilot?**

**Answer: 10**

**M 10 Within the full terms of the Article 16 Authorisation, under what two conditions is there is no minimum age for a Remote Pilot?**

**Answer The operation of a control line aircraft**

**If the remote pilot is under the direct supervision of another remote pilot aged 14 or over.**

**M 11 Who is directly responsible for the safe operation of an aircraft?**

**Answer: The Remote Pilot**

**M 12 Before any flight can take place in the Flight Restriction Zone of a Protected Aerodrome, permission must be obtained from whom?**

**Answer: The Air Traffic Control unit or owners of the Protected Aerodrome.**

**M 13 Whilst flying, as a Remote Pilot, you should always comply with what two conditions?**

**Answer: Comply with the limitations of the Article 16 Authorisation or CAP 722**

**Comply with any airspace restrictions**

**M 14 Whilst flying, as a Remote Pilot, you should always avoid what?**

**Answer: Any risk of collision with any manned aircraft**

**Flying close to or inside any area where an emergency response is taking place, without permission to do so**

**Continuing a flight if it may pose a risk to other aircraft, people, animals, environment or property**

**M15 The Article 16 Authorisation stipulates that model aircraft with a Maximum Take Off Mass between 250g and 7.5kg cannot be operated within what separation distances?**

**Answer: Within a horizontal distance of 30m of assemblies of people.**

**Within 30m of any uninvolved person (this may be reduced to 15m for take-off and landing).**

**M 16 The Article 16 Authorisation stipulates that model aircraft with a Maximum Take Off Mass between 7.5kg and 25kg cannot be operated within what separation distances and above what height?**

**Answer: Within a horizontal distance of 50m of assemblies of people (this may be reduced to 30m for take-off and landing).**

**Within 30m of any uninvolved person**

**At an altitude of more than 400’ without permission from the CAA.**

**M 17 Serious Incidents or other Occurrences must be reported to the CAA as a condition of our Authorisation, if they involve any of what four circumstances?**

**Answer: Incidents involving manned aircraft.**

**Operating above 400 feet**

**Operating less than 50m from uninvolved people.**

**Any instances of flight beyond the visual line of sight of the Remote pilot.**

**M 18 Any Model Aircraft or drone Operator making use of the Article 16 Authorisation must ensure that they comply with what three requirements?**

**Answer: They must be registered with the CAA.**

**They must clearly display their Operator ID on (or in) their aircraft.**

**They must be a current BMFA member, or a member of one of the other organisations named in the Authorisation**

**M 19 The Article 16 Authorisation permits you to give a ‘trial flight’ to a non-member providing you meet what three conditions?**

**Answer: They are under your direct instruction and supervision.**

**You meet the competency requirements and a valid Operator ID is on the aircraft.**

**You must be a current BMFA member, or a member of one of the other organisations named in the Authorisation**

**M 20 What does the Article 16 authorisation state with regards to the dropping of articles from a model aircraft or drone?**

**Answer: The Remote pilot must not cause or permit any article or animal to be dropped from an unmanned aircraft so as to endanger persons or property.**

**A and B Test Questions**

**AB 1 You have a new model, never flown – what checks should be carried out on the field before flying it?**

**Answer: Pre-flight checks:**

**(a) Frequency Clearance (35 Mhz)**

**(b) Tx ON then Rx ON**

**(c) Check control movement**

**(d) Check Tx trims set correctly**

**(e) Check Tx and Rx batteries GOOD**

**(f) I.C. powered aircraft throttle pick-up and lean check.**

**(g) Noise check**

**Also: Range check; C of G should have been checked prior to arrival at the field, but double check would be good.**

**AB 2 Describe the HHMAC ‘Flying Area’ boundaries, including areas which are identified as ‘noise sensitive’?**

**Answer: The ‘Flying Area’ boundaries are;**

1. **The access track to the west of the runway**

**(b) Salwick Road running north from access track entrance to the sewage works**

**(c) The hedge line running west/east from the sewage work to the hedge line to the east of the runway**

**(d) The hedge line running north/south to the east of the runway**

**(e) A line running NW/SE from the easterly end of the runway to the hedge line to the east of the runway**

**(e) A ‘noise sensitive’ area exists in north-east corner of the flying area and flying should be avoided in this area.**

**AB 3 From the BMFA’s ‘think S.W.E.E.T.S. what does the ‘T’ represent?**

**Answer: Transmitter Controls.**

**AB 4 Complete the following sentence as written in the BMFA Handbook. “Model flying must not only BE safe – it must be ……….to be safe.”**

**Answer: …….it must be SEEN to be safe.**

**AB 5 Why is flying model aircraft alone not recommended?**

**Answer: Possibility of personal accident or injury may incapacitate.**

**AB 6 Where should you be in relation to your model when adjusting mixture with the engine running?**

**Answer: Behind the model / engine.**

**AB 7 Why is it recommended that ‘welded’ rechargeable battery packs are used in model aircraft?**

**Answer: Good electrical connection can only be guaranteed when individual cells are soldered or welded together.**

**AB 8 The BMFA recommend ‘S.M.A.R.T.’ what do these letters stand for?**

**Answer S= Transmitter switch ON.**

 **M= Model selected is CORRECT**

 **A= Aerial is secure/extended**

 **R= Rate switches in CORRECT position**

 **T= Transmitter voltage GOOD and Trims CORRECT position.**

**AB 9 Models should be thoroughly checked prior to each flying session, but also after what?**

**Answer: Heavy landing or crash**

**AB 10 When you realise the model is not responding to your transmitter control what should you do?**

**Answer: Shout a warning to others.**

**AB 11 Who is responsible for safety when on the flying site?**

**Answer: The individual.**

**AB 12 At what height is it safe to fly over the pits area?**

**Answer: The pits must never be over-flown.**

**AB 13 What noise limits are in place for model aircraft flown at HHMAC’s flying site?**

**Answer: 82 dB.**

**AB 14 When setting the failsafe what is the minimum requirement?**

**Answer: To reduce the engine/motor speed to idle on loss or corruption of the radio signal.**

**AB 15 What should you ensure prior to starting the engine?**

**Answer: Ensure the model is restrained and propeller is pointing away from other persons.**

**AB 16 You are flying a model weighing less than 7kg, what is the maximum height you are allowed to fly at?**

**Answer: Answer:       The maximum height is 400ft above the surface. However, the BMFA has negotiated an exemption with the CAA such that, for BMFA members, there is no maximum height restriction for models weighing less than 7kg,   however ANO 240 and 241 applies in all respects.**

**AB 17 Before going onto the runway for take-off or to retrieve a model what must we do?**

**Answer: Warn others of your intentions and ensure they acknowledge.**

**AB 18 How should you ensure that a control surface hinge is secure and operation?**

**Answer: Ensure freedom of movement and ‘pull’ surface to ensure security.**

**AB 19 Think S.W.E.E.T.S. is an acronym used in the BMFA Handbook for what? (general terms)**

**Answer: To make the model flyer consider his surroundings when model flying by thinking about what action(s) he would take if a problem occurred when flying.**

**AB 20 What are the recommended checks that should be carried out prior to each flight?**

**Answer: Correct model selected.**

 **Check that Tx trims and rate switches are correctly set and that each control surface on the model moves freely and in the correct sense.**

**AB 21 What are the recommended checks that should be carried out after each flight?**

**Answer: Visually check the model for integrity of all control surfaces and structure and that control links are secure and undamaged.**

**AB 22 What is CAP658 and why is it important to model fliers?**

**Answer: CAP 658 provides recommendation/guidance to what is considered ‘reasonable practice’ in the event that a model flier is prosecuted under the ANO**

**AB 23 Your engine has stopped and you wish to attempt to land on the runway – how do you warn others?**

**Answer: Shout ‘Dead-stick’**

**AB 24 Your engine has stopped and whilst attempting to recover the model to the runway you observe person(s) at the end of the runway that you are approaching. You realise you cannot turn left or right and clearly cannot gain altitude to overfly. What do you do?**

**Answer: Nose down and ‘dump’ the model.**

**AB 25 When flying your model, why should you stand within the Pilots’ Box?**

**Answer: To ensure you can remain in communication with other fliers.**

**AB 26 In the event you have an accident which may result in a liability claim, what should you do?**

**Answer: Inform the club’s committee as soon as possible. The committee will then inform the BMFA.**

**AB 27 What does the Air Navigation Order cover?**

**Answer: The legal framework covering all flying activity in the U.K.**

**AB 28 When carrying out engine/motor power checks what must you ensure?**

**Answer: That all personnel, including the operator/pilot, are behind the line of the propeller.**

**AB 29 Your model goes out of control, what is the first action you should take?**

**Answer: Shout a warning to others, personnel safety is the first priority, second is property.**

**AB 30 What should you do before entering or crossing the runway?**

**Answer: Seek clearance from any pilots flying at the time.**

**AB 31 Ideally, what minimum distance should separate the club’s car parking area from the take-off/landing area?**

**Answer: 100 metres.**

**AB 32 When farm machinery is being operated from the field in which the runway is located what special precautions should be taken?**

**Answer: No special precautions; flying is not allowed.**

**AB 33 Explain the acronym SWEETS?**

**Answer: Sun**

 **Wind**

 **Emergencies**

 **Eventualities**

 **Transmitter**

 **Site-rules**

**AB 34 What considerations must you make with regard to the Sun?**

**Answer: (a) Where the sun is in relation to your intended circuit**

 **(b) What actions will you take if you accidentally fly through the sun**

**(c) Do you need sunglasses**

**(d) Be aware of the low sun in winter**

**AB 35 What considerations must you make with regard to the Wind?**

**Answer: (a) Strength and direction**

**(b) Take-off and Landing pattern**

**(c) Use local knowledge regarding turbulence.**

**AB 36 What considerations must you make with regard to the Eventualities?**

**Answer: (a) What actions will you carry out if you hear or see a low flying aircraft or helicopter.**

 **(b) What actions will you carry out if the landing area is obstructed**

**(c) Appearance of people or horses.**

**AB 37 What considerations must you make with regard to the Emergencies?**

**Answer: (a) How will you warn others. (Dead-stick)**

 **(b) Are there areas you should avoid.**

**AB38 What considerations must you make with regard to the Site-rules?**

**Answer: (a) Are there any specific site-rules you need to be aware of.**

 **(b) Where are the ’No-fly’ or ‘Dead Airspace’ areas on the site.**

**AB 39 At what point does an electric powered model become ‘live’?**

**Answer: As soon as the flight battery is connected.**

**AB 40 Connecting the battery of an electric powered model is usually a two- handed task. Where should you stand when connecting the battery?**

**Answer: Behind the propeller and never in front of it.**

**AB 41 What action should be carried out before using new or repaired radio control equipment for the first time?**

**Answer: Ground range check preferably with the model’s motor running.**

**AB 42 What is ‘black wire corrosion’ and how can it be detected?**

**Answer: (a) The surface of copper strands in the negative wire in a circuit becomes coated in a black material (corrosion) which works its way into the wire until all the copper is corroded. This corrosion has a higher resistance and, as it gets deeper into the wire, less current can flow through the circuit.**

**(b) Visual inspection of the core of the negative wire.**

**AB 43 What consideration need to be considered regarding the flying site and the Countryside Code?**

**Answer: The aim should be to leave any flying site in the same condition that it was found.**

**AB 44 At what weight is a model aircraft classed as an aircraft and is subject to airframe inspection, pilot and airworthiness testing before an exemption certificate is required?**

**Answer: 20kg**

**AB 45 What pre-flying model and transmitter checks should be done on arrival at the flying site?**

**Answer: (a) Check airframe for any transit damage**

**(b) Check that servos and linkages are secure**

**(c) Check undercarriage for secure fixing and correct alignment**

**(d) Check propeller for damage and secure fixing**

 **(e) Check receiver aerial for damage and secure fixing, with 2.4Ghz check that the aerial is correctly aligned.**

**AB 46 What is the maximum mass for a model aircraft before a full airworthiness regulation(s) apply?**

**Answer: 150kg**

**AB 47 What weight of model and equipment (excluding fuel) requires an exemption to operate and who issues the exemption?**

**Answer: More than 20kg issued by the UK CAA.**

**AB 48 Where must the receiver antennas be positioned when using 2.4Ghz equipment in a carbon fibre fuselage?**

**Answer: They must be external to the fuselage.**

**AB 49 What must pilots never assume regarding the landing area, and where should you land in an emergency?**

**Answer: Never assume the landing area is clear and, be prepared to land in a safe place off the landing area.**

**AB 50 When is it particularly important not to distract pilots?**

**Answer: Do not distract pilots especially when they are controlling models taking off or landing.**

**AB 51 At any sign of malfunction or unexpected jettison of parts, what should you do and when should you do it?**

**Answer: Land as soon as it is safe to do so.**

**AB 52 Just before take-off, what final checks must be observed?**

**Answer: Check that the ground and sky are clear, never take-off or land towards other pilots, spectators or the pits area.**

**AB 53 What is the limitation regarding taxying in and out of the pits?**

**Answer: Do not taxi in or out of the pits. Carry or wheel the model well clear before taxying out and stop well clear on return.**

**AB 54 When flying over the take-off / landing areas, which direction must be flown?**

**Answer: Fly into wind only, unless agreed for specific purpose such as a test or competition, etc.**

**AB 55 Where should the pits be in relation to the active runway with respect to the wind direction?**

**Answer: They should be positioned at least 30 metres cross-wind from the take-off / landing area.**

**AB 56 What strict rule should be enforced regarding cars and pits?**

**Answer: No cars should be allowed in the pit area except disabled members for unloading and loading only.**

**AB 57 What are the main duties of the Club Safety Officer?**

**Answer: To ensure that the BMFA and Club Safety Codes are followed.**

**AB 58 On a site with public access, what official is strongly recommended?**

**Answer: A Safety Marshall is strongly recommended and should be appointed at any flying session.**

**AB 59 If there is a sudden appearance of a low flying military aircraft, what must be assumed?**

**Answer: It must be assumed that it is the first of a stream of three or four aircraft.**

**AB 60 After taking off, in what direction should your first turn be?**

**Answer: Away from the flight line.**

**AB 61 Whilst flying your model, it occasionally, and mysteriously, goes into failsafe. What action should you take?**

**Answer: Land and investigate your radio installation.**

**AB 62 You want to land, and have called ‘landing’ but someone is carrying a model onto the runway and has not heard you over the noise from the engine. What action should you take?**

**Answer: Call ‘overshoot / aborting’ and go around again.**

**AB 63 When flying at a new location what should you do?**

**Answer: Seek out the advice of other flyers who have experience of the site.**

**AB 64 You have had a mid-air collision but your model is still flying and handling perfectly. What should you do?**

**Answer: Land immediately if it is safe to do so, thoroughly inspect the model.**

**AB 65 What types of cell should not be used for receiver packs?**

**Answer: (a) Dry cells (non-rechargeable)**

 **(b) Loose cells (in a battery holder)**

**B Test Only Questions**

**B 1 What arrangements should the Display Organiser make and ensure?**

**Answer: Site assessment carried out**

**Appointment of the following roles:**

**(a) Flying Display Director**

**(b) Flight Line Director**

**(c) Flight Line Marshal**

**(d) Police & Emergency services Liaison Officer.**

**B 2 What are the checks that need to be made regarding the Site Assessment when organising a flying display?**

**Answer: (a) Spectator control, siting of flying area with respect to spectator enclosures and car parks**

**(b) Verification of fliers’ competence**

**(c) Tx control and frequency monitoring**

**(d) Airworthiness of models and equipment**

**(e) Verification of insurance – Fliers, club and organisers cover.**

**B 3 Who specifically is responsible for the safe conduct of the flying display and has overall responsibility for the planning, organisation and subsequent running of the event?**

**Answer: Flying Display Director.**

**B 4 Which posts / roles can be combined for a flying display?**

**Answer: Flying Display Director and Flight Line Director.**

**B 5 Who is responsible for the briefing of pilots and has full control of the model flying area?**

**Answer: Flight Line Director.**

**B 6 What are the responsibilities of the Police & Emergency Services Liaison Officer?**

**Answer: (a) Contacting the Police & Emergency Services before and during the display.**

**(b) In the case of a wider event e.g. fete, rallies etc, notification of the function / event organisers in writing of any special requirements.**

**B 7 What are the responsibilities of the Flight Line Marshal?**

**Answer: (a) Responsible to the Flight Line Director and directly controlling the active model flying.**

**(b) The discipline and disciplining of pilots**

**(c) Has the final say on all matters on the airside of the flight line.**

**B 8 What additional recommendation should be considered for young pilots taking part in a display?**

**Answer: Recommended a suitable person is tasked to stand with them as a safety pilot. This person should be known by the organisers as being a proficient safety pilot.**

**B 9 What are the minimum roles that are needed for a small display/club fly-in?**

**Answer: Display Organiser & Flight Line Marshal.**

**B 10 Who should be informed if an accident occurs that involves injuries to members of the public during a Public Event (Displays or Competitions)?**

**Answer: UK CAA as soon as is practicable and, BMFA or respective Association(s).**

**B 11 Where on the downwind area are spectators to be positioned?**

**Answer: Spectators are not allowed in the downwind area.**

**B 12 What is the recommended distance that radio control flying should be from any airfield?**

**Answer: 5km.**

**B 13 When using the LMA Certificate of Competence in place of the BMFA ‘B’ Certificate what conditions must be complied with?**

**Answer: (a) Pilot must be a paid-up member of both the BMFA and LMA**

 **(b) Pilot can only fly the type of model for which he is certified**

 **(c) CAA regulations regarding model flying must be complied with**

 **(d) The pilot’s helper/caller should be either a ‘B’ or LMA Certificate holder.**

**B 14 What must the surface wind speed not exceed, and what is the minimum level of visibility, for flying to take place?**

**Answer: Surface wind must not exceed 25 knots and visibility not less than 500 metres.**

**B 15 What strict control of transmitter must be enforced for 35Mhz transmitters?**

**Answer: A transmitter pound must be established together with a pegboard; it is also desirable for a frequency checker for transmitters to be used.**

**B 16 What control of transmitters is it recommended for 2.4 Ghz transmitters?**

**Answer: Strongly recommended that all 2.4Ghz transmitters are impounded and checked as switched off. Prevents the 2.4Ghz band being saturated.**

**B 17 The number of frequencies to be kept to a minimum. What should be ascertained at the planning stage?**

**Answer: That any hospitals, factories, military or public services will not be using devices likely to cause radio interference.**

**B 18 If any radio interference is suspected during the display, what action should be taken?**

**Answer: All models should be landed immediately with no further flying until the interference source has been eliminated.**

**B 19 When should a frequency monitor be used?**

**Answer: Half an hour before flying commences and throughout the display.**

**B 20 When holding flying displays away from the normal flying site, who should be contacted?**

**Answer: Contact BMFA, local club contacts, model shops, to ensure that there are no flyers within 2 miles of display.**

**B 21 Who is responsible for postponing or cancelling all or part of the display in the case of adverse circumstances?**

**Answer: The Organiser.**

**B 22 What are the duties of the Safety Marshal?**

**Answer: (a) Warning both the public and fliers of flight patterns, take-off areas**

**(b) Advising on safety procedures**

**(c) Advising spectators of the safest areas from which to watch.**

**B 23 What distance should a model be from Cell phone transmitter masts?**

**Answer: 100 metres.**

**35 Mhz Specific Questions**

**35M 1 Which 35 Mhz frequency control peg system is used at Hale Hall flying site?**

**Answer: Off the peg. i.e. the peg is removed from the frequency board and attached to the user’s transmitter.**

**35M 2 How and why should you clean your 35Mhz transmitter aerial and what should you never do – apart from breaking or bending it?**

**Answer: To ensure good contact between the individual lengths of the aerial, never apply lubricant as it may act as an electrical insulator.**

**35M 3 Apart from the frequency peg (possibly) what should be attached to the transmitter aerial when flying with a 35 Mhz transmitter?**

**Answer: A pennant showing the frequency in use.**

**35M 4 When using 35 Mhz equipment, how should you carry out an ‘Adjacent Channel Check’?**

**Answer: (a) Flyer ‘A’ Tx On Aerial down then Rx On and stand 4 metres from the model**

 **(b) Flyer ‘B’ Tx On Aerial up and stands alongside flyer ‘A’. No interference seen to flyer ‘A’s’ model.**

 **(c) Repeat test with reverse conditions.**

**35M 5 What considerations must you make with regard to the Transmitter?**

**Answer: (a) 35 Mhz is the site pegboard in use**

 **(b) Where is the pegboard located**

 **(c) Are you familiar with your system and understand how it works.**

**35M 6 What should you do with your 35 Mhz transmitter when going out to an active flying area to retrieve your model?**

**Answer: The 35 Mhz transmitter should:**

1. **Be left switched on**

**(b) Handed to a helper**

 **(c) Not taken into the active flying area.**

**35M 7 What should be fitted when using long servo leads and operating 35 Mhz equipment to prevent interference?**

**Answer: Extended leads should be de-coupled either by using a commercial opto-electronic de-coupler or by looping the lead several times through a small ferrite ring.**

**35M 8 What colour pennant should a Tx on 35Mhz have?**

**Answer: Orange.**

**35M 9 What position should the aerial be in when the 35 Mhz transmitter is off and in the pits?**

 **Answer: Fully retracted.**