

ABU ROBOCON 2018 NINH BINH – VIETNAM

FAQ

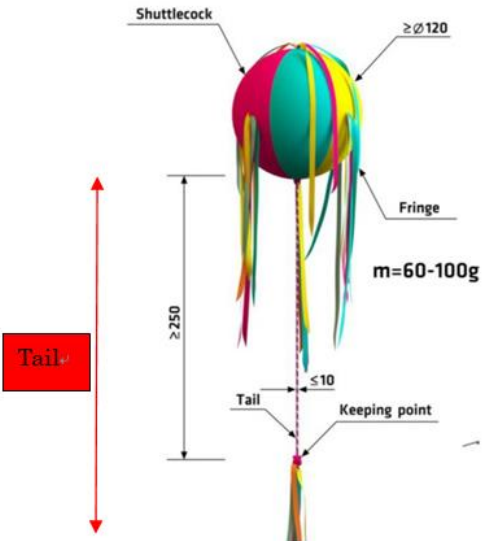
Updated on February 10, 2018

CATEGORY OF QUESTIONS		
Category	Description	Note
A	Shuttle cock, Fringe, Tail, Keeping point	
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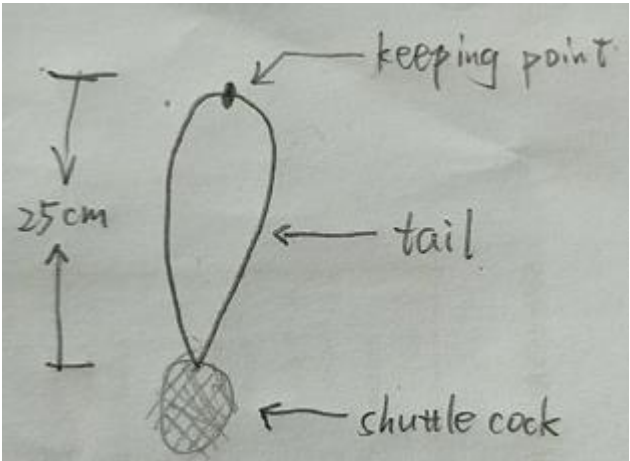
New items are underlined

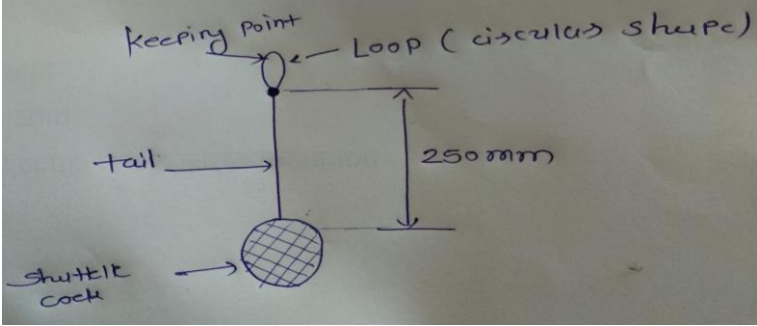
No	Item	Questions on Shuttlecock, Fringe, Tail	Answer
	【FAQ A1&A2】	Is it OK to put metals and magnets in the shuttlecock? Can we attach electronic circuit?	It is prohibited to put sharp objects, metals, materials that contain a lot of liquid, magnets and electronic circuit which can possibly control flying direction of the shuttlecock. As long as the weight and size regulations are met, basically you can put any materials other than the above mentioned items.
1	FAQ A.1	<p>Can you specify which soft materials could be used to make the shuttlecock and tail?</p> <p>The construction of the shuttlecock, i.e. which material should be it made of. In the rule book it is given soft material, so will cotton balls work fine?</p> <p>What materials that shuttlecock are made of? Is it mandatory to use fabric or any material that conform the size and weight requirements? Is the tail made of soft or hard material?</p> <p>Which material has been filled inside the shuttlecock?</p> <p>What are the components of the shuttlecock filling?</p> <p>Please list down the materials which could be used to make the shuttlecock.</p> <p><u>Nov. 10, 2017</u></p> <ol style="list-style-type: none"> 1) If the shuttlecock is covered with soft material (natural fiber or synthetic fiber), is it allowed to fill the shuttlecock with another material? 2) Is shuttlecock allowed to contain soft actuator or electric parts? 3) Is shuttlecock allowed to contain parachute? 4) Define "soft material" to make the shuttlecock. 5) Could we use bamboo or wood for the material to create Shuttlecock? 6) Could we use beans such as soy to create Shuttlecock? 7) Cloth is the only material can be used to create shuttlecock? Such as cotton 8) Are we allowed to attach a device of some sort to the end of the shuttle cock? (The robot will attach the device to the tail of the shuttle cock). 	Answered by FAQ A1 & 2.
<u>Dec. 11, 2017</u>			
	FAQ A1.1	Regarding FAQ A1&A2, the FAQ stated that it is prohibited if materials that contain a lot of liquid which can possibly control flying direction of the shuttlecock. Is it	Shuttlecock is not allowed to contain liquid

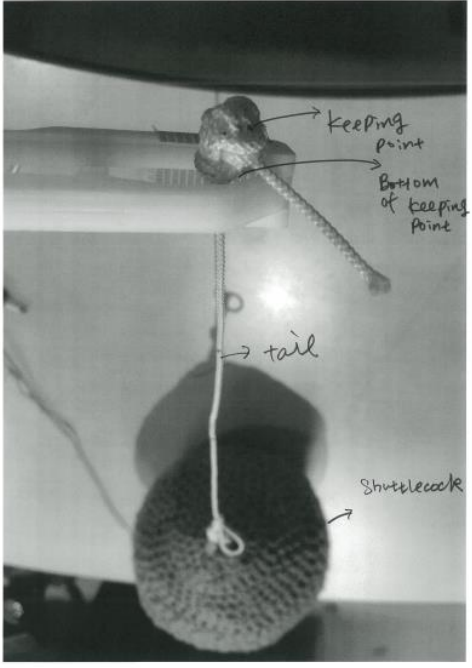
No	Item	Questions on Shuttlecock, Fringe, Tail	Answer
		<p>suggesting that shuttlecocks are allowed to contain liquid? If yes, Please provide the allowed volume of liquid inside the shuttlecock.</p> <p>About the material of the shuttlecock, on rulebook IV.1 Terms and Definitions, it says “Shuttlecock is made of soft material (natural fiber or synthetic fiber).....”, however in FAQ A1&A2 it says “.....basically you can put any materials other than the above mentioned items.” Do they contradict with each other? So is the shuttlecock made of soft material (fiber) or it can be made of any materials other than those specified?</p>	
2	FAQ A.2	<p>Regarding the soft material for shuttlecock, fringe and tail, are we allowed to use material other than natural fibre or synthetic fibre?</p> <p>Can any solid object for fringes?</p> <p>Can articles like colourful bands, multi colour fringes, glitters, glowing LED’s, colour stripes be used on shuttlecocks to decorate them to try to achieve the best shuttlecock award.</p> <p>Can materials like ABS, paper Mache, PET (plastic), balsa be used to make shuttlecock and tail?</p> <p>Can material for shuttlecock filling be a metal or magnetic?</p> <p>Can we use rice to make the shuttlecock?</p> <p>Can we add electronic circuitry in the shuttlecock?</p> <p>Can we use adhesive glue to make the tail?</p> <p><u>Nov. 10, 2017</u></p> <p>1) If tail is made of soft material, can the tail be hollow cylinder? 2) Any particular material for fringes? (Can metal be used? Any particular shape?)</p> <p><u>Dec. 11, 2018</u></p> <p>Is it allowed that stick some sticky material like tape and sticker on shuttlecock?</p>	<p>Answered by FAQ A1 & 2.</p> <p>No, it’s not allowed to use sticky material on the surface of the shuttlecock.</p>
		<p><u>Feb.10, 2017</u></p> <p>Can we harden the inner part of shuttlecock which is woolen thread (natural fiber) using fevicol (synthetic resin adhesive) as desired for our mechanism? In this outer part of shuttlecock will be as per the rules (appendix).</p>	<p>Although there is not regulation about the ‘hardness’ of the shuttlecocks, if deemed dangerous at the test run, you may have to change/adjust them.</p>
3	FAQ A.3	<p>Referring to fig 1.7, what would be the dimensions of the shuttlecocks if they are not spherical? For example their shapes are cuboids, pyramidal, etc.</p> <p>The maximum permissible weight of the shuttle cocks.</p>	<p>Refer to Appendix – Item 3. Shuttlecock</p>

No	Item	Questions on Shuttlecock, Fringe, Tail	Answer
		<p>Nov. 10, 2017</p> <p>1) Is that the shuttlecock must be made by rigid body? 2) Does the shape of shuttlecock must be sphere? If the shuttlecock deform to other shape like sandbags(don't maintain as a circle), is this allowed? 3) Is the shuttlecock must be a perfect sphere?</p>	
4	FAQ A.4	Can you specify the positions where the fringes should be attached?	Please refer to Appendix – Item 3. Shuttlecock
5	FAQ A.5	Is it necessary to attach the fringes below the keeping point?	<p>Not necessary For clear understanding, see below figure. It is unnecessary to attach several strings at the end of the tail.</p>  <p style="text-align: center;"><i>a) Measurement and Weight of Shuttlecock</i></p>
		<p>Dec. 11, 2017</p> <p>Is it compulsory to attach the fringes to the "string" and not the shuttlecock only? (discrepancy arose due to the figure showing it on the string)</p>	<p>It is not a fringe but an extra part of a tail after making a knot which is at the end of the tail in the pic shown in FAQ5. You cannot attach fringe on a tail. It is unnecessary to make the end of the tail into strings.</p>

No	Item	Questions on Shuttlecock, Fringe, Tail	Answer
6	FAQ A.6	Can the normal shuttlecocks be of different colours or do they have to be same?	Refer to Rules book, Item 1 – Term and Definition.
7	FAQ A.7	Which material can be used for making keeping point? Nov. 10, 2017 Keeping point specifications. Size and materials How many fringes is needed? Is shuttlecock with only one fringe allowed?	Refer to Rules book, Item 1 – Term and Definition; Appendix – Item 3 Shuttlecock
8	FAQ A.8	Can we tie multiple knots (making circular shape) at distance more than 250mm from shuttlecock? Can we have multiple knots on tail of the shuttlecock at the keeping point?	Allowed
	FAQ A.8-1	Feb.10, 2018 We supposed to throw the shuttlecock from the keeping point or further. If our keeping point is further than 250 mm, are we allowed to throw the shuttlecock exactly below the keeping point? For example, the keeping point is at 260 mm from the shuttlecock and we are holding the point at 250 mm from shuttlecock when throwing the shuttlecock.	Not allowed. You must throw shuttlecock from the keeping point or further.
9	FAQ A.9	What is minimum diameter of fringes(if considered as thread)	The Rules does not stipulate the diameter of fringes. Refer to ‘Appendix Item 3. Shuttlecock’.
	FAQ A.9-1	Feb.10, 2018 Do you have any regulation on the width of the fringe? (Figure 3.1.b)	No, there’s no regulation.
	FAQ A.9-2	Jan.10, 2018 Regarding Appendix 3.1, is it allowed to attach multiple fringes at a one particular spot of a shuttlecock? Does ‘different positions’ mean we can attach fringes anywhere on the shuttlecock or do we have to attach them at a multiple different places? Can you define the different positions?	‘Attach multiple fringes at a one particular spot’ doesn’t mean ‘attach multiple fringes at multiple different places’. We don’t intend to define ‘different positions’
	FAQ A.9-3	Feb.10, 2018 According to Figure 3.1.b, at least 5 fringes must be attached at different places on the shuttlecock. Is it OK to attach more than 5 fringes in one place?	No, it’s not allowed. Fringes must be attached on various places on a shuttlecock.
10	FAQ A.10	What should be the minimum and maximum diameter of keeping point? Can you specify the dimension of knot? Is there any limitation for the keeping point size?	The Rules does not stipulate the diameter of keeping point.

No	Item	Questions on Shuttlecock, Fringe, Tail	Answer
		<p><u>Dec. 11, 2017</u> Do you have a limit to the maximum diameter of the keeping point? For example, can we make keeping point bigger than the shuttlecock?</p>	There is no limit to the maximum diameter of the keeping point. However, the shuttlecock must be heavier than the all parts of the tail.
<u>Nov. 10, 2017</u>			
11	FAQ A.11	Can the Fringes be used for something other than decoration ? Is it possible to create a small loop with the same material in the tail of the fringe from where automatic robot will hold it?	Not allowed.
12	FAQ A.12	Is it allowed to attach some tails to the shuttlecock? Can tail penetrate through the shuttlecock?	Not allowed Please refer to Drawing 3.1. Shuttlecock is attached by only one tail.
		<p><u>Jan.10, 2018</u> Regarding Rulebook 1, is it OK to attach multiple tails to a shuttlecock?</p>	
	FAQ A.12-1	<p><u>Dec. 11, 2017</u> On rulebook IV.1 Terms and Definitions, about “Keep point”, it says: “The point on the Tail, created from one or more kinks or tie the tail forming circle (without additional materials).” So then, is it okay if the whole tail is a circle? Like the diagram shown below:</p> 	Not allowed to form a ring in the tail. The rule book states that you should create a circle by tying the tail. Therefore forming a ‘ring’ should not be allowed.
	FAQ A.12-2	<p><u>Jan.10, 2018</u></p>	

No	Item	Questions on Shuttlecock, Fringe, Tail	Answer
		<p>Can we make a circular loop of same material with a knot after 25 mm of tail? (As shown in image)</p> 	
		<p>Is it allowed to throw shuttlecock by holding the bottom of the keeping point? (Please refer to below picture)</p>	<p>Allowed. However, the minimum distance from the bottom of the keeping point to shuttlecock is 250 mm.</p>

No	Item	Questions on Shuttlecock, Fringe, Tail	Answer
			
	FAQ A.12-3	<p>Feb.10, 2018 Referring to rule book terms and definitions of keeping point, "The point on the Tail, created from one or more kinks or tie the tail forming circle" What is the difference between a circle and a ring? Which one is allowed?</p>	In rule, "circle" is understood as a knot in tail. Therefore, knot(circle)is allowed but ring is prohibited.
13	FAQ A.13	<p>Can we attach something else in the shuttlecock other than the mentioned fringes and tail? Is the shuttlecock allowed to split into parts? I would like to ask whether we can make some holes or grooved on the shuttlecock?</p> <p>Dec. 11, 2017 Are we allowed to attach a device of some sort to the end of the shuttle cock? (The robot will attach the device to the tail of the shuttle cock).</p>	<p>Not allowed</p> <p>Not allowed</p>

No	Item	Questions on Shuttlecock, Fringe, Tail	Answer
14	FAQ A.14	The Rulebook 1 stipulates that the fringes can be attached freely in the different positions on the shuttlecock and they should be made of soft material (natural or synthetic fiber) in different colors with minimum 3 colors but how restrictive are the shape and location of attachment of the fringes? For example, can we attach a cotton stuffed cloth projection at the end of the tail?	Please refer to Drawing 3.1. The fringe cannot be attached to the tail. You cannot add different material to extend the tail.
15	FAQ A.15	Regarding Rulebook 1, can we make 1 fringe with 3 different colors, not 3 fringes with 3 different colors?	Please refer to Drawing 3.1. It is OK to use multiple colors to make 1 fringe but you must attach at least 5 fringes to the shuttlecock.
16	FAQ A.16	As for Rulebook 1, is it allowed to make a ring by tying strings at the keeping point of the shuttlecock so the robot can hold it, or extend the tail?	It is not allowed to make a ring at the tail or with the fringe. As per written on the Rule 1, the tail shouldn't be elastic.
17	FAQ A.17	Do we have to make all the shuttlecocks in the same shape?	No, they don't have to come in the same shape as long as they are made in accordance to the rules.
18	FAQ A.18	The color of each normal shuttle cock should be same or it can be different?	The color of normal shuttlecock can be different but not in gold color Please refer to Rules book - Item 1. Term and Definition;
19	FAQ A.19	Is it a violation if the shuttlecock splits into parts by accident?	No, however, such shuttlecock shall be no longer used in the game.
20	FAQ A.20	What do you mean by shuttlecock? Combination of 'tail+ball+fringe' all these are called shuttlecock?	Please refer to Rules book - Item 1.Term and Definition; Appendix – Item 3 Shuttlecock Shuttlecock is attached tail and fringes

No	Item	Questions on Rack	Answer
	FAQ B1	Where can we place the rack that was used for passing shuttlecocks?	The used rack must be kept by each robot or be placed in the loading zone. Or the team member can return it to the loading zone by asking for a retry. If the rack is dropped in the field, it will be a compulsory retry and the team member has to put it back to the loading zone.
1	FAQ B.1	If picked up once, can the empty rack/rack with shuttlecocks be left anywhere in the game field and can it be picked up again from where it was left? <u>Nov. 10, 2017</u>	Answered by FAQ B1.

No	Item	Questions on Rack	Answer
		Is it possible to move the rack to the LZ when we retry? <u>Dec. 11, 2017</u> Is it possible for manual robot to move the rack on the field or is it supposed to carry it around the field?	
	[FAQ- B2]	Is the weight of the rack included in the robots' weight?	The weight of the rack(s) is included in the robot's weight. Total weight of 2 robots and rack(s) should not exceed 50kg. The maximum weight of each robot including battery, controller, cables and any other equipment must not exceed 25kg.
2	FAQ B.2	Referring to rule 7.6.1, the weight of the rack is considered as a part of which robot (manual or automatic)? <u>Nov. 10, 2017</u> Does the weight of "RACK Stand" Included in the weight of manual robot?	Answered by FAQ B2.
3	FAQ B.3	Is the rack considered as an individual part or is it considered to be a part of the manual robot?	
	FAQ B.3-1	<u>Feb.10, 2018</u> Can we adjust the weight of the racks in the weight of the two robot? Our idea is to count the weight of one rack in the manual robot while the weight of 2nd rack in the weight of automatic robot (total weight of 2 robots and 2 racks will not exceed the regulated weight limit).	Not allowed
	[FAQ-B4]	Is it possible to attach motors and other power source to the Rack?	It is not allowed to attach special functions to the rack such as power source and deploying other functions.
4	FAQ B.4	Is it allowed to use actuators and electronic circuits which will not be used to self-navigate the rack, to be mounted on the rack? Can we place any mechanical mechanism in rack, or electronics connection for loading single shuttle cock before loading in manual robot? Are sensors and pneumatic setup allowed on rack? Can we add mechanical assembly on rack?	Not allowed Answered by FAQ B4.

No	Item	Questions on Rack	Answer
		<p><u>Nov.10, 2017</u></p> <ol style="list-style-type: none"> 1) Is the rack allowed to have any actuator or electronics? If yes, are there any restrictions? 2) Can we use a motor or a motor along with power source in Rack? 3) Can the rack be fitted with some mechanism (gear) which is not pre-powered by any means? 4) Is it allowed, if there are two structural parts of the rack, out of which one is loaded onto the machine while the other remains on the loading area in the field, to be loaded on a later part of the game 5) Is that alright that rack possesses the function of robot? (whether Self-propelled is alright or not) 6) Can rack throw shuttle? 7) Is it possible to have communication between rack and robot? 	
		<u>Dec. 11, 2017</u>	
	FAQ B.4-1	<p>Can we use caster wheels on rack?</p> <p>Can we use spring on rack?</p> <p>Can the rack have freely rotating part (not using any kind of power source) on the rack which is not used to load one shuttlecock at a time?</p> <p>Can non electric mechanisms be added to the rack, for example sliders ?</p>	Racks are used to store, hang or place the shuttlecocks. So, it is not allowed to attach these parts to the rack
	FAQ B.4-2	<p><u>Jan.10, 2018</u></p> <p>FAQB-3 prohibits attaching wheels to racks. However Can I use passively moving objects such as bearings to reduce the friction between stacked racks?</p>	No, it is not allowed to attach functions other than the functions of the rack itself, such as bearings.
	FAQ B.4-3	<p><u>Jan.10, 2018</u></p> <p>Although it is prohibited to empower the rack, can we make the surface smooth and slide the rack?</p>	You cannot attach something to make the rack smooth but it is OK to use materials that are easy to slide as the material of the rack is not regulated
	FAQ B.4-4	<p><u>Jan.10, 2018</u></p> <p>As for FAQB-3, can we make use of magnet by attaching magnet to the rack or make an iron rack ?</p>	It's prohibited to attach magnet to the rack but you can make an iron rack to make use of magnet.
		<p><u>Feb.10, 2018</u></p> <p>Can we attach a magnetic to the rack body?</p>	
	FAQ B.4-5	<p><u>Feb.10, 2018</u></p> <p>Can we use a housing structure to place the racks on it within LZ?</p> <p>This structure would be used to lift the rack to a certain height and to be placed on LZ.</p>	<p>Not allowed.</p> <p>The functions of the racks are to hang, place or store shuttlecocks. Other than that purpose such as using it just</p>

No	Item	Questions on Rack	Answer
			as a base to put the rack on should not be allowed. The team may put a rack on top of racks. However, at least one shuttlecock must be stored /placed in each rack in ready for use during the game.
	FAQ B.4-6	Feb.10, 2018 Is it possible to use different materials for the rack and to be attached as a rigid body?	Allowed, however the material is not magnetic.
5	FAQ B.5	According to contest rules (1.Terms and Definitions) there is no limitation on the rack dimensions however referring to the fig.1.7 there is a maximum limit on the height of the rack. So which of these rules should be followed?	Refer to ‘Appendix Item 3.3. Rack’ There is no limit on the size of the rack but it should satisfy the conditions under Rulebook Item 7.5, 7.6, Appendix Item 3.3 and FAQ B2.
Dec.11, 2017			
6	FAQ B.6	Can we directly load rack on manual robot or do manual robot has to pick that rack by its own?	Only MR is allowed to pick the rack
Nov.10, 2017			
6	FAQ B.6	Is there any restriction of unfolding the rack?	You cannot unfold the rack. Please refer to FAQ B-4
		Dec. 11, 2017	
	FAQ B.6-1	Dec 11, 2017 We understand that racks cannot expand or unfold but can it be separated? For example, the shuttlecock storage gets separated from the leg part and the leg part remains in LZ. Is this allowed? Is it allowed, if there are two structural parts of the rack, out of which one is loaded onto the machine while the other remains on the loading area in the field, to be loaded on a later part of the game Can we carry a part of the rack and keep the rest of the rack in the loading zone?	No, the rack cannot be separated
	FAQ B.6-2	Feb.10, 2018 Can we use a stand for rack placed in loading zone so that Manual Robot can pick up rack placed over stand, from certain height? The total dimension(s) of the “rack+stand” combination will be within the dimension limits.	Not allowed, stand for rack is considered as a part of rack. Rack cannot be separated. Please refer to FAQ B-4.5.
7	FAQ B.7	Is throwing the rack at opponent’s Golden Cup allowed? Can we throw away the rack after being used on the NC?	Not allowed Please refer to FAQ B.1
		Dec. 11, 2017 Can we make a jig or a station to lift the racks from the field?	No, you cannot
8	FAQ B.8	Can we put down the rack once we got? If we can where should we put down?	You can put the rack in LZ. Please refer to FAQB1.
		Dec.11, 2017	The purpose of racks is to store, hang or place the

No	Item	Questions on Rack	Answer
		Is it allowed for MR to pile up empty racks (without shuttlecocks) and place a rack on top of it? This is to adjust the height of the racks to make it easier for MR to pass on the shuttlecock to AR.	shuttlecocks and they should not be used for other purpose, such as creating a base by piling them up only to place a rack on top. Also, we do not accept racks that house shuttlecocks in a way that cannot be used in the contest. However, based on the above conditions, it is allowed to put a rack on top of a rack. Additionally, the combined height of racks is not exceed 1000 mm. Please refer to Drawing 3.3 and FAQ B.12
9	FAQ B.9	Is that right that we must put the rack inside loading zone only at the beginning of the match?	Yes
		<u>Dec.11, 2017</u> Suppose we have two racks, rack A and rack B. Is it allowed to put rack B in rack A? Is it allowed for MR to take out rack B and use it in the contest? Can MR carry the rack A containing rack B and pass on only rack B to AR?	No, storing a rack in a rack is prohibited
10	FAQ B.10	Are multiples of racks allowed?	Allowed.
	FAQ B.10-1	<u>Dec. 11, 2017</u> Can the team member change the position of racks and shuttlecocks in LZ or remove unnecessary racks from LZ without asking for a retry?	Not allowed. However, adjusting shuttlecocks and racks during retry is allowed.
11	FAQ B.11	Should the rack after loading by the manual touch the game field during game time?	Not allowed
		<u>Dec.11, 2017</u> Can the rack touch the game field outside the LZ during the game?	
	FAQ B.11-1	<u>Dec.11, 2017</u> When a team member return normal shuttlecocks to LZ without a retry, can he/she return them to the racks in the LZ?	No. You can place the shuttlecocks on the floor but if you wish to put the shuttlecocks in the racks, you need to ask for a retry.
	FAQ B.11-2	<u>Dec.11, 2017</u> Can we drag the rack across the game field without damaging the field?	No, you cannot. The rack must be carried by robot and the rack is prohibited from touching floor.
	FAQ B.11-3	<u>Jan.10, 2018</u> Is it allowed to attach suction on the rack to fix it to the field? Will it be considered as a transformation of a rack?	The rack is considered ‘dropped’ at the moment it touches the field.
FAQ B.11-4	<u>Feb.10, 2018</u> Are the rack is allowed to enter the space above game field or outside of the game field while it is in the loading zone	Not allowed	
		<u>Feb.10, 2018</u>	Rack must be completely inside LZ. Refer Rule Item 1.

No	Item	Questions on Rack	Answer
		Can the projection of the rack fall outside of LZ as long as it meets the dimensions mentioned in the rule book?	Terms and definitions.
12	FAQ B.12	Regarding Rulebook 1, can we start the game with the multiple racks stacked in LZ as long as the height doesn't exceed 1m?	Not allowed, the combined height is not exceed 1m. Please refer to Drawing 3.3. Stacking multiple in LZ is as long as they meet the condition of regulated size and weight.
		Are two racks that individually abide by the given dimensions allowed to be stacked on top of one another if their combined height exceeds 1m? For example is it within the rules if two racks of height 0.8m are stacked to have a combined height of 1.6m?	
	FAQ B.12-1	Dec.11, 2017 Can we put shuttlecocks in the racks before the setting time starts?	No. You have to put the shuttlecocks in the racks during the setting time.
13	FAQ B.13	Is it allowed to place the normal shuttlecock rack in LZ, when we need to pick golden shuttlecock rack?	Allowed.
14	FAQ B.14	Feb.10, 2018 Can the rack touch the fence while moving?	Allowed, however the rack cannot grab the fence or collide with the fence. Please refer to FAQC-8.

No	Item	Questions on game filed	Answer
1	FAQ C.1	The team has discovered some dimension problems in Figure 1.2.	Revised and uploaded to website Please refer to revised Figure 1.2.
		The dimension provided in the rule book doesn't match the given dimension. Is there any error or misunderstanding in viewing the dimension?	
2	FAQ C.2	Could you specify the automatic robot area (ARA) in the fig 1.1?	ARA is team game field (See Figure 1.6) All of your team's area is the ARA.
3	FAQ C.3	Is it allowed to place sensors outside the game field?	Not allowed
4	FAQ C.4	What are the exact type of colours and their specifications used in the game field?	Refer to Appendix - Item 2. Material for Game Field
		What are the colour codes of Arena?	
Nov. 10, 2017			
5	FAQ C.5	What is the material of Ring?	Please refer to Appendix – Item 2. Material for Game Field
		Regarding Rulebook 1, what is the material of the field floor, fence, ring and golden cup?	
6	FAQ C.6	What is the definition of “through” a ring? Is it regarded as “through” a ring that shuttlecock winds around the ring?	It means that the whole of shuttlecock, tail and fringe go through the ring

No	Item	Questions on game filed	Answer
			Please refer to FAQF.1.
7	FAQ C.7	In which area is fence between two areas included, for example, the fence between TZ1 and TZ2?	Please refer to drawing 1.1, 1.2, 1.3 →The fence is not included in either area of TZ1 and TZ2. Please refer to drawing 1.1, 1.2, 1.3
8	FAQ C.8	Can the robot use fence to move itself? Is it OK for the robot to make contact with the inside of the fence in order to stabilize its posture and squeeze the fence from inside and outside of the field and apply force?	The robot can touch the fence as a guide for traveling and sensing. It is also allowed to make contact with the inside of the fence. However the robot cannot use the fence in a way that could possibly destroy the field such as grasping the fence, putting weight on, crashing to the fence and so on, that the security cannot be secured.
		Are robots allowed to enter the space above the area outside the game field? If yes, could robots touch the fence around the field from the field?	
	FAQ C.8-1	Feb.10, 2018 Is the projection of manual Bot allowed on outer fence?	Allowed
9	FAQ C.9	Is it allowed for the robot to suction the floor to stabilize its posture?	Yes, it is allowed. However, the team will violate the rules if the floor gets peeled off.
10	FAQ C.10	Jan.10, 2018 Regarding FAQ C-1, is it allowed to attach suckers on the robot and suck on the side of the fence?	No, it is not allowed.
Dec.11, 2017			
10	FAQ C.10	Is the fence magnetic?	No it is not
Feb.10, 2018			
11	FAQ C.11	Feb.10, 2018 The game field top view has a red border line along TZ1 and MRA, TZ2 and MRA. Which one of the white line or red line orthogonal to the boundary is pasted on the surface?	The white line is pasted on the surface.

No	Item	Questions on game procedure	Answer
Questions on Loading Shuttlecock			

1	FAQ D1.1	Can manual robot enter into the loading zone (LZ) during loading the shuttlecock? Can it enter inside the LZ anytime?	Allowed
		<u>Dec.11, 2017</u> MR has to get to LZ to pick up shuttlecocks. Is MR allowed to load shuttlecocks only when it completely fits inside of LZ or just a part of MR is inside LZ?	No, MR doesn't have to fit inside LZ completely
	【FAQD1.2】	Can we arrange shuttlecocks in the rack before the setting time begins?	No, it's not allowed. Please set the shuttlecocks in the rack in the 1-min setting time.
2	FAQ D1.2	Could the shuttlecocks be arranged in the racks before the set-up time?	Answered by FAQ D1.2
3	FAQ D1.3	Can we load normal shuttle cock and golden shuttle cock at a time in one rack Or we need to go to pick for the golden shuttle cock after shooting the normal shuttle cock.	Answered by FAQ D2.
4	FAQ D1.4	In the rule book, point 3.4.2, it is stated that handling and receiving shuttlecock is considered successful when "None of the Manual Robot part makes any contact with Automatic Robot." but then stated underneath it that "During the process of handling and receiving shuttlecock, the Manual Robot is allowed to make contact with Automatic Robot." I would like to request further information about the differences between the "contact" term in the first and second statements above. Does it mean that during the process of handling and receiving shuttlecock, any physical contact between the two robots is not allowed, but only non-physical contact is allowed?	Answered by FAQ D2.3 and refer to FAQ D5.7.
<u>Dec. 11, 2017</u>			
5	FAQ D1.5	Could team members load shuttlecock into MR by manually?	Not allowed

No	Item	Questions on game procedure	Answer
Questions on Handling and Receiving Shuttlecock			
	【FAQ D.2】	After successfully throwing shuttlecocks from TZ1 and TZ2, can either Manual Robot or Automatic Robot be able to hold Golden Shuttlecocks and Normal Shuttlecocks at the same time?	Yes. However automatic robot can hold only one Normal Shuttlecock. It is also allowed to arrange Normal Shuttlecock and Golden shuttlecocks together.
	【FAQ D.2.1】	If a Manual Robot failed to pass over a shuttlecock to Automatic Robot and it falls to inside TZ, can Automatic Robot pick it up and throw it?	Automatic Robot cannot throw the shuttlecock which has not been successfully passed from the Manual Robot.

No	Item	Questions on game procedure	Answer
2	FAQ D2.2	With reference to 3.4.2, only during Handling and receiving, manual robot which is in contact with automatic robot, cannot transfer an electrical signal to control the automatic robot. Is this interpretation correct?	Answered by FAQ D5.7
3	FAQ D2.3	Can shuttlecock touch automatic robot during transfer? When MR handles shuttlecock to AR, is it possible if the shuttlecock can touch AR	Allowed. Refer to Rulebook 3.4.2.
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4	FAQ D2.4	As for Rulebook 3.4.2, can MR pass the shuttlecock to AR by in a way that neither of the robots are in contact with the shuttlecock instantaneously such as projection?	Yes, it is allowed.
5	FAQ D2.5	As for Rulebook 3.4.2, is it OK to install racks on the AR?	Yes
6	FAQ D2.6	Can we pass normal shuttlecock and rack together? If we can how to judge the size of this robot when we do it?	Please refer to Rulebook 3.4.2 and 7.5 It is OK to pass the normal shuttlecock and rack together. As for the robot size, please refer to Rule 7.5.
7	FAQ D2.7	When MR pass AR the Shuttlecock, can AR put the Shuttlecock on the game field?	Not Allowed
8	FAQ D2.8	Can AR receive the Shuttlecock from rack that MR does not hold?	Not allowed
9	FAQ D2.9	What is the condition of “a success of one shuttlecock from the Handle and Receive between Manual Robot and Automatic Robot”?	Please refer to Rulebook 3.4.2
10	FAQ D2.10	Could a robot handle both Normal Shuttlecock and Golden Shuttlecock at the same time?	Answered by FAQ D.2
11	FAQ D2.11	Regarding Rulebook 3.5.a, is there a maximum limit in the number of shuttlecocks passed from MR to AR?	No, there is no maximum limit. Please follow the Rulebook 3.4.2 when handling/receiving the shuttlecock.
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12	FAQ D2.12	As for Rulebook 3.4.2, if AR picks up shuttlecocks directly from the racks mounted on MR, is this regarded as ‘passing on shuttlecock successfully’?	Allowed
13	FAQ D2.12-1		
		Can auto robot take the shuttlecock from the rack directly when the rack is out of loading zone, but not in contact with the manual robot?	When the rack is in contact with the field apart except for LZ, the team will have to have a compulsory retry. Please refer to FAQB1.
13	FAQ D2.13	The Rulebook 3.4.2 says that MR and AR can make contact with each other but MR is not allowed to send any signal or control the AR. Can we attach a contact type sensor to AR and by making contact with MR, AR judges its own movement?	Please refer to D5.1. At the moment MR makes contact with AR, it will be judged as MR controlling AR.
14	FAQ D2.14	As for Rulebook 3.4.2, can AR send signal to MR and/or AR control MR?	Yes. However, AR must follow Rule 7.4
15	FAQ D2.15	While MR passing the shuttlecock to AR (handling and receiving), can AR stay in TZ or have some contact with TZ?	AR can receive shuttlecocks anywhere as long as it is in its own team.

No	Item	Questions on game procedure	Answer
16	FAQ D2.16	While MR passing the shuttlecock to AR (handling and receiving), can MR have some contact with TZ or even enter into TZ?	Not allowed, Please refer to Appendix – Item 1. Gamefield
	FAQ D2.16-1	<u>Feb.10, 2018</u> Is there any fixed location where the passing of shuttlecock must take place from manual robot and automatic bot? Or the handover of shuttlecock can be done in any of MRA and TZ areas?	Rule does not specify the fixed position that MR transfer shuttlecock to AR. However, MR is only allowed to operate in the MRA.
		<u>Feb.10, 2018</u> As for the Rulebook 3.4 handling of shuttlecocks, is it OK if the shuttlecock enters the space above the outside of the contest field momentary when the MR is loading shuttlecocks or passing them on to AR?	Yes, it is allowed.
17	FAQ D2.17	Can Manual robot hold shuttlecock any way or it have to hold only the tail?	MR can hold shuttlecock or tail or fringe
	FAQ D2.17-1	<u>Feb.10, 2018</u> Can the manual bot make contact with the section of the tail that is between the keeping point and the shuttle cock?	Allowed
18	FAQ D2.18	The Rulebook 3.4.2 says only after AR has finished throwing the normal shuttlecock MR can pass on the next normal shuttlecock. Does ‘finished throwing the shuttlecock’ mean the moment when the shuttlecock is no longer in contact with AR? Or is it the moment when the shuttlecock landed on the field?	‘Finished throwing the shuttlecock’ means the moment when the shuttlecock is no longer in contact with AR. Also, AR has to finish throwing normal shuttlecock before touching next normal shuttlecock or its rack.
	FAQ D2.18-1	<u>Jan. 10, 2018</u> It is written that while passing the shuttlecock, it should not touch the game field. What if the fringes/tail touch the game field?	During passing shuttlecock, none of shuttlecock, tail or fringe should make contact with the field.
	FAQ D2.18-2	<u>Jan. 10, 2018</u> Is it ok if the shuttlecock touch the game field after it is handed over to automatic robot?	Allowed. However, once the throwing action starts, shuttlecock can not touch the game field except fringes
	FAQ D2.18-3	<u>Feb.10, 2018</u> Is the transfer deemed successful if the shuttlecock falls down on the AR but isn't in contact with MR and field?	Yes, it is considered as successful handover.
19	FAQ D2.19	<u>Feb.10, 2018</u> During the process of handling and receiving can MR merge with AR until process ends then part away?	It is allowed for the 2 robots to touch/come into physical contact but they cannot merge

No	Item	Questions on game procedure	Answer
Questions on Throwing Shuttlecock D3			
	【FAQ -D3】 about Rule 3.4	It is written that Automatic Robot must hold the shuttlecock either by the shuttlecock, tail or fringe. On the other hand, when throwing the shuttlecock the robot has to hold the keeping point or further position from the shuttlecock. As long as the shuttlecock is thrown by the keeping point, can a part of Automatic Robot touch other part of the shuttlecock?	<p>A part of Automatic Robot must indicate the sign when the ‘throwing action’ starts.</p> <p>The power to throw shuttlecock can only be given from the keeping point (or further position) grabbed by the automatic robot. Once the action to give power for throwing starts the automatic robot cannot touch other parts of the shuttlecock and the rack. Please keep the following throwing procedure:</p> <ol style="list-style-type: none"> 1. Automatic robot grabs keeping point 2. Make sure that no other part of the shuttlecock is in contact with the automatic robot 3. To start the throwing action, automatic robot indicates visible sign such as flashing light. The display on the automatic robot must be visible for referee and audience. 4. Start the throwing action <p>If the robot grabs only by the keeping point from the beginning, the team can omit No.2.</p>
1	FAQ D3.1	<p>Can the shuttlecock touch/rest but not hold on automatic robot while throwing?</p> <p>Can we hit/push the shuttlecock to throw while holding the shuttlecock from the keeping point?</p> <p>We aren't allowed to hold the Shuttlecock, but can we touch the Shuttlecock. For example, our robot will hold the tail of the Shuttlecock in the air and use an arm to hit at one side of Shuttlecock to throw it away, or lay it on the surface of one arm and use other arm which is holding the tail to pull the tail and throw it away.</p>	Answered by FAQ D3

No	Item	Questions on game procedure	Answer
		<p><u>Nov.10, 2017</u></p> <p>1) Is AR allowed to throw with Shuttlecock or Fringe if AR keeps holding Tail by last moment of throwing motion?</p> <p>2) Is AR allowed to throw Shuttlecock for the purpose other than getting points?</p> <p>3) Is AR allowed to throw with Keeping point that is touching Shuttlecock?</p> <p>4) Rule 3.4.3 says “The Automatic Robot is not allowed to hold the Shuttlecock.” Is it allowed to ‘touch’ the Shuttlecock?</p>	
		<p><u>Dec. 11, 2017</u></p> <p>In P.10 of the game rule, what is the definition of "hold"? i.e. Are we allow to touch?</p>	
2	FAQ D3.2	<p>Is it necessary to rotate shuttle cock before throwing? If so, then in what direction clockwise or anticlockwise?</p> <p><u>Dec.11, 2017</u></p> <p>Should the shuttle be spin before launching?</p>	The Rules does not stipulate the rotation of shuttle cock before throwing. Refer to Rules book – Item 3.4.3 and FAQ D3.
3	FAQ D3.3	<p>For throwing the shuttlecock, can we use methods other than shown in video of the theme? for example, using the slingshot technique</p>	It is Ok to throw shuttlecocks in any other ways shown in the rule CG video clip and as long as the method satisfies the conditions of Rule 3.4.3 and FAQ D3.
		<p><u>Dec. 11, 2017</u></p> <p>In P.10 of the game rule, what is the definition of "throw"? i.e. Can we swing the shuttlecock?</p> <p>Is the shuttlecock supposed to be rotated or simple thrown as a projectile?</p>	
	FAQ D3.3-1	<p>About FAQ D3, based on the given procedure and statements about throwing action, can AR hold the keeping point and the shuttlecock together to fully speed up first, and then release the mechanism holding shuttlecock (while the shuttlecock is still rotating and AR holds the keeping point), and then light up flashing to indicate to start the throwing action.</p>	<p>Not allowed.</p> <p>The power to throw shuttlecock can only be given from the keeping point (or further position) grabbed by the automatic robot. Please follow the throwing procedure under FAQ D3 and Rule 3.4.</p>
		<p><u>Nov.10, 2017</u></p>	
4	FAQ D3.4	<p>As for Rulebook 3.4.3, can we throw the shuttlecock in the rack?</p> <p>Is AR allowed to throw Shuttlecock and rack together?</p> <p><u>Dec. 11, 2017</u></p> <p>As for Rulebook 3.4.3, is it OK for the shuttlecock to touch the floor and Robot when throwing shuttlecock?</p>	<p>No, it is prohibited to throw anything with the shuttlecock.</p> <p>No it’s not allowed. Only the fringe can touch the floor and Robot.</p>

No	Item	Questions on game procedure	Answer
		In the moment of throwing the shuttlecock, can the shuttlecock be in touch with the rack?	
		Can there be a contact between the shuttlecock and Automatic Robot while throwing shuttlecock?	
5	FAQ D3.5	As for Rulebook 3.4.3, how would be it be judged if the robot throws the shuttlecock without holding its tail? Will it be a compulsory retry or we don't get any score?	It will not be a violation or compulsory retry. However you don't get any score if the shuttlecock went through the ring.
		<u>Dec. 11, 2017</u> The condition of passing on the shuttlecock is that none of the shuttlecock, tail and fringe are in contact with the field. When the shuttlecock has been successfully passed on after meeting all the conditions, can we make the shuttlecock touch the field in order to control the movement (sway) of the shuttlecock before throwing?	Yes, you can. However please follow D-3.1 when throwing.
6	FAQ D3.6	Is it regarded as a violation if thrown Shuttlecock break game field?	If a team intentionally breaks game field, the team will be disqualified.
		<u>Dec. 11, 2017</u> As for FAQ D-3.1, when AR throws shuttlecock, can the fringe touch the floor or robot?	The shuttlecock and tail should not touch the floor but fringe can touch the floor or robot.
7	FAQ D3.7	Is AR allowed to throw Shuttlecock that is touching ground?	Not allowed
		<u>Dec.11, 2017</u>	
	FAQ D3.7-1	Is it possible to use the wind as an aid to launch the shuttlecock?	
	FAQ D3.7-2	Is it Okay that throw a shuttlecock by hitting it with using something like a tennis racket?	
8	FAQ D3.8	Is Manual Robot allowed to throw Shuttlecock? If yes, could robot throw Shuttlecock for obstruction (knocking off the opponent team's Shuttlecock or obstructing movement of the robot)?	MR is not allowed to throw shuttlecock other than the purpose of passing on the shuttlecock to AR.
		<u>Dec. 11, 2017</u> A for FAQ D-3.1, the shuttlecock is released by the keeping point and the base of tail from horizontally held position and on that moment the robot signs and tries to fire the shuttlecock by applying power to the shuttlecock. In this method, it only takes only 1 second to follow the throwing procedure of No.1-4 and the time for indicating signature in No.3 will be very brief. Can we shoot the shuttlecock in this way?	No, you cannot. Since position energy is used for throwing power, it violates D-3.1.
<u>Dec. 11, 2017</u>			

No	Item	Questions on game procedure	Answer
9	FAQ D3.9	As for Rulebook 3.4.2 and FAQ D-3.1, the robot must flash light or put a flag up before starting the throwing action which are the visible sign to audience and referee but can the 'sound' be regarded as the 'visible sign'?	No, the sound is not acceptable. Referee doesn't indicate each time when the 'sign' is received but he/she needs to see it. The robot must keep indicating the sign from the moment throwing action starts until the shuttlecock goes out of contact with the robot.
10	FAQ D3.10	Regarding FAQD-3.1, after indicating the throwing sign, do we have to leave some time for referee to check? If so, how long do we have to wait?	You don't need to leave some time from indicating the throwing sign to the throwing action but referee has to see it to confirm. The robot must keep indicating the sign from the moment throwing action starts until the shuttlecock goes out of contact with the robot.
11	FAQ D3.11	As long as we satisfy the conditions under Rulebook 3.4.3, can AR start throwing action while shuttlecock's still in motion (sway and shake) caused by the handover action by MR? OR will this sway and shake of the shuttlecock be regarded as a 'power to throw' stated FAQ D3-1?	As long as it does not significantly affect the power to throw, the shuttlecock can be slightly moving/shaking.
12	FAQ D3.12	Feb.10, 2018 According to FAQD5-1, AR must entirely stay inside of TZ1, TZ2 and TZ3 including the space above when it throws a shuttlecock. Is it allowed to start adding power to AR(start the throwing process) before AR comes inside of TZ1, TZ2 and TZ3, and throws it after arriving at those zones ? For example, AR, upon receipt of Golden Shuttlecocks starts the throwing process in TZ2 and after reaching TZ3, AR throws the shuttlecock.	No. The AR has to indicate the 'throwing process' when AR entirely stays inside of TZ1, TZ2 and TZ3.

No	Item	Questions on game procedure	Answer
Questions on Picking up Shuttlecock D4			
Nov.10, 2017			
1	FAQ D4.1	Regarding Rulebook 3.4.4, if opponent's shuttlecocks should fall in my team's field, can we remove them?	Ask for a retry and then a team member can remove them
		Could a team remove rival shuttlecocks that fell in team's own area?	

No	Item	Questions on game procedure	Answer
2	FAQ D4.2	With reference to Rule 3.4.4, if the shuttlecocks thrown by the opponent team obstruct our team's robot's travel, will it be a violation of the opponent team? Can we remove the shuttlecocks by ourselves?	No, it won't be a violation of the opponent team. The team member can ask for retry to remove the shuttlecocks.
3	FAQ D4.3	Regarding Rulebook 3.4.4, if the golden shuttlecock should be dropped to MRA accidentally before throwing, can we pick up and throw it?	Not allowed, a golden shuttlecock is loaded and handed as well as thrown one time. So, if dropped shuttlecock is not allowed to pick up again and throw it.
4	FAQ D4.4	As for Rulebook 3.4.4, team member can pick up normal shuttlecock which fell in TZ and put it in LZ during retry but what about the normal shuttles fell in MRA?	A team member can pick up and place the normal shuttlecocks which fell in MRA during retry. * Added on the Rulebook 3.4.4.
5	FAQ D4.5	Could Manual robot pick up Golden Shuttlecocks that fell in MRA?	No, MR cannot pick up Golden Shuttlecocks that fell in MRA Refer to Rule 3.4.4 and following chart (table 1).
6	FAQ D4.6	As for Rulebook 3.4.4, if opponent's shuttlecock should fall in our team's golden cup, can we remove the shuttlecock?	No, you cannot.
		Is the Manual Robot allowed to touch the shuttlecock when picking the falling ones or does the Manual Robot have to pick from the shuttlecock's tail or fringe instead?	Allowed. When picking up falling shuttlecocks, MR can pick shuttlecock, or shuttlecock from tail or fringe.
		Can we reuse the shuttlecocks that fell in MRA if it were not used for throwing before?	For normal shuttlecock, you can ask for retry and put them back to LZ or the Automatic Robot itself can pick them up and use them again.
		<u>Dec.11, 2017</u> Referring to rule 3.4.4, can golden shuttlecocks fallen in manual robot area (MRA) be reused if they are not thrown once?	However, for golden shuttlecock, you cannot re-use it. Please refer to following chart (table 1)
	I want to ask about the picking up shuttlecock on the game field, which area is the robots, team member are permitted to pick up fallen shuttlecock?	Please refer to the following chart (table 1) if the shuttle can be or cannot be used after the throwing.	
FAQ D4.6-2	<u>Dec.11, 2017</u> Are team members allowed to pick up the shuttlecocks fallen outside the game field and place them on a rack inside the loading zone during game time?	You cannot place shuttlecocks fallen outside the game field on a rack. Please refer to following chart (Table 1) and FAQ B.11-1.	
7	FAQ D4.7	<u>Jan.10, 2018</u> The team gets score when the thrown shuttlecock, tail and fringes went through the ring successfully and landed on the field. The team can pick up golden shuttlecocks only after at least one normal shuttlecock thrown from TZ 1 or TZ 2 successfully went through the ring. When one shuttlecock has been successfully thrown from TZ1 or TZ2 and another shuttlecock thrown from TZ1 or TZ2 successfully also went through the	AR can go to get golden shuttlecocks only after the thrown normal shuttlecock landed on the field and gained point confirmed by referee.

No	Item	Questions on game procedure	Answer
		ring but just before landing, can I go to get golden shuttlecocks? Or do we have to wait until the thrown shuttlecock lands on the field and gains point?	

Table 1. Normal shuttlecock

	MRA	TZ1, TZ2, TZ3	NC	Out of the field
Manual Robot	Can pick up and re-use	No entry		
Automatic Robot	Cannot pick up	Can pick up and re-use	No entry	No entry
Team Member (In the game)	No entry	No entry	No entry	Can pick up and place in LZ
Team Member (In retry)	Can pick up and place in LZ	Can pick up and place in LZ	No entry	Can pick up and place in LZ

Table 2. Golden Shuttlecock: (The team cannot re-use Golden Shuttlecock under any circumstances)

	MRA	TZ1,TZ2,TZ3	NC	Out of the field
Manual Robot	Cannot pick up	No entry		
Automatic Robot	Cannot pick up	Cannot re-use	No entry	No entry
Team Member	No entry	No entry	No entry	Can pick up but Cannot re-use

(During game)				
Team Member (During retry)	Can pick up but cannot re-use	Can pick up but cannot re-use	No entry	Can pick up but cannot re-use

No	Item	Questions on game procedure	Answer
Common Questions on Game procedure			
1	FAQ D5.1	Are both manual and automatic robots allowed to enter the space above the No contact area?	Yes, Please refer to Rule 3.4.2, 3.4.3 and FAQ D3.
2	FAQ D5.2	Can both the robots enter into each other's start zone after the game begins?	Allowed
	【FAQ D5.3】	Is it allowed for the Manual Robot to enter the space above TZ1 and TZ2?	Yes.
3	FAQ D5.3-1	Is it allowed for the robots to touch the wall?	Allowed
		Can the manual robot enter into the air space above TZ1 and TZ2?	Answered by FAQ D5.3
		Can the robot touch the Fence? Can certain parts of the robot exceed the Fence area?	Allowed, the above space of robot is allowed to exceed the fence area
	FAQ D5.3-2	<u>Dec. 11, 2017</u> Can the robot travel moving over the fence between the TZ1 and TZ2?	No, not allowed
	FAQ D5.3-3	<u>Dec.11, 2017</u> Before successfully throw the normal shuttlecock through the normal ring, can the manual robot enter the loading zone, even if we have taken all the shuttlecock already?	Allowed
	FAQ D5.3-4	<u>Dec.11, 2017</u> In FAQ D 5.3.1 (Sep 26, 2017), it says "Allowed, the above space of robot is allowed to exceed the fence area." So then, can our robot hold/grab the side wall (touch both inner and outer surfaces of the side wall)?	Not allowed. Please refer to FAQ C-8.
	FAQ D5.3-5	Can manual robot or the rack enter the air space of the throwing zone?	Allowed. Answered by FAQ D5.3
4	FAQ D5.4	About shuttlecock. What is the definition of "hold"? Is it including touch?	Refer to Rules book, Item 3.4.2; 3.4.3 and FAQ D3
5	FAQ D5.5	AR is allowed to use different sensors for self-controlling, So I want to ask question for below cases: Case 1: if AR is equipped with optical sensor and MR uses LED light	Answered by FAQ D5.7

No	Item	Questions on game procedure	Answer
		Case 2: AR is equipped with magnetic sensor and MR has engine for moving that exists surrounding magnetic Above mentioned cases are allowed or not ?	
		Dec. 11, 2017 As for AR, is it acceptable to change the behavior of AR based on the relative distance to MR? For example, if MR moves away from AR, it is recognized by AR that the delivery is completed, etc.	Yes, it is acceptable.
6	FAQ D5.6	Can automatic robot sense the manual operator?	Allowed only at the start of the game and restart the robots after the retry is granted. It is not allowed in other time.
		Can the automatic robot sense the mechanical movements of manual robot?	Answered by FAQ D5.7
	【FAQ D5.7】 about rulebook 7.4	It is written that communication such as radio, infrared, laser, ultrasonic wave, etc. between the Manual Robot and the Automatic Robot is prohibited, but can it be possible to install mechanisms other than these?	It is prohibited to have ‘automatic robot control function’ on the manual robot. However the automatic robot can use ‘movement of manual robot’ or ‘colour of shuttlecocks’ for judgement. Nov. 10, 2017 It is also acceptable for AR to autonomously judge the situation by utilizing functions which MR does not control AR.
7	FAQ D5.7	Referring to rule 7.4, which standard wireless communication protocols are not allowed? Is LASER light sensing allowed between automatic and manual robot? Can you differentiate between signalling and communication?	Answered by FAQ D5.7
		What do you mean by ‘AUTO ROBOT CONTROL FUNCTION’ mentioned in FAQ D 5.7?	It means that MR has a function/mechanism to communicate and control AR via wireless communication or pushing button on AR.
		Referring to FAQ D5.7 what is the difference between ‘auto robot control function’ and ‘judgement’?	Judgement means AR by itself can recognize the movement of MR or color of shuttlecock to execute tasks in games
8	FAQ D5.8	Nov.10, 2017 1) When passing on the shuttlecock, can the AR be activated (respond to censor) by the items held by MR such as shuttlecock, tail, keeping point and fringe? 2) Could Manual Robot communicate Automatic Robot by displaying picture?	Not allowed. Answered by FAQ D5.7

No	Item	Questions on game procedure	Answer
	FAQ D5.8-1	<p><u>Dec.11, 2017</u> 1) Can autonomous bot can read sign of manual bot? 2) When Automatic Robot receives a shuttlecock, is it Okay that Automatic Robot recognizes the color of Manual robot's hand shining by LED and decides how to move? 3) Can we communicate with the auto robot using light bulb, LED, physical contact, radio, or by other means? 4) In Rule book it is written that "the Manual Robot is allowed to make contact with Automatic Robot. But, the Manual Robot is not allowed to send any signal to or control the Automatic Robot." Now the question is "Can manual robot press button located on Automatic robot to identify if AR has scored the shuttlecock or not?" 5) Is it a violation, If manual robot turn on and off a LED and auto robot use photo-resistor (light sensor) to sens for finishing the handling and receiving shuttlecock?</p>	Not allowed
	FAQ D5.8-2	<p><u>Jan.10, 2018</u> Is is allowed to sense any part of shuttlecock while transferring?</p> <p><u>Jan.10, 2018</u> Is it allowed to sense a rack while transferring a shuttlecock?</p> <p><u>Jan.10, 2018</u> Once I have grabbed shuttlecock rack in MR. Can I pass the single Shuttlecock(SC) in AR which can sense the knot and grab the shuttlecock in AR and move towards the throwing zone and will sense the color of SC to judge the path of TZ1, TZ2, TZ3.</p>	It is OK for AR to sense the shuttlecocks and racks but it is not allowed for MR to control AR by sensing colour and/or shape of racks.
	FAQ D5.8-3	<p><u>Jan.10, 2018</u> As for FAQD-5.1 and 5.2, using multiple racks, can AR use AR markers or colours on top of those racks and make decision?</p>	It is prohibited for the racks to control AR.
	FAQ D5.8-4	<p><u>Feb.10, 2018</u> During the transfer of shuttlecock, can we use Proximity Sensors Concept? This is similar to that of RGB Color Sensor Concept.</p> <p>In this, before the transfer of shuttlecock to Autonomous Robot, shuttlecock will be placed in air in front of the Proximity Sensor(which are placed in Autonomous Robot itself) so that Autonomous is clear about the zone in which it has to go for every shot.</p>	AR is allowed to use sensor to recognize color of shuttlecock. Please refer to FAQ D5.7

No	Item	Questions on game procedure	Answer
		There is no physical contact, direct communication or transfer of any electronic signal since only sensor is being used(no transmitter is used). Its only a way of indirect communication like RGB Color Sensor Concept.	
9	FAQ D5.9	Referring to rule 3.8.2, for the retry of automatic robot, is a retry also necessary for the manual robot?	When the retry is granted, both manual and automatic robot must restart from each start zone.
	FAQ D5.9-1	<u>Dec.11, 2017</u> How many retries can we ask for?	You can ask for retry as many times as you want
	FAQ D.5.9-2	<u>Dec.11, 2017</u> Do we need to turn off the robots(both manual and auto) during retry?	Unnecessary to turn off power but push the emergency button to stop motion.
	FAQ D5.9-3	<u>Feb.10, 2018</u> Are pit crews allowed to help operators to carry robots to the start zone during retry?	Not allowed
	FAQ D5.9-4	<u>Feb.10, 2018</u> The rulebook 3.8.2 says that team has to carry both robots to SZ before retry, but do they have to fit completely inside of each start zone when they restart? If so, is it also necessary for shuttlecocks and racks which are held by MR and AR to fit completely inside of those zones?	AR and MR must fit completely inside of each start zone when they restart, however this is not the requirement for shuttlecocks and racks. VTV opinion: AR and MR including shuttlecock and rack must fit completely inside of each start zone when they restart. If not, shuttlecock and rack must place back to the LZ. Considering the speedy development of the Nem Con game (finishes in 45-50 seconds), we should simplify the restart process. If it takes long time for restart, it will be hard for a team to catch up and they end up in defeat. Also, the rulebook 7.5 doesn't indicate shuttlecocks and racks must fit completely inside of SZ. It is simply written 'The robot <u>including the controller and cable</u> must fit into the start zone'.

No	Item	Questions on game procedure	Answer
			<p>It will be a bit confusing for students to change the rule to include shuttlecocks and racks at this final stage of preparation. Therefore the answer should be: AR and MR must fit completely inside of each start zone when they restart, however this is not the requirement for shuttlecocks and racks.</p> <p>We agree</p>
<u>Nov.10, 2017</u>			
10	FAQ D5.10	As for Rulebook 3.4.2, is it OK for MR to indicate AR marker on the mounted monitor for AR to read the information and determine the situation?	No it is not allowed as the indication of AR marker on MR is deemed as the function to control the AR.
10	FAQ D5.10-1	<p>Feb.10, 2018</p> <p>In games rule, manual robots are not allowed to send any signals to automatic robot. The Manual Robot has pneumatic cylinders with cardboards attached on it. The cylinders extend to be sensed by sensors on manual robot during passing of shuttlecock and before shooting. Is this considered as sending signal to automatic robot?</p>	Not allowed, it is considered as sending signal.
11	[FAQ D5.11]	<p>Are following acts of obstruction for opponent team allowed?:</p> <ol style="list-style-type: none"> To throw huge shuttlecock or rack to the opponent's normal rings, golden ring and opponent's golden cup and cover them. Changing the trajectory of the shuttlecock thrown by opponent by the use of wind. Our AR and MR try to obstruct travel of opponent's AR and MR by throwing shuttlecocks and racks into their MRA, LZ and TZ. Moving shuttlecocks and racks out of opponent's LZ. Our AR tries to enter opponent's space above MRA and TZ and obstruct the travel of opponent's robot. Under Rulebook 4.1, MR is prohibited from entering the space above opponent's field but can AR enter the area? 	<p>Rules regarding obstruction are as follows:</p> <ol style="list-style-type: none"> It's not allowed to throw anything apart from shuttlecock itself. The shuttlecock must be made in accordance with the regulation and the transformation is not allowed. Obstruction using wind is prohibited. Obstruction to opponent's field and robots by throwing shuttlecocks and racks are prohibited. <p>MR and AR(including racks) entering the space above opponent's field is prohibited. However, both robots can enter space above NC. By Rulebook 3.4.3 AR should completely fit in TZ1, TZ2, TZ3 and its space above when throwing shuttlecocks.</p>

No	Item	Questions on game procedure	Answer
12	FAQ D5.12	Is Automatic Robot allowed to enter opponent's field?	Not allowed
		Is each robot allowed to enter the space above opponent's field?	Answered by FAQ D5.11
13	FAQ D5.13	Where is the area or zone that each robot is not allowed to enter the space above?	Answered by FAQ D5.11
		Is Manual Robot allowed to enter the space above TZ?	
14	FAQ D5.14	Is a team allowed to use wind?	Not allowed
	FAQ D5.14-1	<u>Dec.11, 2017</u> Is the use of wind or other methods to implement a negative strategy allowed i.e. use of wind to obstruct landing of Golden shuttlecock in Golden cup?	Not allowed
	FAQ D5.14-2	<u>Feb.10, 2018</u> The "FAQ D5.14" says that wind is not allowed in a team, do you mean that we can not use it in the throw process or we can not use it in the whole game? Can we use it to adjust the position of the <u>ball</u> , or to <u>float the rope</u> so that the AR could grab it? This way we won't interfere the other team, because the wind is not strong and it's action area is no bigger than a shuttlecock, and we'll turn it off in the throw process.	Please refer to FAQ Z.3
15	FAQ D5.15	On rulebook 3.4.2, what is the definition of signal?	The information that MR uses to control AR
16	FAQ D 5.16	When Automatic Robot throw Shuttlecock in TZ1, Is Automatic Robot allowed to enter the space above TZ2?	Not Allowed. Refer to Rulebook 3.4.3
<u>Jan.10, 2018</u>			
17	FAQ D5.17	Rf Communication within the bot between two microprocessor (not between both bots) is allowed or not?	Allowed. Please follow the regulation of RF communication by your contest organiser at the domestic contest as well as host country at the ABU Robocon. Please refer to FAQ Z.4
20	FAQ D5.20	Can you please enlist the total modes of communications which are prohibited?	Refer to FAQ D5.8-1, FAQ Z.4 Please follow the regulation of RF communication by your contest organiser at the domestic contest as well as host country at the ABU Robocon.
	FAQ D5.20-1	<u>Feb.10, 2018</u> Can we use wireless communication to control MR?Or we must use only wired connection to control MR?	Allowed, Please follow the regulation of RF communication by your contest organiser at the domestic contest as well as host country at the ABU Robocon.

No	Item	Questions on game procedure	Answer
21	FAQ D5.21	Can we use ultrasonic sensor to detect "movement of manual robot" as referred in ABU Robocon FAQ at website on 27 Oct 2017?	Allowed
22	FAQ D5.22	It is clearly stated that Manual Robot cannot control motions of Auto Robot, how about vice versa? How about if both robots are Auto Robot?	It is OK for AR started from ARSZ to control robot started from MRSZ. However, AR must follow Rule 7.4.
24	FAQ D5.24	Can AR emit wireless signal for some parts on itself? Can AR emit wireless signal to MR?	AR can control communication by FAQ D2.14.
26	FAQ D.26	Is it allowed to switch ON any button(like emergency stop) to start automatic bot as the referee gives the signal to start the game or bot should identify it by itself?	You can push the button to start AR at the start of the game. The same condition applies if the robot starts from MRSZ is autonomous. Please release the emergency stop switch of MR before the start of the game.
27	FAQ D.27	There are multiple receiving structures on AR. Can AR decide next move according to which receiver AR receives shuttlecocks and/or racks from MR?	Yes, it is allowed.
28	FAQ D.28	<u>Feb.10, 2018</u> Can we use smartphone contain processor chips and image recognition cameras? Smartphones have been disconnected from the outside, so can they are used on robots?	Allowed.

No	Item	Questions on Robot	Answer
1	FAQ E.1	Can air be refilled in the robots during a retry?	Not Allowed
2	FAQ E.2	The total weight of 2 robots (manual and automatic robot) is maximum 50 kg or 25 kg? <u>Nov.10, 2017</u> 1) Must each weight of Manual robot, Automatic robot and Racks limit 25kg? Or must the sum weight of each robot and Racks limit 25kg?	Answered by FAQ B.2
		<u>Dec. 11, 2017</u> Can we use wind as for energy source and driving force of the robot?	Please refer to FAQ Z.3

No	Item	Questions on Robot	Answer
Nov.10, 2017			
3	FAQ E.3	Could a team use floor suction in order to prevent the robot from falling over?	Allowed
4	FAQ E.4	What is the meaning of Rulebook 7.2 “The robot must not split into parts during the game”?	It means Robot is prohibited from splitting into other robots or separate parts during the game
5	FAQ E.5	About the size of the robot in Rule book 7.5, the size regulation is 1500 mm in length × 1500 mm in width × 1800 mm in height during the game. Does the height include the shuttlecock held on the extension of the arm trajectory when turning the arm during projection?	No, the height doesn’t include the shuttlecock. Since the arms and racks are regarded as a part of the robot, it should be made within the regulated size.
6	FAQ E.6	Dec.11, 2017 About the size of robots, rulebook IV.7.5. Is the shuttlecock counted as part of robot? Can the shuttlecock exceed the limit of “1500mm length x 1500mm width x 1800mm height”?	
7	FAQ E.7	Dec.11, 2017 Robot size and weight mentioned is for MR and AR both?	Yes
8	FAQ E.8	Dec.11, 2017 About the size of robots, rulebook IV.7.5. What about the robot without any rack? For example, if our AR doesn’t carry any rack, can it also exceed 1000mm x 1000mm x 1000mm) and enjoy the size limit of “1500mm length x 1500mm width x 1800mm height”?	Robot with rack or without rack must satisfy Rule 7.5
9	FAQ E.9	Dec.11, 2017 Which robot do the rack's weight count towards?	Please refer to FAQB2 for weight.
10	FAQ E.10	Dec.11, 2017 Does the equipment used in the preparation time included in the total weight too?	The equipment used in the preparation time is not included in the total weight of robots
11	FAQ E.11	Feb.10, 2018 Is there any rule for mounting emergency stop on both bots?	Please refer to Rule 8.1 – Safety.
12	FAQ E.12	Feb.10, 2018 Can we keep a small compressor on our Automatic bot?	In order to ensure the safety of the competition, air compressor is not allowed to be used.
13	FAQ E.13	Feb.10, 2018 The rulebook 7.5 says the robot must fit into the regulated size (1500mmx1500mmx1800mm) throughout the game. Is it OK to exceed this size regulation when the robot is fully extended but it won’t happen during the game?	It is OK.

No	Item	Questions on Robot	Answer
		For example, the robot has two arms. During the game the robot is within the size regulation as only one of the arms are extended. However if both arms are extended at the same time it will exceed the size regulation.	

No	Item	Questions on Score	Answer
1	FAQ F.1	Referring to rule 2.10, will “Rong bay” be considered if the shuttlecock bounces off the field and then lands inside the golden cup?	Rong bay won’t be achieved even if the shuttlecock bounces off the field and then lands inside the golden cup.
2	FAQ F.2	Referring to rule 2.10, is the “Rong Bay” achieved if the shuttlecock falls in golden cup (GC) but a part of the tail or the keeping point is hanging outside golden cup (GC)?	“Rong bay” winner. Rong bay is achieved even if the other part of shuttlecock is hanging outside of GC or in contact with the field.
3	FAQ F.3	When the AR receives a rack from MR does it count a point for each shuttlecock or a point for the rack?	The number of shuttlecocks successfully passed on will earn points. The number of rack is irrelevant to the score.
4	FAQ F.4	Are there points for upon successful passing of Golden Shuttlecock for Manual robot to autonomous? If points, are there then how many points will be allotted if whole rack of Golden shuttlecock is passed (5 golden shuttlecocks together)?	When successfully handling and receiving one (1) Golden Shuttlecock, the team scores one (1) point. If successfully handling and receiving rack including 5 Golden Shuttlecock, the team would get 5 points. Refer to Rules book Item 3.5 Score
5	FAQ F.5	Will the points be allotted if shuttlecock is hanging with ring?	If the shuttlecock is successfully thrown through the ring, the team will earn score. Refer to Rules book Item 3.5 Score

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6	FAQ F.6	Regarding Rulebook 3.5, what happens if the shuttlecock went through the ring but fringe gets caught by the ring and the shuttlecock hangs in the air?	You will get a point as soon as the whole of shuttlecock, tail and fringe went through the ring and land on the field or GC.
		<u>Dec.11, 2017</u> What will happen when the shuttlecock is hang or stuck to the ring? Does it count as "through" the ring?	
		<u>Feb.10, 2018</u> What will happen if we shoot normal shuttlecock to golden ring?	You will not get score for this normal shuttlecock.

No	Item	Questions on Score	Answer
7	FAQ F.7	Are points given to a team if its shuttlecock passes through a ring even though tails or fringes get caught on the ring? If shuttle loops around the ring, and is stuck there, will points be given?	Points are given to a team when the whole of shuttlecock and tail, fringes must pass through the ring and land on the game field or golden cup.
8	FAQ F.8	Are points given to a team if its shuttlecock which already passed through a ring passes through a ring again ?	You can pick up the normal shuttlecock with has gone through the ring once (scored) and throw it again. If the shuttle went through the ring you will get points. However you cannot reuse golden shuttlecock.
9	FAQ F.9	Are points given to a team if its shuttlecock already touched the floor passes through a ring?	The team will not get point in this case
10	FAQ F.10	What is the definition of “landing on the Golden Cup”?	Please refer to Rulebook 3.5
11	FAQ F.11	As for Rulebook 2.10, what are the conditions to meet ‘golden shuttlecock lands on GC successfully?’ For example; a) The tail of the shuttlecock is caught in the GC and the keeping point is on the cup but the shuttlecock itself hangs outside of GC. b) The opponent’s shuttlecock has already landed in our team’s GC and our golden shuttlecock lands on top of their shuttlecock. Our golden shuttlecock is not in contact with CG but it is obvious to anyone that the shuttlecock is in the GC. Our golden shuttlecock landed on the GC successfully but while it’s in motion, it was knocked out of GC by opponent’s shuttlecock. Would this be considered as golden shuttlecock landing CG successfully?	The conditions regarding golden shuttlecock lands successfully on the GC as follows; a) Even if a part other than the shuttlecock (tail or fringe) is on the GC, if the shuttlecock itself is not on the GC, it will not be regarded as "landed" successfully. b) If the Golden Shuttlecock is on the GC and lands on opponent 's shuttlecock, it will be considered "landed" successfully. It is unnecessary for the golden shuttle to be in contact with the GC. When the referee judges that the shuttlecock has stopped on the GC, it will be considered that the Golden Shuttlecock "landed" successfully.
12	FAQ F.12	Does a team win the “Rong bay” when: a) Its Golden Shuttlecock hits the edge of the Golden Cup (GC)? b) Its Golden Shuttlecock which passed through the Golden Ring lands on the Golden Cup after bouncing on the floor? c) Its Golden Shuttlecock which passed through the Golden Ring lands on the Golen Cup after being touched by Manual Robot? d) Only tails or fringes of its Golden Shuttlecock which passed through the Golden Ring lands on the Golden Cup? e) Its Golden Shuttlecock which already touched the floor lands on the Golden Cup?	The team will not achieve “Rongbay” when: a) Its Golden Shuttlecock hits the edge of the GC but does not land on GC. b) Its Golden Shuttlecock which passed through the Golden Ring lands on the Golden Cup after bouncing on the floor. c) Its Golden Shuttlecock which passed through the Golden Ring lands on the Golen Cup after being touched by Manual Robot. d) Only tails or fringes of its Golden Shuttlecock which passed through the Golden Ring lands on the Golden Cup.

No	Item	Questions on Score	Answer
			Its Golden Shuttlecock which already touched the floor lands on the Golden Cup.
13	FAQ F.13	When MR pass AR one Normal Shuttlecock that has been passed one or more time, how much point will the team get.	The team will get one point for each time when MR successfully pass AR one normal Shuttlecock regardless of such shuttlecock that is picked up and passed one time or many times.
<u>Dec.11, 2017</u>			
14	FAQ F.14	Can we reuse(transfer and throw) a normal shuttlecock after we gained points from it?	Allowed
<u>Jan.10, 2018</u>			
15	FAQ F.15	If the shuttlecock gets broken in the air after successfully went through a ring, can we get the score? Will it be a violation if shuttlecock gets broken?	It is not a violation but you can not get the score if the shuttlecock gets broken or doesn't have a tail or at least 5 fringes
<u>Feb.10, 2018</u>			
16	FAQ F.16	Will the points be awarded if the Golden shuttlecock is thrown through TZ1/TZ2?	You will not get score for this Golden Shuttlecock.
17	FAQ F.17	Will the points be awarded for throwing of shuttlecock through ring after 3 min time is completed but handover was completed before time over?	Scores are counted only for the successful handover, but not for the throwing shuttlecock after 3 minutes
18	FAQ F.18	Regarding rule 3.5 about scores, do we get scores for the shuttlecocks (body including tails and fringes) landed outside of the field or on an object outside of the field or on robots inside of the field after they went through the ring successfully?	Yes, you will get points for the shuttlecocks successfully went through the ring and laded outside of the field or on an object outside of the field or robots inside of the field. However, considering safety, the team will be asked to modify the structure if it is able to shoot shuttlecocks to reach outside of the field. We agree Sorry, we wish to make addition as above. We agree

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No	Item	Other Questions	Answer
1	FAQ Z.1	AR may prevent opponent team from achieving Rong Bay by shooting own normal shuttlecock or golden shuttlecock to opponent's flying golden shuttlecock. Is this obstruction allowed?	It is allowed to throw a normal shuttlecock or a golden shuttlecock to the opponent's flying Golden Shuttlecock or falling to GC just before coming to a complete stop. However, when throwing for obstruction it is necessary to throw according to the methods stipulated in FAQ D - 3.1. When throwing shuttlecocks for obstruction, AR can throw shuttlecocks from anywhere within the specified area by the rules.
Jan.10, 2018			
2	FAQ Z.2	For the purpose of obstruction, when the AR shoot shuttlecocks to opponent's golden shuttlecocks, FAQ D-5.6 says follow the throwing rules of FAQ D-3.1. FAQ D-3.3 says that it won't be a violation or retry even if the shuttlecock is thrown by the specified position of the tail but the team won't get points it went through the ring successfully. If for the purpose of obstruction, can we ignore the throwing action of No.1 and No2 if we satisfy No.3 and No.4 of FAQ D3-1? If AR grabs shuttlecocks itself, not by tail and keeping point and throw them to obstruct opponent, do we we only loses points of those shuttlecocks without being penalized by violation or retry?	You have to satisfy the throwing action stated No1~No4 under FAQ D3.1 when you thrown shuttlecocks for scoring and obstruction. It won't be a violation if you throw shuttlecocks in the way not regulated under FAQ D3.1. However, if the shuttlecock which doesn't satisfy the regulation of throwing action obstruct opponent's shuttlecock, it will be a violation.
3	FAQ Z.3	The use of wind is allowed or not allowed in below cases: To use fan it to cool down the motor and circuit To use a fan to suck the floor To use a fan to indicate signs To use it as a energy source or driving force To use it against shuttlecocks	The use of wind is allowed: To use fan it to cool down the motor and circuit To use a fan to suck the floor To use a fan to indicate signs The use of wind is NOT allowed: To use it as a energy source or driving force To use it against shuttlecocks
[FAQ Z.4] about RF communication regulation		What is allowed to control the robot wirelessly ? How about RF communication regulation at ABU Robocon 2018 Ninh Binh Vietnam contest ?	Following the radio law of Vietnam, the equipment that have low output power or low ERP and short range of communication like the equipment used in ABU robocon contests are allowed to use in Vietnam without asking for approval from managing authority. The wireless communication allowed during the completion of ABU Robocon 2018 Ninh Binh Viet Nam is

No	Item	Other Questions	Answer
			infrared ray, sound wave, radio wave and laser (class 2 or less) As for the equipment using bluetooth, only Bluetooth conforming to IEEE 802.15.1 is allowed.