Revision exercise for Area/airway 2015

Q1 a	Describe briefly the function of ACC	To provide Air Traffic Services within the FIR outside Aerodrome and Approach jurisdiction	2
b)	Name the four services provided by ACC	1. Air Traffic Control Services 2. Flight Information Services 3. Air Traffic advisory services 4. Alerting Services	0.5 0.5 0.5 0.5
c)	What services are provided outside both controlled and advisory airspace3s	Flight Information Services and Alerting Services	1
d)	Who is responsible to make arrangements about diversions within the FIR	DATMO at ACC	1
e)	What are the actions of DATMO in regard to diversions?	i- Keep watch on WX at all aerodromes under him/her ii- Anticipate diversions by choosing suitable aerodromes---to bear in mind types of aircraft, length of runways, approach aids etc... iii- Check with the aerodromes that diversions will be accepted	1 1 1
Q2a)	What do you know about “Transfer of Control Point”	agreed airways/advisory reporting point, FIR boundary or agreed DR location	2
b)	When may transfer of communication take place and why?	5 minutes before transfer of control point to allow new instructions to the aircraft for position beyond the transfer point	2
c)	Which are the two occasions in which revision of boundary estimates are necessary?	5 minutes or more or change of flight level	2
d)	What would be your action regarding an IFR aircraft which requests to change flight plan or level just before entering another FIR	i- Hold the aircraft in your airspace ii- Request clearance from the appropriate ACC	1 1

		iii- Pass clearance to the aircraft and acknowledge	1
Q3 a)	You are the duty ACC ATMO, an aircraft reports it is lost and requires navigational assistance (no radar)	i) Declare phase of emergency ii) Obtain last position fix, heading and time flown since, TAS, flight conditions and altitude iii) Ensure aircraft is above the lowest safe altitude in the area if IMC iv) Plot DR position of aircraft v) Ask pilot if VMC to describe roads, railway lines, lakes, mountains etc vi) Advise other aircraft in the area to provide escort vii) Alert en-route facilities which could assist in determining position	1 1.5 1.5 1.5 1.5 1.5 1.5
b)	What is meant by the expression “Strayed aircraft”?	An aircraft which has deviated significantly from its intended track or which reports that it is lost	2
Q4 a)	How is longitudinal separation established	By requiring aircraft to; i) depart at specified time or ii) lose time to arrive over a location at a specified time or iii) hold over a location until a specified time	1 1 1
b)	State the longitudinal separation of time for aircraft climbing or descending on the same track?	i) 20 minutes at the time the level is crossed or greater when circumstances require ii) 15 minutes or greater when circumstances require on airways iii) 10 minutes at the time level is crossed if navigational aids permit frequent determination of position and speed	1 1 1

		iv) 5 minutes at the time the level is crossed provided that the level change is commenced within 10 minutes of the time the second aircraft has reported over the exact reporting point	1
c)	State all the VOR/DME lateral separation that use 20^{o}	Both aircraft must have reported established on radials at least 20^{0} apart i) Two outbound both are established on diverging radials by at least 20^{0} or more and at least one aircraft is 15nm more from the same VOR/DME station ii) Two inbound both are established on converging radials of at least 20^{0} or more and at a distance of 30nm or more from VOR/DME station iii) One inbound and the other outbound both aircraft are established on radials which diverge by at least 20^{0} or more and the outbound is 15nm or more from the VOR/DME and the inbound is 30nm or more from the same facility	1.5 1.5 2
Q5 a)	List down information items that an aircraft in flight is required to provide to the ACC in order to obtain a clearance to join an airway.	i) aircraft identification and type ii) position and heading iii) level and flight conditions iv) departure airfield v) true airspeed vi) route and point of first intended landing	0.5 0.5 0.5 0.5 0.5 0.5
b)	What are the conditions to be satisfied when applying DME	i) Each aircraft utilizes ‘’on-track’’ DME stations	1

	separation for aircraft climbing or descending on same track?	ii) One aircraft maintains a level while vertical separation does not exist; and iii) Separation is established by obtaining simultaneous DME readings from the aircraft	1 1
c)	If a VFR flight reports encountering adverse meteorological conditions, as the ACC ATMO what information should you request from the pilot considered pertinent so as to provide assistance?	i) Aircraft flight conditions ii) Position (if known) and level iii) Airspeed and heading since last known position, if pertinent iv) Pilot experience v) Navigation equipment carried and if any navigation aid signals are being received vi) SSR mode and code selected if relevant vii) ADS-B capability viii) Departure and destination aerodrome ix) Number of persons on board x) Endurance	0.5 0.5 0.5 0.5 0.5 0.5 0.5 1.5 0.5 0.5 0.5
6 a)	What do you understand by the term “aircraft proximity”?	A situation in which, in the opinion of a pilot or air traffic services personnel the distance between a/c as well as their relative positions and speed have been such that the safety of the a/c involved may have been compromised.	2
b)	Name and describe the four (4) classification of aircraft proximity	i) **Risk of collision**. The risk classification of an a/c proximity in which serious risk of collision has existed ii) **Safety not assured**. The risk classification of an a/c proximity in which the safety of a/c may have been compromised iii) **No risk of collision**. The	2 2

		classification of an a/c proximity in which no risk of collision has existed iv) **Risk not determined.** The risk classification of an a/c proximity in which insufficient information was available to determine the risk involved or inconclusive or conflicting evidence precluded such determination.	2 2
Q7 a)	What is the standard separation required to be provided to aircraft jettisoning fuel?	a) Horizontally 10NM but not behind the aircraft jettisoning fuel .5 b) Vertically if behind the aircraft jettisoning fuel within 15 minutes flying time or 50NM; c) at least 1000ft if above the aircraft or d) at least 3000ft if below the aircraft	0.5 1 1 0.5
b)	What information shall be passed to an IFR aircraft that is not familiar with the instrument procedures in your airspace? (use NN as an example detailing how this shall be passed)	i) This is the approach procedure for .. ii) Initial approach level iii) Outbound track, length in minutes and level instructions iv) Direction of procedure turn and level instructions v) Final approach track and level instruction vi) Obstacle clearance vii) MSA	1 1 1 1 1 0.5 0.5
c)	What is essential traffic? List the components of essential traffic information.	Essential traffic is traffic which is separated for any period by less than the specified standard separation. Essential traffic information includes a) direction of flight of conflicting aircraft b) type of conflicting traffic c) cruising level, ETA to reporting point or point nearest to where aircraft will cross d) any alternate clearance	1 0.5 0.5 0.5 0.

			5
Q8			
Q9	Define the following		
a)	Transfer of control point	A defined point located along the flight path of an aircraft, at which the responsibility for providing air traffic control service to the aircraft is transferred from one control unit or control to the next	1.5
b)	Traffic Information	Information issued by an air traffic services unit to alert a pilot to other known or observed air traffic which may be in proximity to the position or intended route of flight and to help the pilot avoid a collision	1.5
c)	Same track	When the track of one aircraft is separated from the track of the other by less than 45^0	1.5
d)	Area Navigation (RNAV)	A method of navigation which permits aircraft operation on any desired flight path within the coverage of station-referenced navigation aids or within the limits of the capability of self-contained aids, or a combination of these	1.5
e)	Area control Service	Air Traffic control service for controlled flights in control areas	1.5
f)	Air Traffic Management (ATM)	The dynamic, integrated management of air traffic and airspace including air traffic services, airspace management and air traffic flow management —safely, economical and efficiently—through the provision of facilities and seamless services in collaboration with all parties and involving airborne and ground based functions.	1.5
Q10 a)	As an ACC ATMO when do you issue “onward clearance”?	When an aircraft is instructed to hold en-route.	1

	What conditions apply to the above clearance?	Such aircraft must never be told that such holding is indefinite, if not possible to make an accurate calculation immediately, the aircraft shall be given an arbitrary onward clearance time requiring 10 to 15 minutes holding, which must be amended to an accurate time before the arbitrary period has elapsed.	1.5
b)	As an ACC ATMO, under what conditions will traffic be issued with “Release subject to your discretion (RSYD)”	i) Outbound clearance may be issued which do not provide the required separation from either inbound aircraft which has not yet passed their release points or from overflying aircraft provided – the outbound clearance is qualified by RSYD together with the details of the conflicting traffic; and---the release message on the inbound aircraft, or full details of the overflying traffic has already been passed ii) An RSYD restriction is intended to facilitate the overall expedition of traffic where Approach Control procedures may offer a more expeditious resolution of the confliction than Area Control procedures. It is the responsibility of the approach controller to determine whether he can provide the required separation in order to clear the outbound aircraft for departure, before transferred to ACC all conflictions must have been resolved	2.5 2
c)	What will ACC message to Approach control regarding	i) Aircraft identity; type and SSR code (if applicable)	0.

	inbound aircraft contain?	ii) Point of departure iii) Release point iv) Estimated time, level at the holding point or arrival time , level at holding point if the release is given after arrival v) expected approach time vi) Contact time	5 0. 5 0. 5 0. 5 0. 5 0. 5

ATC REVISION QUESTIONS

1. a) Who is responsible to make arrangements about diversions within the FIR
b) What are the actions of DATMO in regard to diversions?
c) What are the actions of the DATMO when diversion is requested or is imminent?

a) DATMO at ACC
b)
(i) Keep watch on WX at all aerodromes under him/her
(ii) Anticipate diversions by choosing suitable aerodromes---to bear in mind types of aircraft, length of runways, approach aids etc...
(iii) Check with the aerodromes that diversions will be accepted
c)
(i) Give the aircraft diversion message, weather, clearance instructions and radio frequencies
(ii) Pass information to diversion aerodrome
(iii) Inform original aerodrome of departure and other concerned ATC Units

2. a) What do you know about 'Transfer of Control Point'
b) When may transfer of communication take place? Why
c) Which are the two occasions in which revisions of boundary estimates are necessary?
d) What would be your action regarding an IFR aircraft which requests to change flight plan or level just before entering another FIR

e) What is a way point?
f) What is Area Navigation (RNAV)?
g) How will you apply lateral separation?

a)
(i) An agreed airways/advisory reporting point
(ii) FIR boundary, or
(iii) Agreed DR location
b) 5 minutes before transfer of control point to allow new instructions to the aircraft for position beyond the transfer point
c) 5 minutes or more or change of flight level
d)
(i) Hold the aircraft in your airspace
(ii) Request clearance from the appropriate ACC
(iii) Pass clearance to the aircraft and acknowledge
e) A specified geographical location used to define an area navigational route or the flight path of an aircraft employing area navigation

f) A method of Navigation which permit the aircraft operation on any desired flight path within the coverage of station referenced navigation aids or within the limits of the capability of self-contained aids or a combination of these
g) i) Geographical separation position reports over different geographical locations determined visually
ii) Track separation between aircraft using the same navigation aid or method

3. a) When shall time of take-off be specified by area controller
b) What pertinent data of controlled traffic that ACC must keep the unit providing approach control services promptly advised of
c) What is the time limit within which ACC must pass the estimate to approach as regards to an arriving aircraft?

a)
(i) When it is necessary to coordinate the departure with traffic not released to the unit providing approach services
(ii) To provide enroute separation between departing aircraft following the same route

b)
(i) Identification, type and point of departure of arriving aircraft
(ii) Estimated time and proposed level of arriving aircraft over holding point or actual time if aircraft is released to the unit providing approach control after the arrival over the holding point
(iii) Expected approach time issued
(iv) Statement that aircraft has been released to the unit providing, if necessary time and the conditions of release
(v) Anticipated delay to departing traffic due to congestion

c) Not less than 15 minutes before estimated time of arrival

4. a) What do you understand by the term 'exact reporting point'?
b) What longitudinal separation based on time you would apply for an aircraft intending to descend through a level of the other on a reciprocal track
c) Under what circumstances can this separation be waived

a) It is a position established by a navigational facility which is;
i) Overhead a VOR
ii) Overhead NDB
iii) A position established by a VOR radial combined with a range from a co-located DME
iv) A position which has been notified as reporting and which is established by the intersection of VOR radial and a bearing from an NDB
b) Vertical separation shall be provided for at least 10 minutes prior to and after the estimated time of passing
c) Unless confirmed that aircraft already passed each other established by;

i) Radar derived information
ii) A visual sighting report from both pilots or
iii) Aircraft position report over the same exact reporting point, provided vertical separation is maintained for sufficient time to take into consideration possible navigation error

5. a) What do you understand by EAT?
b) On what is it based?
c) What purpose does it serve?
d) How will aircraft in the holding stark be cleared to land?
e) What would be your action in a situation when no realistic EAT can be given?

a) Expected approach time is the time at which ATC expects that an arriving aircraft, following a delay, will leave the holding fix to complete its approach for a landing
b) The actual time of leaving the holding fix, will depend upon the approach clearance
c) To achieve separation of aircraft as they execute approaches to land at the aerodrome and hence maintain the landing sequence
d) Levels at holding fix or visual holding location shall as far as practicable be assigned in a manner that will facilitate clearing each aircraft to approach in its proper priority. Normally, the first aircraft to arrive over a holding fix or visual holding location should be at the lowest level, with following aircraft at successively higher levels.
e) Advise the pilot that ‘’delay not determined’’ and give reasons for the delay

6. a) What is meant by the expression strayed aircraft?
b) Detail the cause of action to be taken by an ATSU when it becomes aware of a strayed a/c in order to assist and safe guard its flight?
(a) A strayed aircraft is one which has significantly deviated from its intended track or which reports that it is lost.

(b) If the aircraft position is not known, ATSU shall

(i) Use all the available means to determine its position.
(ii) Attempt to establish two-way communication with aircraft unless such communication already exists.
(iii) Inform other ATS units that may be affected, taking into account all the factors which may have affected the navigation of the aircraft.
(iv) Inform, in accordance with locally agreed procedures, appropriate military units, and provide them with pertinent flight plan and other data concerning strayed aircraft.
(v) Request, from units referred in (iii) and (iv) above, for every assistance in establishing communication with communication and determining its position.

When the a/c position is established the ATSU shall

(vi) Advise the aircraft of its position, and corrective action to be taken.
(vii) Advise, as necessary, other ATC and military units.

7. a) When applying vertical separation during climb or descent when may the clearance of the second a/c to a level be withheld even after the first a/c has reported vacating the level?

(b) For how long will such as clearance be withheld?

(c) When shall time of take-off be specified by the area controller to either the approach or aerodrome controller?

a) When,

(i) Severe turbulence is known to exist

(ii) The other higher a/c is effecting a cruise-climb

(iii) The difference in a/c performance is such that less than the applicable separation minimum may result

(b) Until the a/c vacating the level has reported or passing another level separated by the required minimum

(c) (i) when it is necessary to coordinate the departure with traffic not released to the unit providing approach control service and;

(ii) To provide enroute separation between departing a/c following same route

8. You are the ACC Controller and watch supervisor, when do you enter into a distress phase in respect of an overdue a/c reported to you by the operator of a light a/c?

After checking with the departure aerodrome, and confirming the overdue a/c, the alert phase shall be entered immediately, then the distress phase, if,

(i) Following the alert phase, unsuccessful attempts to establish communication with the aircraft, and more widespread unsuccessful inquiries point to the probability that the aircraft is in in distress, or when,
(ii) Information has been received which indicates that the operating efficiency of the aircraft has been impaired to the extent that a forced landing is likely, or when,
(iii) Fuel on board (endurance) the aircraft is considered to be exhausted or to be insufficient to enable the aircraft to reach safety, or when,
(iv) Information has been received, or it is reasonably certain that the aircraft is about to make, or has made, a forced landing,

Except, when there's reasonable certainty that the aircraft and its occupants are not threatened by grave and imminent danger and do not require immediate assistance.

9. (a) What do you understand by the term "aircraft proximity"?

(b) Name and describe the four (4) classifications of a/c proximity

(a) A situation in which, in the opinion of a pilot or air traffic services personnel the distance between a/c as well as their relative positions and speed have been such that the safety of the a/c involved may have been compromised.

(b) An a/c proximity is classified as follows:

(i) **Risk of collision:** The risk classification of an a/c proximity in which serious risk of collision has existed

(ii) **Safety not assured:** The risk classification of an a/c proximity in which the safety of a/c may have been compromised

(iii) **No risk of collision:** The risk classification of an a/c proximity in which no risk of collision has existed

(iv) **Risk not determined:** The risk classification of an a/c proximity in which insufficient information was available to determine the risk involved or inconclusive or conflicting evidence precluded such determination.

10. a) Where would information regarding an aircraft in-flight requiring crossing and joining airway route be obtained?

b) What is the content of such requests?

(i) Crossing Flights:

(ii) Joining Flights

a)

- from flight plans or
- by aircraft filing in-flight requests

b) i)

1. aircraft identification and type;
2. track (true)
3. place and estimated time of crossing
4. desired crossing level; and
5. true airspeed

ii)

1. aircraft identification and type
2. position, level and flight conditions
3. estimated time at point of entry
4. Desired level on an airway.
5. route and point of first intended landing; and
6. true airspeed (TAS)

11. a) Define Flight Information Service (FIS)?

b) Which aircraft are provided with FIS?

c) What is the scope of FIS?

d) What are the general rules governing the application & provision of FIS?

a) FIS is a service provided for the purpose of giving advice and information useful for the safe and efficient conduct of flights.

b) i) provided with air traffic control services; or
ii) Otherwise known to the relevant air traffic service unit.
c) i) SIGMET and AIRMET information;
ii) Information concerning pre-eruption volcanic activity, volcanic eruption and volcanic ash clouds;
iii) Information concerning the release of radio-active materials or toxic chemicals;
iv) Information on changes in the serviceability of navigation aids;
v) Weather condition which make flight under VFR impracticable;
vi) Information on changes in condition of aerodromes and associated facilities, including information on the state of aerodrome movement areas when they are affected by significant depth of water.
vii) Information of unmanned free balloons;
viii) Any other information likely to affect safety.
d) i) Provided at the discretion of the ATCO concerned or at the request of the pilot made either before departure or whilst in flight
ii) In providing FIS, the controller does not exercise positive control over the aircraft. It will in no way relieve the pilot of his responsibilities.

iii) The provision of ATC service shall normally take precedence over the provision of FIS

12. Define the following terms

a. Change over point
b. Flight level
c. Operational Control
d. Performance-based navigation (PBN)

a) The point at which an aircraft navigating on an ATS route segment defined by reference to very high frequency omnidirectional radio ranges is expected to transfer its primary navigational reference from the facility behind the aircraft to the next facility ahead of the aircraft.

b) A surface of constant atmospheric pressure which is related to a specific pressure datum, 1013.2 hectopascals (hPa), and is separated from other such surfaces by specific pressure intervals.

c) The exercise of authority over the initiation, continuation, diversion or termination of a flight in the interest of the safety of the aircraft and the regularity and efficiency of the flight

d) Area navigation based on performance requirements for aircraft operating along an ATS route, on an instrument approach procedure or in a designated airspace.

13. a) When applying vertical separation during climb or descent , when may the clearance of the second aircraft be withheld even after the first aircraft has reported vacating the level?
b) For how long will such a clearance be withheld?
c) When shall time of take-off be specified by the area controller to either the approach or aerodrome controller?

a)
1. Severe turbulence is known to exist
2. The other aircraft is effecting a cruise climb
3. The difference in aircraft performance is such that less than the applicable separation minimum may result

b) Until the aircraft vacating the level has reported or passing another level separated by the required minimum

c)
(i) When it is necessary to coordinate the departure with traffic not released to the unit providing approach control unit
(ii) To provide enroute separation between departing aircraft and another following the same route

14. a) Sometimes it is necessary to hold an aircraft enroute, what should you ensure to give the aircraft?

b) What rules govern VFR and IFR flights that operate outside controlled airspace?

c) How are aircraft required to make position reports

(i) On routes defined by designated points?

(ii)On routes not defined by designated reporting points?

a) Expected on ward clearance

b)

(i) Maintain watch on appropriate FIC frequency

(ii) Make position reports periodically, unless authorised by the ATMO concerned

c)

(i) Make report on compulsory reporting point or as soon after passing

(ii) On request reporting points when required by ATC

(iii)As soon as crossing reporting lines ,in absence of lines as soon after the first 30 minutes and there at one hourly interval or as ACC/FIR requests

15. a) How is longitudinal separation established?

b) State the longitudinal separation of time for aircraft climbing or descending on the same track

c) State all the VOR/DME lateral separation that use 20^0

d) What separation minima is used for enroute aircraft and holding aircraft?

a) By requiring aircraft to;

(i) Depart at specified time or

(ii) Lose time to arrive over a location at a specified time or

(iii)Hold over a location until a specified time

b)

(i) 20 minutes at the time the level is crossed or greater when circumstances require

(ii) 15 minutes or greater when circumstances require on airways

(iii)10 minutes at the time level is crossed if navigational aids permit frequent determination of position and speed

(iv) 5 minutes at the time the level is crossed provided that the level change is commenced within 10 minutes of the time the second aircraft has reported over the exact reporting point

c) Both aircraft must have reported established on radials at least 20^0 apart

(i) Two outbound both are established on diverging radials by at least 20^0 or more and at least one aircraft is 15nm more from the same VOR/DME station

(ii) Two inbound both are established on converging radials of at least 20^0 or more and at a distance of 30nm or more from VOR/DME station

(iii)One inbound and the other outbound both aircraft are established on radials which diverge by at least 20^0 or more and the outbound is 15nm or more from the VOR/DME and the inbound is 30nm or more from the same facility

d) When aircraft are being held in flight vertical separation will be provided between such holding aircraft and enroute aircraft whilst such enroute aircraft are within 5 minutes flying time of the holding aircraft holding area

16. a) List down information items that an aircraft in flight is required to provide to the ACC in order to obtain clearance to join an airway
b) What are the conditions to be satisfied when applying DME separation for aircraft climbing or descending on the same track?

a)
(i) aircraft identification and type
(ii) position and heading
(iii) level and flight conditions
(iv) departure airfield
(v) true airspeed
(vi) route and point of first intended landing

b)
(i) Each aircraft utilizes ‘’on-track’’ DME stations
(ii) One aircraft maintains a level while vertical separation does not exist; and
(iii) Separation is established by obtaining simultaneous DME readings from the aircraft

17. When an emergency is declared by an aircraft, what appropriate action should you take?

(i) Unless clearly stated by the flight crew or otherwise known, take all necessary steps to ascertain aircraft identification and type, the type of emergency, the intentions of the flight crew as well as the position and level of the aircraft
(ii) Decide upon the most appropriate type of assistance which can be rendered
(iii) Enlist the aid of other ATS unit or other services which may be able to provide assistance to the aircraft
(iv) Provide the flight crew with any information requested as well any additional relevant information such as details on suitable aerodrome, minimum safe altitude, weather information
(v) Obtain from operator or the flight crew such of the following information as may be relevant; number of persons on board, amount of fuel remaining, possible presence of hazardous materials and nature thereof and
(vi) Notify the appropriate ATS unit and authorities as

18. (a) What separation minima is used for enroute a/c and holding a/c?

(b) What separation is used for a/c climbing and descending on crossing tracks?

(c) When using DME what separation minimum is used between a/c at the same cruising level A/C on the track?

a) When a/c are being held in flight, vertical separation will be provided between such holding a/c and enroute a/c whilst such enroute a/c are within 5min flying time of the holding a/c's holding area

b) 20 min at the time levels are crossed or greater when circumstances require

c) - 20NM or greater when circumstances require provided

(i) each a/c utilizes on track DME station
(ii) separation is checks by obtaining simultaneous DME reading from the a/c at frequent intervals to ensure the minima will not be infringed

- 10NM provided

(i) The leading a/c maintains a true air speed of 20kts or more faster than the succeeding a/c

(ii) Each a/c utilises on track DME stations and

(iii) Separation is checked by obtaining DME reading from a/c at such intervals as are necessary to ensure the minimum established will not be infringed

19. Define:

(i) Significant point

(ii) Airway

(iii) Traffic Information

(iv) Area Control Centre

(v) Transfer of control point

i) A specified geographical location used in defining on ATS route or the flight path of an a/c and for other navigation and ATS purpose

(ii) A Controlled area or portion thereof established in the form of a corridor

(iii) Information issued by an air traffic services unit to alert a pilot to other known or observed air traffic which may be in proximity to the position or intended route of flight and held the pilot avoid a collision

(iv) A unit established to provide air traffic control service to controlled flights in control areas under its jurisdiction.

(v) A defined point located along the flight path of an a/c, at which the responsibility for providing air traffic control services to the a/c is transferred from one control unit or control position to the next.

20. Explain with reference to angles between their tracks, whether the following pairs of a/c are considered to be on same, crossing or reciprocal tracks, as far as longitudinal separation is concerned:

(i) Aircraft A flying HUEN/HTDA on UA401 and a/c B from DNMM to HUEN on ULA434

(ii) C enroute HKJK/HUEN on ULA432 and D from HTDA to HUEN UA401

(iii) ETH811 HAAB/HUEN on ULA432 and KQA562 DNMM/HKJK ULA433

(i) Reciprocal tracks

Angles between them are at an angle of more than 135º and less than 225º

(277º - 137º = 140º)

(ii) Same Track

Angles between tracks less is than 45º

(137º - 109º = 28º)

(iii) Crossing tracks

Angles between tracks is between 225º and 315º

(277º - 049º = 228º)

21. a) What is coordination?

b) Coordination may be achieved by one of the following methods:

c) The complete process of coordination, which must precede transfer of control, shall be achieved when:

d) When shall an aircraft be cleared for the entire route to the aerodrome of first intended landing?

e) What is flight level zero in terms of pressure and when are area controllers required to revise estimates?

a) Coordination is the act of negotiation between two or more partners each vested with authority to make decisions appropriate to the task being discharged. Coordination is effected when the parties concerned agree on a cause of action.

b) Direct negotiation and agreement for individual flights

- Standing agreements, letter of procedure between two or more ATC units
- Use of permanent procedures agreed between national aviation authorities.

c) Notification, negotiation and agreement has taken place progressively;

- It has been agreed that aircraft can proceed under specified conditions without the need for individual co-ordination.
- An estimate message has been passed and no objection has been raised by the accepting ACC unit.

d)

(i) When it has been possible, prior to departure, to coordinate the clearance between all the units under whose control the aircraft will come; or

(ii) When there is reasonable assurance that prior coordination will be effected between those units under whose control the aircraft will subsequently come.

e) Flight level zero is 1013.2mb. Area controllers revise estimates when they vary by 5 minutes or greater and when there are level changes.

22. a) The pilot of hijacked aircraft may not be able to verify the hijack status. What are such events that should be considered to indicate the situation?

b) What are the four cases for which communication is necessary between pilots and controllers during TCAS RTF?

a)

(i) Unauthorized deviation from cleared flight profile;

(ii) Refusal or inability to comply with ATC instructions (including vectoring) with no good reason;

(iii) Loss of RTF contact, particularly associated with flight profile deviation;

(iv) Use of non-standard phraseology by the crew or other covert attempt to highlight the situation (marked change in voice characteristics, etc.)

(v) Unauthorized SSR code change or extended use of IDENT;

(vi) Open RTF transmitter from cockpit;

(vii) Non-ATC related RTF transmission (e.g. political statement).

b)

(i) Notification during the RA response

(ii) Notification after the RA response is completed

(iii) Notification after returning to original clearance

(iv) Notification of inability to comply with ATC clearance due to an RA.

23. Between what flights shall clearances issued by air traffic control units provide separation to?

(i) Between all flights in airspace Classes A;
(ii) Between IFR flights in airspace Classes C, D and E;
(iii) Between IFR flights and VFR flights in airspace Class C;
(iv) Between IFR flights and special VFR flights;
(v) Between special VFR flights.

24. a) what are the LOPS for aircraft operating between Entebbe and Mwanza?

b) What is the lowest east & west bound levels on OPERO route?

c) List GNSS routes in Entebbe FIR

d) Describe Entebbe UTA

a) i) Entebbe ACC shall clear southbound aircraft to FL190 RLCE or FL210 RLCE

ii) Dar ACC shall clear northbound aircraft to FL160 RLCE or FL180 RLCE

b) i) Eastbound FL210

ii) Westbound FL200

c) i) UM216
ii) UN553
iii) UN556
iv) UL432
v) UL433
vi) UL434
vii) L434

d) Clockwise along Uganda/Tanzania border, along Uganda/Rwanda border, along Uganda/DRC border, then clockwise by an arc of 150NM radius centred on NN DVOR thence along Uganda/Kenya border and finally along Uganda/Tanzania border.

Vertically: $\frac{UNL}{FL\,145}$

Class airspace: A

1	When may Separation Standards minima be increased?	• Requested by the pilot • controller considers it necessary • directed by CAA Uganda
2	When may Separation Standards minima be decreased?	• when adequate separation can be provided by the aerodrome controller when each aircraft is continuously visible to the controller; • each aircraft is continuously visible to the pilots of other aircraft concerned and the pilots report that they can maintain their own separation; or • when an aircraft is following another the pilot of the succeeding aircraft reports that he/she has the other in sight and can maintain own separation.
3	When does transfer of control normally take place?	• At an agreed reporting point; • On an estimate for an FIR boundary; • At or passing an agreed level; or • While the aircraft is climbing or descending to a previously agreed level provided that the transferring controller has ensured that standard separation will exist between the transferred aircraft and all others for the reminder of the climb or descent. •
	Coordination may be achieved by one of the following method	• Direct negotiation and agreement for individual flights • Standing agreements, letter of procedure between two or more ATC units • Use of permanent procedures agreed between national aviation authorities
	Under what circumstances may a controller withhold a clearance for takeoff of an aircraft?	• When instructed by the aerodrome authority • When instructed by any other person authorized by CAA as per the Civil Aviation regulations • If the controller knows that the aircraft has been detained by the Police or Customs officer
	If a controller has not been instructed to withhold clearance but he has reason to believe that a planned flight is liable to endanger life or involve a breach of legislation, he is to	• warn the pilot of the hazardous condition or apparent infringement and obtain an acknowledgement of the message. • in case of an infringement of legislation warn the pilot that if he does take-off, the facts will be reported to the appropriate authority.

		• if the pilot still request take off clearance after acknowledging the warning he should be advised, when traffic permits, that there are no traffic reasons to restrict take off. • record the warning and any comment made by pilot in the ATC logbook.
	What are the conditions for VFR operations in controlled airspace?	• an aircraft may be operated under VFR provided that it remains at least 1.5km horizontally and 1000ft vertically from all cloud and in flight visibility of 8km or more. • as far as weather conditions and terrain allow, an aircraft shall be flown in accordance with VFR cruising level - semi-circular rules.
	What are the conditions for VFR operations outside controlled airspace?	**At or above 1,000ft** • an aircraft may be operated under VFR provided that it remains at least 1.5km horizontally and 1000ft vertically from all cloud and in flight visibility of 8km or more. • as far as weather conditions and terrain allow, an aircraft shall be flown in accordance with VFR cruising level - semi-circular rules. **Below 1,000ft** • An aircraft may be operated under VFR provided that it remains clear of all clouds, in sight of ground or water and in flight visibility of not less than 3 km (*may be reduced to 1.5km for helicopters*)
	What are the conditions for IFR operations within controlled airspace?	• flight plan must be submitted to the appropriate ATS Unit. • clearance for the flight must be obtained from the appropriate ATC Unit • the pilot of the aircraft must be the holder of a license which includes an instrument rating. • the aircraft must be equipped with suitable instruments and must carry notified radio apparatus operating on notified radio frequencies. • the flight must be conducted in

		accordance with any air traffic control clearances received. • Unless otherwise authorized by the appropriate air traffic services units cruising levels used by IFR flights must be accordance with the cruising levels shown above
	What are the requirements for a pilot intending to fly IFR in controlled airspace	• must hold an instrument rating • must know the notified procedure for the airspace in which he intends to fly • must submit a flight plan to and obtain clearance from the appropriate ATC unit • must fly according to the clearance
	Flight information service shall include the provision of pertinent	• SIGMET and AIRMET information; • Information concerning pre-eruption volcanic activity, volcanic eruption and volcanic ash clouds; • Information concerning the release of radio-active materials or toxic chemicals; • Information on changes in the serviceability of navigation aids; • Weather condition which make flight under VFR impracticable; • Information on changes in condition of aerodromes and associated facilities, including information on the state of aerodrome movement areas when they are affected by significant depth of water. • Information of unmanned free balloons; • Any other information likely to affect safety
	Uncertainty phase exists when	• no communication has been received from an aircraft within a period of thirty minutes after the time a communication should have been received, or from the time an unsuccessful attempt to establish communication with such aircraft was first made, whichever is the earlier, or when • an aircraft fails to arrive within thirty minutes of the estimated time of arrival last notified to or estimated by air traffic services units, whichever is

		the later, *except when no doubt exists as to the safety of the aircraft and its occupants*.
	Alert phase exists when	• following the uncertainty phase, subsequent attempts to establish communication with the aircraft or inquiries to other relevant sources have failed to reveal any news of the aircraft, or when • an aircraft has been cleared to land and fails to land within five minutes of the estimated time of landing and communication has not been re-established with the aircraft, or when • information has been received which indicates that the operating efficiency of the aircraft has been impaired, but not to the extent that a forced landing is likely, (*except when evidence exists that would allay apprehension as to the safety of the aircraft and its occupants*), or when • an aircraft is known or believed to be the subject of unlawful interference.
	Distress phase exists when	• following the alert phase, further unsuccessful attempts to establish communication with the aircraft and more widespread unsuccessful inquiries point to the probability that the aircraft is in distress, or when • the fuel on board is considered to be exhausted, or to be insufficient to enable the aircraft to reach safety, or when • information is received which indicates that the operating efficiency of the aircraft has been impaired to the extent that a forced landing is likely, or when • information is received or it is reasonably certain that the aircraft is about to make or has made a forced landing, (*except when there is reasonable certainty that the aircraft and its occupants are not threatened by grave and imminent danger and do not require immediate assistance)*
	When a **Distress** Message is	• Plot the aircraft's position on a map,

	intercepted by ACC, what action must be taken?	• Advise the pilot of the nearest available aerodrome, • Alert radar and D/F services to obtain positions and bearings, maintain a plot of the track of the aircraft and give all possible assistance to the pilot, • Alert aerodromes in the vicinity of the aircraft's position and adjacent to its track. Request them to stand by to assist the aircraft to make a safe landing or to render immediate assistance should the aircraft crash, • Notify other aircraft flying in the vicinity of the distress aircraft, • Notify the RCC giving full details and stating that the Distress Phase exists, • If it is apparent that the aircraft cannot reach an aerodrome and the approximate position in which it is likely to force-land can be judged, alert the appropriate local services in conjunction with the RCC, • Inform the aircraft operator or representative if practicable.
	When an **Urgency** Message is received by ACC, what action must be taken?	• Arrange for uninterrupted approach and landing at the aerodrome of destination or alternate chosen by pilot, • Suggest a suitable alternate aerodrome to the pilot if requested or if its appears expeditious, • Rearrange the traffic pattern to allow the aircraft to proceed to destination or alternate without delay, • Alert radar and D/F services to obtain positions and bearings, maintain a plot of the track of the aircraft and give all positions assistance to the pilot, • Alert other aerodromes along the aircraft's proposed route, • Inform other aircraft flying in the vicinity of the aircraft concerned, • If any doubt exists that the aircraft can reach an aerodrome, alert the appropriate RCC stating that the Distress Phase exists, • Inform the aircraft operator or

		representative if practicable.
	What is ACC required to do in case there exists suspicion of unlawful interference of a civil flight	• transmit, and continue to transmit, information pertinent to the safe conduct of the flight, without expecting a reply from the aircraft, • monitor and plot the progress of the flight with means available, and coordinate transfer of control with adjacent ATS units without requiring transmissions or other responses from the aircraft, unless communication with the aircraft remains normal, • inform, and continue to keep informed, appropriate ATS units, including those in adjacent FIRs, which may be concerned with the progress of the flight; • Notify; 4. the operator or its designated representative, 5. the appropriate rescue coordination centre in accordance with appropriate alerting procedures, 6. the designated security authority. • relay appropriate messages, relating to the circumstances associated with the unlawful interference, between the aircraft and designated authorities.
	As soon as an air traffic services unit learns that an aircraft is being intercepted in its area of responsibility, it shall take such of the following steps as are appropriate in the circumstances	• attempt to establish two-way communication with the intercepted aircraft on any available frequency, including the emergency frequency 121.5MHZ unless such communication already exists, • inform the pilot of the intercepted aircraft of the interception, • establish contact with the intercept control unit maintaining two-way communication with the intercepting aircraft and provide it with available information concerning the aircraft, • relay messages between the intercepting or the intercept control unit and the intercepted aircraft, and necessary, • in close coordination with intercept

		control take all necessary steps to ensure the safety of the intercepted aircraft, and • inform ATS units in adjacent FIRs if it appears that the aircraft has strayed from these FIRs.
	Give five (5) situations that may represent an unusual air traffic event a combination of which may trigger appropriate alerting action.	• Unauthorized deviation from cleared flight profile; • Refusal or inability to comply with ATC instructions (including vectoring) with no good reason; • Loss of RTF contact, particularly associated with flight profile deviation; • Use of non-standard phraseology by the crew or other covert attempt to highlight the situation (marked change in voice characteristics, etc) • Unauthorized SSR code change or extended use of IDENT; • Open RTF transmitter from cockpit; • Non-ATC related RTF transmission (e.g. political statement).
	State the common causes of diversions	• when the weather at the planned destination is reported to be bad or below the minima prescribed by an operating company for aircraft; • when there are obstructions on the landing area which constitute hazard to aircraft landing and cannot be cleared within reasonable period; • failure of airborne equipment; • failure of essential ground aids to landing in circumstances which would require their use; • unacceptable delay due to congestion of air traffic; • closure of aerodrome of destination.
	Indicate how the following traffic incidents are designated (iv) Air traffic incident (v) Aircraft proximity (vi) Faulty procedure (vii) Non-compliance with procedure (viii) Failure of ground facilities	 • Incident • AIRPORX • Procedure • Procedure • Facility
	The complete process of coordination, which must precede transfer of control, shall be achieved when	• notification, negotiation and agreement has taken place progressively; • it has been agreed that aircraft

		can proceed under specified conditions without the need for individual co-ordination. • an estimate message has been passed and no objection has been raised by the accepting ACC unit.
	Area control unit is required to keep approach control promptly advised of the following data on IFR traffic.	• Estimated time of arrival and flight level over a facility • ATC clearance and anticipated delay to a departing aircraft • Average time interval between successive approaches. • EATs and revisions thereof when calculations show a variation of 5 minutes or more. • Arrival times over the holding point if these vary from estimates by 3 minutes or more. • Aircraft in emergency, diversions and overdue aircraft
	ACC shall coordinate with **OTHER ATC units** to provide the following	• Flight Plan data • Departure messages • Estimates, flight levels and revisions if any • Diversions, emergency and overdue aircraft
	In order to provide air traffic control service, an air traffic control unit shall:	(vii) be provided with information on the intended movement of each aircraft, or variations there from, and with current information on the actual progress of each aircraft; (viii) determine from the information received, the relative positions of known aircraft to each other; (ix) issue clearances and information for the purpose of preventing collision between aircraft under its control and of expediting and maintaining an orderly flow of traffic; (x) coordinate clearances as necessary with other units:

AREA/AIRWAYS SAMPLE QUESTIONS EXPANDED

NO	QUESTION	ANSWER
01	a)Describe briefly the function of acc; b) Name the four main services provided by ACC; c) What services are provided outside both controlled and advisory airspaces	a)Provide Air Traffic Services within the FIR outside Aerodrome and Approach jurisdiction b) 1. Air Traffic Control Services 2. Flight Information Services 3. Air Traffic advisory services 4. Alerting Services c) Flight Information Services and Alerting Services
02	a)Who is responsible to make arrangements about diversions within the FIR b)What are the actions of DATMO in regard to diversions c) What are the actions of the DATMO when diversion is requested or is imminent?	a)DATMO at ACC b) • Keep watch on WX at all aerodromes under him/her • Anticipate diversions by choosing suitable aerodromes---to bear in mind types of aircraft, length of runways, approach aids etc... • Check with the aerodromes that diversions will be accepted c) 1. Give the aircraft diversion message, WX ,clearance instructions and radio frequencies 2. Pass information to diversion aerodrome 3. Inform original aerodrome of

		departure and other concerned ATC Units
03	a)How are clearance limits specified? b) When can an aircraft be cleared for the entire route to destination? c) When can you use the phrase ‘cleared-via flight plan route’? d)when may you not use it	a) 1. Name of reporting point 2. Aerodrome or facility 3. Airspace boundary b) When coordination is effected with all units concerned or there is assurance that it will occur before the passage of the flight c)Provided the route is the same as that is in flight plan and coordination will be achieved during the passage of the aircraft d)When granting re clearance
04	a)What do you know about ‘Transfer of Control Point’ b) When may transfer of communication take place? Why c) Which are the two occasions in which revisions of boundary estimates are necessary? d)What would be your action regarding an IFR aircraft which requests to change flight plan or level just before entering another FIR	a)An agreed airways/advisory reporting point FIR boundary or agreed DR location b)5 minutes before transfer of control point to allow new instructions to the aircraft for position beyond the transfer point c)5 minutes or more or change of flight level d) 1. Hold the aircraft in your airspace 2. Request clearance from the appropriate ACC 3. Pass clearance to the aircraft and acknowledge
05	a)What is a way point b)What is area Navigation (RNAV)	a)A specified geographical location used to define an area ,navigational route or the flight path of an aircraft employing area navigation b)A method of Navigation which permit the aircraft operation on any

	c)How will you apply lateral separation	desired flight path within the coverage of station referenced navigation aids or within the limits of the capability of self contained aids or a combination of these c) i) Geographical separation position reports over different geographical locations determined visually ii) Track separation between aircraft using the same navigation aid or method
06	a)When shall time of take-off be specified by area controller b)What pertinent data of controlled traffic that ACC must keep the unit providing approach control services promptly advised of c)What is the time limit within which ACC must pass the estimate to approach as regards to an	a) e. When it is necessary to coordinate the departure with traffic not released to the unit providing approach services f. To provide en-route separation between departing aircraft following the same route b) 1. Identification, type and point of departure of arriving aircraft 2. Estimated time and proposed level of arriving aircraft over holding point or actual time if aircraft is released to the unit providing approach control after the arrival over the holding point 3. Expected approach time issued 4. Statement that aircraft has been released to the unit providing, if necessary time and the conditions of release 5. Anticipated delay to departing traffic due to congestion c) Not less than 15 minutes before

	arriving aircraft	estimated time of arrival
07	a) When can you clear an aircraft for VMC climb or descent? b)What is the standard phraseology in the following circumstances • KQA 410 at FL 200 reports visual meteorological conditions and wish to climb to FL 280 traffic is UGB 109 FL 250 • If you cannot issue ATC clearance 3.When you wish 5X UAN to keep listening watch on the current frequency 4. When you want to increase longitudinal distance or time between two en-route aircraft at the same level using en-route Navaids. Assume traffic is BAW 065 5.You want UAE 613 HUEN/HAAB not to report position until PATAR	a) (iv) During hours of day (v) When requested by the aircraft (vi) When aircraft are maintaining own separation and remain VMC b) 6. KQA 410 climb to FL 280 maintaining own separation and VMC from FL200 to FL 260 7. Expect clearance at (time) 8. 5XUAN remain on this frequency 9. BAW 065 Entebbe Control arrange your flight to arrive over (place) at (time) or BAW 065 loss time to arrive over (place) at (time) 10. UAE 613 (Entebbe control) omit position report until PATAR
08	a)You are the duty ACC ATMO, an aircraft reports it is lost and requires navigational assistance—no Radar	7. Declare phase of emergency 8. Obtain last position fix, heading and time flown since, TAS, flight conditions and altitude 9. Ensure aircraft is above the lowest safe altitude in the

	b) What is meant by the expression strayed aircraft	area if IMC 10. Plot DR position of aircraft 11. Ask pilot if VMC to describe roads, railway lines, lakes, mountains etc.. 12. Advise other aircraft in the area to provide escort 13. Alert en-route facilities which could assist in determining position b) An aircraft which has deviated significantly from its intended track or which reports that it is lost
09	a)When applying vertical separation during climb or descent , when may the clearance of the second aircraft be with held even after the first aircraft has reported vacating the level b)For how long will such a clearance be with held c)When shall time of take-off be specified by the area controller to either the approach or aerodrome controller	a) 7. Severe turbulence is known to exist 8. The other aircraft is effecting a cruise climb 9. The difference in aircraft performance is such that less than the applicable separation minimum may result b) Until the aircraft vacating the level has reported or passing another level separated by the required minimum c) i)When it is necessary to coordinate the departure with traffic not released to the unit providing approach control unit ii)To provide en-route separation between departing aircraft and another following the same route
10	a)What do you understand by the term ‘exact reporting point’	a)It is a position established by a navigational facility which is; i)overhead a VOR ii)overhead NDB

	b)What longitudinal separation based on time you would apply for an aircraft intending to descend through a level of the other on a reciprocal track c)Under what circumstances can this separation be waived	iii)a position established by a VOR radial combined with a range from a co-located DME iv)a position which has been notified as reporting and which is established by the intersection of VOR radial and a bearing from an NDB b)Vertical separation shall be provided for at least 10 minutes prior to and after the estimated time of passing c)Unless confirmed that aircraft already passed each other established by; i)radar derived information ii)a visual sighting report from both pilots or iii)aircraft position report over the same exact reporting point, provided vertical separation is maintained for sufficient time to take into consideration possible navigation error
11	a)When are VFR flights required to make RTF contact with ACC b)State the services provided by ATS units in class D airspace	a)i)As soon as possible after departure ii)When changing frequencies iii)When destination is in sight iv)Of flights sufficient duration, an operations normal call or position report shall be made at an intervals of not more than one hour v)in event of failure to establish contact, pilots would broadcast their reports b)i) IFR flights are separated from other IFR flights ii)IFR flights receive traffic

		information on VFR flights iii)VFR flights receive traffic information on all other fights iv)Traffic avoidance given on request
12	a)Sometimes it is necessary to hold an aircraft en-route, what should you ensure to give the aircraft b)What rules govern VFR and IFR flights that operate outside controlled airspace c)How are aircraft required to make position reports, on routes defined by designated points On routes not defined by designated reporting points	a)Expected on ward clearance b)i)Maintain watch on appropriate FIC frequency ii) Make position reports periodically,. Unless authorised by the ATMO concerned c) i)make report on compulsory reporting point or as soon after passing ii)on request reporting points when required by ATC As soon as crossing reporting lines ,in absence of lines as soon after the first 30 minutes and there at one hourly interval or as ACC/FIR requests
13	a)How is longitudinal separation established b)State the longitudinal separation of time for aircraft climbing or descending on the same track	By requiring aircraft to; i) depart at specified time or ii)lose time to arrive over a location at a specified time or iii)hold over a location until a specified time b)i)20 minutes at the time the level is crossed or greater when circumstances require ii)15 minutes or greater when circumstances require on airways iii)10 minutes at the time level is crossed if navigational aids permit

		frequent determination of position and speed iv)5 minutes at the time the level is crossed provided that the level change is commenced within 10 minutes of the time the second aircraft has reported over the exact reporting point
14	a)State all the VOR/DME lateral separation that use 20^0 b)What separation minima is used for en-route aircraft and holding aircraft	a)Both aircraft must have reported established on radials at least 20^0 apart i) Two outbound both are established on diverging radials by at least 20^0 or more and at least one aircraft is 15nm more from the same VOR/DME station ii)Two inbound both are established on converging radials of at least 20^0 or more and at a distance of 30nm or more from VOR/DME station iii)One inbound and the other outbound both aircraft are established on radials which diverge by at least 20^0 or more and the outbound is 15nm or more from the VOR/DME and the inbound is 30nm or more from the same facility b)When aircraft are being held in flight vertical separation will be provided between such holding aircraft and en-route aircraft whilst such en-route aircraft are within 5 minutes flying time of the holding aircraft holding area
15	a) What do you understand by EAT?	a) Expected approach time is the time at which ATC expects that an arriving aircraft, following a delay, will leave the holding fix to complete its approach for a landing

	b) On what is it based? c)What purpose does it serve d) How will aircraft in the holding stark be cleared to land? e) What would be your action in a situation when no realistic EAT can be given?	b)The actual time of leaving the holding fix , will depend upon the approach clearance c) To achieve separation of aircraft as they execute approaches to land at the aerodrome and hence maintain the landing sequence d) Levels at holding fix or visual holding location shall as far as practicable be assigned in a manner that will facilitate clearing each aircraft to approach in its proper priority. Normally, the first aircraft to arrive over a holding fix or visual holding location should be at the lowest level, with following aircraft at successively higher levels. e) Advise the pilot that ‘’delay not determined’’ and give reasons for the delay
16	Mention **only five** of the five minutes separations you know	1 Same track, same cruising level. 5 minutes in the following provided the proceeding aircraft maintains TAS 20Kts or faster—between aircraft from the same aerodrome 2 Between en-route aircraft that have reported over the same exact reporting point 3 Between en-route and departing after the en-route aircraft has reported over a fix that is so located in relation to the departure point as to ensure that 5 minutes separation can be established at the point, the departing aircraft will join the en-route 4 Climbing and descending---five minutes at the time the level is crossed provided that the level

		change is commenced within 10 minutes of the time the second aircraft has reported over an exact repainting point 5 Longitudinal separation—departing aircraft , 5 minutes at the time cruising levels are crossed if departing aircraft will be flown through the level of a proceeding departing aircraft and both aircraft propose to follow the same track 6 Arriving and Departing—if an arriving aircraft is making a straight in approach; a departing aircraft may take off any direction until five minutes before the arriving aircraft is estimated to be over the instrument runway 7 Holding and en-route---when aircraft are being held in flight, vertical separation will be applied between such holding aircraft and en0route aircraft whilst the latter are within 5 minutes flying time of the holding aircraft path—unless lateral separation exists
17	a)What is an essential traffic b)What is included in giving essential traffic information to controlled flights concerned	a) Is that controlled traffic to which the provision of separation by ATC is applicable but which in relation to a particular controlled flight is not separated there from by the minima required. b) i)Direction of flight ii)Type of aircraft iii)Cruising level of aircraft concerned and estimated time over the reporting point nearest to where the level will be crossed iv)Any alternative clearance if

		applicable
18	• BAW 046 B763 TAS 480Kts EGLL-HTDA UG656-UA401 JU0513, ATUGA 0519 FL330— Give estimates TORNO, NN, LABAT • KLM562 B763 TAS 480Kts cruise, climb TAS380Kts Rate of climb 2000FPM. HUEN –EHAM FL380 started 0450 ATD 0510.Give KLM ATC clearance • At what time will KLM562 pass BAW046 • When will KLM562 get FL 380, note NN VOR/DME is off the air, Aerodrome elevation is 3872ft • From answer derived, what is your next action	a)TORNO 0529 NN 0548 LABAT 055 b)KLM 562 is cleared FL320 RLCE <u>SUM OF G/Ss= Time diff at RP</u> G/S 2 A/C to RP X(ANS add to time 1 a/c RP <u>380+480</u> =32OOO-4000=28000/2000ROC=14MIN 380 <u>380+480</u>= 0519+14=0533-0529= 4Min 480 <u>360=4</u> -=2Min 0529+2= 0531 passing time 360 x c)0531 passing time d)crossing time+10min 0531=+10=0541 e) Advise HSSS KLM562 will enter the airspace at FL320 climbing to FL380
19	a)List down information items that an aircraft in flight is required to provide to the ACC in order to obtain clearance to join an airways b)What are the conditions to be satisfied when applying DME separation for aircraft climbing or descending on the same	a)i)aircraft identification and type ii)position and heading iii)level and flight conditions iv)departure airfield v)true airspeed vi)route and point of first intended landing b)i) Each aircraft utilizes ‘’on-track’’ DME stations ii)One aircraft maintains a level while vertical separation does not exist; and iii)Separation is established by obtaining simultaneous DME

	track	readings from the aircraft
20	KQA412 B733 departs HKJK-HUEN Estimate NN0523 FL300 TAS 480Kts UGB119 is to depart HUEN-HKJK FL330 TAS climb 360Kts Rate of climb 2000ft per minute TAS cruise 470Kts Aerodrome elevation 3872ft, when can UGB119 depart and climb to FL330 unrestricted	Sum of ground speed = x Speed of a/c in flight time taken 2000 +10mi 480x360 = x = x 480 14+10 24 12x=21x24 x=504 =42 min 12 0523-42= **0441**
21	If a VFR flight reports encountering adverse meteorological conditions, as an ACC ATMO, what information should you request from the pilot considered pertinent so as to provide assistance	i)Aircraft flight conditions ii)Position (if known) and level iii)Airspeed and heading since last known position, if pertinent iv)Pilot experience v)Navigation equipment carried and if any navigation aid signals are being received vi)SSR mode and code selected if relevant vii)ADS-B capability viii)Departure and destination aerodrome ix)Number of persons on board x)Endurance
22	If a volcanic ash cloud is reported or forecast in the FIR for which your ACC is responsible, what should the ATMO do;	i)Relay all information available immediately to pilots whose aircraft could be affected to ensure that they are aware of the ash cloud's position and the flight levels affected; ii)Suggest appropriate re-routing to the flight crew to avoid an area of known or forecast ash clouds; iii)Inform pilots that volcanic ash clouds are not detected by relevant ATS surveillance

		systems; iv)If the ACC has been advised by an aircraft that it has entered a volcanic ash cloud the controller should; a) consider the aircraft to be in an emergency situation b) not initiate any climb clearances to turbine-powered aircraft until the aircraft has exited the ash cloud; and c) not initiate vectoring without pilot concurrence
23	When an emergency is declared by an aircraft, what appropriate action should you take	i Unless clearly stated by the flight crew or otherwise known, take all necessary steps to ascertain aircraft identification and type, the type of emergency, the intentions of the flight crew as well as the position and level of the aircraft ii Decide upon the most appropriate type of assistance which can be rendered iii Enlist the aid of other ATS unit or other services which may be able to provide assistance to the aircraft iv Provide the flight crew with any information requested as well any additional relevant information such as details on suitable aerodrome, minimum safe altitude, weather information v Obtain from operator or the flight crew such of the following information as may be relevant; number of persons on board, amount of fuel remaining, possible presence of hazardous

		materials and nature thereof and vi Notify the appropriate ATS unit and authorities as specified in local instructions
24	What steps would you take in the event that the control frequency is inadvertently blocked by an aircraft transmitter	i Attempt to identify the aircraft concerned ii If the aircraft blocking the frequency is identified, attempts should be made to establish communication with the aircraft e.g on the emergency frequency 121.5 Mhz by SELCAL, through the aircraft operators company frequency if applicable, on the VHF frequency designated for air to air use by flight crew iii If communication is established with the aircraft concerned, the flight crew shall be instructed to take immediate action to stop inadvertent transmissions on the affected control frequency

No.	**Questions**	**Answers**
31	(v) When shall time of take-off be specified by area control centre?	(vi) When it is necessary to coordinate the departure with traffic not released to the unit providing approach control service (vii) To provide en-route separation between departing a/c following the same route. (iii) Indent, type and point of departure of arriving a/c (iv) Estimated time and

	(vi) What pertinent data of controlled traffic that ACC must keep the unit providing approach control service promptly advised of (vii) What is the time limit within which ACC must pass the estimate to approach as regards and arriving a/c?	proposed level of arriving a/c over holding point or actual time if a/c is released to unit providing approach control after arrival over the hold point (v) Expected approach time issued (vi) Statement that a/c has been released to the unit providing approach control including, if necessary, time and conditions of release (vii) Anticipated delay to departing traffic due to congestion Not less than 15 minutes before estimated time of arrival
32	(iii) What is meant by the expression strayed a/c? (iv) Detail the cause of action to be taken by an ATSU when it becomes aware o a strayed a/c in order to assist and safe guard its flight?	An a/c which has deviated significantly from its intended track or which reports that it is lost. (a) If the a/c position is not known the ATSU shall (iv) Attempt to establish two-way communication with a/c unless such comm. already exists. (v) Use all available means to determine its position (vi) Inform other ATSU that may be affected taking into

		account all the factors which may have affected the navigation of the a/c (vii) Inform in accordance with locally agreed procedures appropriate military units and provide them with pertinent flight plan and other data concerning strayed a/c (viii) Request from units referred in (iii) and (iv) above for every assistance in establishing comm. with a/c and determining its position. When the a/c position is established the ATSU shall (ix) Advise the a/c of its position and corrective action to be taken (x) Advise as necessary other ATC and military unit
33	What is essential traffic? What is included in giving essential traffic information to controlled flights concerned	Is that controlled traffic to which the provision of separation by ATC is applicable but which in relation to particular controlled flight is not separated there from the minimum required (iv) Type of a/c concerned (v) Cruising level of a/c concerned (vi) Estimated time over the reporting point nearest to where level will be crossed (vii) Callsign of the flight concerned

34	What is diversion Give two circumstances under which an a/c may divert	Diversion is the act of flying to an Aerodrome other that the planned destination with the intention of landing there (iv) Weather unfit - below company minima (v) Failure of essential ground aid to landing (AD lights) (vi) There is an obstruction on the manoeuvring area which constitutes a hazard to a/c landing and which cannot be removed within reasonable period (vii) There is likely to be an unacceptable delay in landing
35	What is the standard [phraseology in the following circumstances: ETH 850 at FL280 reports visual Met. Conditions and wish to climb to FL350 Traffic ATC 951 at FL 290 If you cannot issue ATC clearance immediately upon request When you wish that 5XFTL should keep a listening watch on the current frequency When you want to increase longitudinal distance or time between two enroute a/c at same level using enroute	 ETH 850 climb to FL 350 maintaining own separation and VMC from FL280 to FL310 Expect clearance at (time) 5XFTL remain this frequency MSR823 Entebbe Control arrange your flight to arrive over (place) at (time) or MSR823 loss time to arrive over

	Navaids. Assume a/c MS823	(place) at (time)
36	(a) Your traffic is KQA502 B763 DNMM/HKJK via UA609 FL330 cruising speed 480 knots. Name all compulsory reporting points and distances between them as well as the orientations of route (b) What does the prefix U in UA009 mean (c) BAW062 estimate TAS 480 EGLL/HUEN estimate JU at 0320 FL330 at 0300z Entebbe approach request on MSR890 HUEN/HECA FL390 climbing TAS 389 ROC 1500 cruise TAS 480 knots Aerodrome elevation 3872ft (i) What is the latest time MSR 890 can depart unrestricted issue the clearance on MSR890	(a) AKBON 134nm 290/110 NN - 109/289 ALKON (b) Signifies that the route is established in the upper airspace (c) Sum of ground speed =_____X_____ Speed of a/c in flight Time taken for departure to reach 2000’ above inbound TFC + 10 480 + 380 =___X____ 480 21 + 10 860 = X____ 480 31

	(d) What is BAW062 ETA?	48X = 86 x 31 = 2666 X = 2666 = 55.54 48 = 56 Latest time MSR 890 can depart is 0403Z – 56 = 0307Z clearance is MSR890 is cleared Entebbe to Cairo via uniform Golf 656 climb to FL390 'JU' rate of climb one thousand five hundred feet per minute minimum until passing FL350. Clearance expired at 0307Z (d) BAW062 ETA 0403
37	(a) What separation minima is used for enroute a/c and holding a/c. (b) What separation is used for a/c climbing and descending on crossing tracks (c) When using DME what separation minimum is used between a/c at the same cruising level A/C on the track?	(a) When a/c are being held in flight vertical separation will be provided between such holding a/c and an route a/c whilst such enroute a/c are within 5min flying time of the holding a/c's holding area (b) 20 min at the time levels are crossed or greater when circumstances require 20NM or greater when circumstances require provided (iv) each a/c utilizes on track DME station (v) separation is checks by obtaining simultaneous DME

		reading from the a/c at frequent intervals to ensure the minima will not be infringed - 10NM provided (i) The leading a/c maintains a true air speed of 20kts or more faster than the succeeding a/c (ii) Each a/c utilises on track DME stations and (vi) Separation is checked by obtaining DME reading from a/c at such intervals as are necessary to ensure the minimum established will not be infringed
38	(a) What is contained in the AIP supplements (b) List down the order in which the AIP supplements are given (c) Mention 3 classes of ATS airspace implement set in the	(a) Temporary changes to the information contained in the AIP (b) Gen, RAC, AGN **Class A airspace** All air spaces above FL145 including Entebbe UTA and all ATS (airways) routes in upper and lower airspace.

	Entebbe FIR and where they are applicable.	**Class G airspace** All airspace below FL145 outside the published ATS routs and outside the published TMAS and circuit **Class E** Entebbe CTA/TMA 65NM on NN VOR above 1500ft and below FL145 **Class C8D Airspace** Entebbe Control Zone
39	(a) What are the requirements for an a/c wishing to cross on airway and advisory route under IFR (b) What should be included in the request permission to cross a route?	(i) Pilot wishing to cross an airway are required to file a flight plan either before departure or when airborne and to request crossing clearance when at least 10min flying time from the intended crossing point. (ii) A/C wishing to cross and advisory route under IFR to request permission to cross when at least 10 min flying time from the intended point of entry. (i) A/C identification (ii) A/C type (iii) True Track (iv) Place and estimated time of crossing (v) Desired crossing level

		(vi) Ground speed
40	(a) What separation is used between a radio failure a/c and known conflicting traffic in its area (b) What separation is used between a/c on crossing track same level?	(a) Suitable separation will be maintained between the a/c having communication failure and other a/c known to be operating in its vicinity. A/C at the same cruising level 1. 20NM or greater when air circumstances require provided (iii) each a/c utilizes on track DME stations (iv) separation is checked by establishing simultaneous DME readings from the a/c at frequent intervals to ensure the minimum will not be infringed. 2. 20 min or greater when circumstances require
41	BAW 62C ready for departure to EGGL Fl350 ROC 1000 f.p.m. G/S on climb 360kts cruise 500kts. An inbound C130 from HSSS FL270 ETA HUEN 1300 G/S climb 250kts cruise 330kts VOR/DME off air.	(1) Sum of ground speed = _____X_____ Speed of a/c in flight Time taken for departure to reach 2000’ above

	A elev. 4000ft 1. What is the latest time you can release BAW62C to climb unrestricted. 2. If BAW62C departs at 1230 on FL260 RLCE what is the crossing fine with C130 3. When can you allow BA62C to climb above FL260	inbound TFC + 10 690 = X 330 25+10 69 = X 33 35 X = 2415 = 73 33 1300 – 73 Latest time to release BAW 62C unrestricted is 1300 – 73 = **1147** (2) Sum of ground speed = Time difference at report point G/s of 2nd a/c to reach reporting point Answer add time of 1st a/c over reporting point 360 x 330 = 1255 - 1230 360 X 690 = 25 360 X 69X = 25 x 26 X = 13 + 1230

	4. What us torno estimate of BAW62C	Will cross at 1243Z BAW62C climb at time 1253Z Torno Estimate 1255Z
42	When can you clear an a/c for VMC climb or descent?	(v) during hours of day log (vi) when requested by the a/c (vii) a/c to maintain its own separation and remain VMC
43	What will be your action when you learn that an a/c is being intercepted	(i) attempt to establish Com with the intercepted a/c on any available frequency unless such Com. Already exists (ii) establish contact with the intercept control unit maintaining 2 way com with intercepting a/c with a view to relay message between the intercepting and intercepted a/c (iii) In close coordination with the intercept control unit face necessary steps to ensure the safety of the intercepted a/c
44	(a) How is longitudinal separation established?	By requiring a/c to: (i) depart at a specified time or (ii) lose time to arrive over a location at a specified time or (iii) hold over a location until a specified time (vi) 20 min at the time the

	(b) State the longitudinal separation for a/c climbing or descending on the same track	level is crossed or greater which circumstances require (vii) 15min or greater when circumstances require on airways (viii) 10min at the time level is crossed if Nav. Aids permit frequent determination of position and speed (ix) 5min at the time the level is crossed providing that the level change is commenced within 10 min of the time the second a/c has reported over an exact reporting point
45	You are a duty ACC ATCO, an a/c calls saying it is lost and requires navigational assistance. Detail your action	(viii) Declare phase of emergency (ix) Obtain last position fix, heading and times flown since, TAS, flight condition and altitude (x) Ensure a/c is above lowest safe altitude in the area of IMC (xi) Plot DR position of a/c (xii) Ask pilot if VMC to describe roads, railways lines, lake, etc (xiii) Advise other a/c in the area to provide escort (xiv) Alert enroute facilities which could assist in determining position
46	(a) What do you understand by the term “exact reporting point”	It is a position established by a navigational facility which is (i) overhead a VOR (ii) overhead NDB (iii) a position established by a VOR radial combined with a

		range from a co-located DME (iv) position which has been notified as reporting and which is established by the intersection of VOR radials, or of a VOR radial and a bearing from an NDB Vertical separation shall be provided for at least 10min both prior to and after the estimated time of passing Unless confirmed that a/c already passed each other by (i) radar derived information (ii) a visual sighting report from both pilot or (iii) a/c position report over the same exact reporting point, provided vertical separation is maintained for sufficient time to take into consideration possible navigation error
	(b) What longitudinal separation based on time you would apply for an a/c intending to descend through a level of the other on a reciprocal track (c) Under what circumstances can this separation be waived	
47	What information should always be given or asked when reporting or receiving reports of distress incidents	(i) Name, address, Tel., No. of person reporting (ii) Description of incident (iii) Position of incident in relation to well-known land marks (iv) Date and time of incident (v) Action taken (vi) Name of witness
48	(a) When applying vertical	(a) (i) severe turbulence is known

	separation during climb or descent when may the clearance of the second a/c to a level be withheld even after the first a/c has reported vacating the level (b) For how long will such as clearance be with held (c) When shall time of takeoff be specified by the area controller to either the approach or aerodrome controller	to exist (ii) the other higher a/c is effecting a cruise – climb (iii) the difference in a/c performance is such that less than the applicable separation minimum may result (b) Until the a/c vacating the level has reported or passing another level separated by the required minimum (c) (i) when it is necessary to coordinate the departure with traffic not released to the unit providing approach control service and; (ii) to provide enroute separation between departing a/c

		following same route
49	(a) Which a/c are required to be provided with alerting service (b) For some reason, a flight operating through more than one FIR is required to be provided with alerting service which FIR will be responsible for coordinating the service when the position of the a/c is in doubt	(i) a/c provided with ATC service (ii) other a/c having filed a flight plan (as may be practicable) or otherwise known to ATC service) (iii) a/c known or believed to be the subject of unlawful interference. The FIR (a) within which the a/c was flying at the time of last air-ground radio contact (b) that the a/c was about to enter when last air-ground contact was established at or close to the boundary of two FIRs (c) within which the a/c's intermediate stop or final destination point is located: (i) if the a/c was not equipped with

		suitable two-way communication equipment (ii) or was not under obligation to transmit position reports
50	You are the ACC Controller and watch supervisor when do you enter into a distress phase in respect of an overdue a/c reported to you by the operator of a light a/c	After checking with the departure point or aerodrome and confirming the overdue a/c the alert phase shall be entered immediately then the distress phase as (i) following the alert phase further unsuccessful attempts to establish communication with the a/c and more wide spread unsuccessful in queries point to the probability that the a/c is in distress or when (ii) Information received which indicate that the operating efficiency of the a/c has been impaired to the extent that a forced landing is likely or when (iii) Information is received that the a/c is about to make or has made a forced landing, except when there is reasonable certainty that the a/c and its occupants are not threatened by grave and imminent danger and do not require immediate assistance

51	Define: (i) Significant point (ii) Airway (iii) Traffic Information (iv) Area Control Centre (v) Transfer of control point	(i) A specified geographical location used in defining on ATS route or the flight path of an a/c and for other navigation and ATS purpose (ii) A Controlled area or portion thereof established in the form of a corridor (iii) Information issued by an air traffic services unit to alert a pilot to other known or observed air traffic which may be in proximity to the position or intended route of flight and held the pilot avoid a collision (iv) A unit established to provide air traffic control service to controlled flights in control areas under its jurisdiction. (v) A defined point located along the flight path of an a/c, at which the responsibility for providing air traffic control services to the a/c is transferred from one control unit or control position to the next.
52	(a) When are VFR flights required to make RTF contact with ACC	(a) (i) As soon as possible after departure (ii) When changing frequency (iii) When destination is in sight

	(b) State the services provided by ATS units in class D airspace	(iv) On flights of sufficient duration, an operations normal" call or position report shall be made at intervals of not more that one hour. (v) in the event of failure to establish contact, pilots would broadcast their reports (b) (i) IFR flight separated from other IFR flights (ii) IFR flights receive traffic information on VFR flights (iii) VFR flights receive traffic information on all other flights (iv) Traffic avoidance advice give on request
53	(a) List down information items that an a/ c in flights is required to provide to the ACC in order to obtain clearance to join an airways.	(a) (i) a/c identification and type (ii) position and heading

	(b) What are the conditions to be satisfied when applying DME separation for a/c climbing and descending on the same track?	(iii) Level and flight conditions (iv) departure airfield (v) route and point of first intended landing (vi) true airspeed (b) (i) each a/c utilizes “on-track” DME stations (ii) one a/c maintenance a level while vertical separation does not exist and (iii) separation is established by obtaining simultaneous DME readings from the a/c
54	You are on duty at the ACC. What unusual situations that may prompt you to suspect that a particular a/c is in an emergency situation	(i) Radio contact is not established at the time it is expected to be established (ii) Radio contact is lost (iii) a pilot make a report about the malfunctioning of his a/c or the unusual behavior of persons on board (iv) the erratic behavior of an a/c or radar blip is observed (v) it is overdue at an aerodrome
55	What is the standard phraseologies in the	

	following circumstances:- (a) To instruct 5XJOY to change back to the Callsign appearing in the flight plan (DSR 805) at PATAR (b) You want BAW63 HUEN/EGLL not to report her position until ATUGA (c) To impose silence in order to handle a distress traffic (d) To broad cast information to a/c over Ssese Island than an emergency descend is taking place there from flight level 130 to flight level 85	(a) 5XJOY (Entebbe Control) revert to flight plan Callsign DSR805 at PATAR (b) BAW63 (Entebbe Control) omit position report until ATUGA (c) All stations stop transmitting MAY DAY (d) Attention all a/c in the vicinity of Ssese Island. Emergency descent in progress from FL130 to FL 85
56	BAW603 B763 TAS 480KT enroute EGLL/HTDA on UG656 and UA401 ATUGA 0519 FL330 (a) What are the estimates for TORNO, NN and LABAT At 0510 KLM561 B763 TAS 480 Roc 2000 fpm climbing TAS 380 is airborne for HUEN/EHAM Fl390 (b) Which flight level are you going to assign KLM 561	(a) TORNO 0529 NN 0548 LABAT 0559 (b) FL310 (RLCE) (c) <u>Sum of ground speed</u> = <u>Time</u>

	(c) When will the flight climb to the requested level. No DME HUEN elevator 3872ft what is the crossing time	difference at report point G/s of 2nd a/c to reach reporting point Answer add time of 1st a/c over reporting point 380 x 480 / 380 = 0533 - 0579 / X 860 / 380 = 14 / X 86x = 14 x 38 x = 552 = 4 / 86 0519 + 4 = 0523 Cross Time 0523 Climb at 0523 + 10 = 0533
57	(a) What longitudinal separation based on time you would apply for an a/c intending to descend through a level of the other on reciprocal track (b) Under what circumstances can the separation you mentioned be waived?	(a) Vertical separations shall be provided for a least 10 min. both prior to and after the estimated time of passing (b) When confirmed that a/c already passed each other by: (i) radar derived information (ii) a visual sighting report from both pilots, or

		(iii) a/c position reports over the same exact reporting point, provided vertical separation is maintained for sufficient time to take into consideration possible navigation errors
58	List down contents of section 1and 3 of a routine air report	Section I : Position Information (i) a/c identification (ii) Position (iii) Time (iv) Flight level or altitude (v) Next position and time over (vi) Ensuring significant point Section 3 : Meteorological Information (i) Air Temperature (ii) Wind direction (iii) Wind speed (iv) Turbulence (v) Aircraft icing (vi) Humidity (If available)
59	(a) What do you understand by the term "aircraft proximity" (b) Name and describe the four (4) classifications of a/c proximity	(a) A situation in which, in the opinion of a pilot or air traffic services personnel the distance between a/c as well as their relative positions and speed have been such that the safety of the a/c involved may have been compromised. (b) An a/c proximity is classified as follows: (i) **Risk of collision.** The risk classification of an a/c proximity in which serious risk of collision has

		existed (ii) **Safety not assured.** The risk classification of an a/c proximity in which the safety of a/c may have been compromised (iii) **No risk of collision.** The classification of an a/c proximity in which no risk of collision has existed (iv) **Risk not determined.** The risk classification of an a/c proximity in which insufficient information was available to determine the risk involved or inconclusive or conflicting evidence precluded such determination.
60	What do the following abbreviations stand for? (i) GNSS (ii) CPDLC (iii) UAC (iv) WGS-84 (v) ACAS (vi) ATFM (vii) FDPS (viii) ADS-B (ix) INS	(i) Global Navigation Satellite Systems (ii) Controller – Pilot Data Link Communications (iii) Upper Area Control Centre (iv) World Geodetic System - 1984 (v) Airborne Collision Avoidance system (vi) Air Traffic Flow Management (vii) Flight Data Processing System

	(x) RNP	(viii) Automatic dependant Surveillance Broadcast (ix) Inertia Navigation System (x) Required Navigation Performance
61	KQA410 B733 departs HKJK – HUEN EST NN0523 FL310 TAS 480 KTS ETH 811 is to depart HUEN – HKJK FL330 TAS climb 360KTS ROC 2000 PM TAS cruise 470 KTS AD elevation 3872ft when can ETH811 depart unrestricted	Sum of ground speed = _____ X_____ Speed of a/c flight Time taken to reach 2000' above inbound +10 480 x360 = x = x 480 14.5+10 24.5 840 = x = x 480 245 24.5 12x = 21 x 24.5 = x = 514.5 = 43m 12 0523 – 43 = **0440**
62	SAA 161 A319 Dep. HUEN/FAJS at 1250 UA UG65D FL290 RLCE TAS climb 340KTS cruise 460KTS. APNAD 1303 AD Elevation 3872ft ROC 1500ft. MKA818 B722 FAJS – HUEN FL330	Sum of ground speed = Time difference at report point G/s of 2nd a/c to reach Answer add time of 1st a/c reporting point over

	cruise 380kts ETA NN 1320. APNAD 1308. Calculate x time when will SAA161 be cleared to climb to FL390 WX IMC	reporting point $\frac{340 \times 380}{380} = \frac{7}{x}$ $\frac{720}{380} = \frac{36}{19} = \frac{7}{x}$ $36x = 19 \times 7$ $x = 3.8 = 4$ The cross time : 1301 + 4 = **1305** Climbing time: 1305 + 10 = **1315**
63	Explain with reference to angles between their tracks, whether the following pairs of a/c are considered to be on same, crossing or reciprocal tracks, as far as longitudinal separation is concerned: (i) a/c A flying HUEN/HTDA on UA401 and a/c B from DNMM to HUEN on UA610 (ii) C enroute HKJK/HUEN on UA609 AND D from HTDA to HUEN	(i) Reciprocal tracks Travels between then are at an angle of more than 135% and less than 225º (277º - 137º = 140º) (ii) Same Track Angles between track less that 45º

	(iii) ETH811 HAAB/HUEN on UA408 and KQA562 DNMM/HKJK UA610	(137º - 109º = 28º) (iii) Crossing tracks Angles between tracks is between 225º and 315º (277º - 049º = 228º)
64	• 3D-ALQ B461 climbing TAS 300 cruise TAS 400 climbing to FL280 ATD HUEN 1000 DEST. HSSS via UG656 • 5HCCM F28 climbing TAS 320 cruise TAS 430 climbing to FL260 ATD HUEN 1003 DEST HLLT via UG656 climb between 3DALO and 5HCCM has been co-ordinated • At 1005Entebbe approach requests on MSR821 B733 HUEN/HECA UG656 FL350 climbing TAS 360 roc 2000 fpm Entebbe elevation 3872ft cruise TAS 450 (a) Give the formular to calculate climb through in this situation. (b) Calculate the climb	(a) Dift g/s = <u>X</u> Speed of a/c flight Time 2nd to reach level of 1st x 5min X + 5 = earliest take off time (b) 1st B461 <u>360 -300</u> = <u>X</u>

	through between MSR821 and the preceding B461 and F28 (c) Issue the clearance for MSR 821	300 11 + 5 60 = 1 = X 300 5 17 5X = 17 X = 3.4 App = 4 + 5 = 9 Subject to B461 earliest time 1009 F.28 360 -320 = X 320 11 + 5 40 = 1 = X 320 8 16 8X = 16 X = 2 + 5 X = 7 Subject F28 Earliest time 1003 + 7 = 1010 (c) Clearance MSR821 is cleared Entebbe to Cairo via UG656, FL350 ATUGA, climb at 2000 FPM or (greater) until passing FFL310 (FL280) release not before 1010
65	(a) Who is the responsible for calculating EATS	(a) The approach controller is responsible for calculating EATS

	(b) Who gives expiry time to an a/c joining airways in respect of departures (c) Where to you expect a/c to transmit the section 3 of the air report (d) Why should the appropriate authority establish an upper limit of a control area	(b) The Area Controller (c) At the compulsory reporting points when leaving the FIR (d) An upper limit of a control area shall be established when either: (i) Air traffic control service will not be provided above such upper limit or (ii) The control area is situated below an upper control in which case the upper limit shall coincide with the lower limit of the upper control area.

APPROACH ATC PROCEDURES

NO	QUESTION	ANSWER
1	What are the responsibilities of approach controller?	a) Will provide standard separation to IFR flights within the control zone from the time or place at which:- (i) Arriving aircraft are released by the ACC until they are transferred to aerodrome control, and (ii) Departing aircraft are taken over from Aerodrome control until they are handed over to the ACC: and (iii) Transit a/c are taken over from ACC until they are returned to the ACC b) Responsible for notifying a/c under its control of any failure or irregularity of any apparatus, light or other device provided at an aerodrome for the guidance of aerodrome traffic

		c) Provide flight information service and alerting to all a/c under its control to any other aircraft if so requested or deemed necessary d) Responsible for initiating overdue action on any aircraft if at destination aerodrome
2	When will Approach Unit transfer arriving aircraft to Aerodrome control Unit?	Approach unit will transfer arriving aircraft to Aerodrome control unit when the aircraft; a) is in the vicinity of the aerodrome, and i) it is considered that approach and landing will be completed in visual reference to the ground, or ii) has reached uninterrupted visual meteorological conditions, or b) is at a prescribed point or level, or c) has landed, as specified in letters of agreement or ATS unit instructions.
3	What coordination is between approach and aerodrome control units?	a) Approach is to retain control of arriving aircraft until the aircraft is cleared to and is in communication with aerodrome control unit. Only one aircraft is to be transferred to Tower at a time during IMC unless specifically permitted by USOI. b) Approach may clear an aircraft to a visual holding point after coordination with tower, until further advice is got from tower. c) Approach may permit Tower to release a departing aircraft subject to an arriving aircraft in contact with tower

		d) Tower should obtain approval from approach for Special VFR. e) Approach should advise Tower of; ETA of arriving aircraft The Flight level Statement that the aircraft has been cleared to Tower Anticipated delays to departing aircraft due to congestion The en-route clearance for IFR departures
4	When instrument flight rules are in force in the control zone, when may you permit local flying operations if traffic conditions permit?	When Instrument Flight Rules are in force in a control zone, VFR local flying operations may be authorized if traffic conditions permit provided; (a) The operation is conducted within the range of the vision of the Air Traffic Control Officer. (b) The landing area is visible to the person in command of each aircraft at all times during such flights. (c) Adequate arrangements have been made for the termination of such operations and (d) When the person in command is a student pilot; (i) A flying instructor shall supervise the operation and (ii) The instructor shall be satisfied that the student is competent to fly according to the conditions of authorization.
5	i) What data is supplied by Approach to ACC in IFR flights?	Approach control shall supply to area control the following data on IFR flights: (a) Lowest level available for use by area control; (b) The average time between successive approaches (i.e. landing

		rates); (c) Revision of expected approach times issued by area control when approach control calculation shows variation of 5 minutes or more; (d) Arrival times over the holding points if these vary from the estimates by 3 minutes or more; (e) Missed approaches when re-routing is entailed in order that the subsequent action may be coordinated; (f) Departure times of aircraft; (g) All available information relating to overdue aircraft and runway changes.
6	a) When applying vertical separation during climb and descent, when may the clearance of the succeeding aircraft to a level be with held even after the preceding aircraft has reported vacating the level? b) For how long will such clearance be with held? c) What separation minima is used between en-route aircraft and holding aircraft?	• When severe turbulence is know to exist • The higher aircraft is executing a cruise climb • The difference in aircraft performance is such that less than the applicable separation minimum may result • Until the aircraft vacating the level has reported at or passing another level separated by the required minimum. • 5 minutes to the path of the holding aircraft
7	a) When will an aerodrome control unit transfer departing IFR aircraft to an approach unit? b) When may approach	• In VMC i)Prior to the time the aircraft leaves the vicinity of the aerodrome ii)Before entering IMC, whichever is earlier

	control unit delegate some of its functions to the aerodrome control unit? c) When may an approach control unit delegate some of its functions to a Radar control unit?	• In IMC i) Immediately before the aircraft enters the runway ii) Immediately after the aircraft is airborne provided local procedures permit • When the arriving aircraft has got the preceding aircraft in sight • The aircraft is on the runway in use. • The aircraft is taking off • When procedural control will cause delays to the aircraft
8	a) What information should be transmitted without delay to an aircraft on final approach? b) When can an approach controller clear an arriving aircraft for initial approach below the approved minimum altitude or to descend below that altitude?	• Sudden occurrence of hazards e.g. unauthorized traffic on the runway • Significant surface wind variations • Significant change in runway surface conditions • Changes in the operational status as required of visual or non visual aids • Change in Runway Visual Range (RVR) • When the pilot has reported passing an appropriate radial navigation facility • When the pilot reports that he has and can maintain the aerodrome in sight • When the aircraft position has been positively determined by radar
9	a) Can two aircraft be cleared to execute visual approach, if so what separation can be used? b) What separation is provided for an aircraft which request VMC descent? c) What is special VFR?	• Yes, vertical separation until the succeeding aircraft has got the preceding aircraft in sight. • None, it maintains its own separation • SVFR is a VFR flight cleared by ATC to operate within the control zone in metrological conditions below VMC.
10	a) What action should the approach control unit take in	i) Hold the aircraft in the vicinity of the aerodrome

	case a diversion situation arises? b) When an aircraft requests to divert to your station, what action do you take? c) What is the phraseology used for communicating a diversion message from the operator to the aircraft?	ii) Contact the ACC and advise him of the aerodrome selected for diversion, or if none selected, seek his advise as to the one most suitable. The selected aerodrome should be informed. iii) Obtain clearance instructions together with any other instructions to be passed to aircraft iv) Pass diversion message to the aircraft v) If required pass alternate aerodrome weather report vi) Advise the operating company/or representative i) Advise the operator/ his representative. ii) Advise aerodrome management (Aprons control) iii) Inform customs/immigration office iv) Send an arrival message to the departure aerodrome and the previous destination aerodrome. "Company advise/request…….. Weather at ……. Reason for Diversion……Clearance if any…… acknowledge"
11	a) What are the contents of an ATC clearance? b) Name the ATC clearance limits	An air traffic control clearance shall include the following items (i) Aircraft identification (ii) Clearance Limit (iii) Route (iv) Levels of flight and any changes of levels. The following items may be added to a clearance as necessary, (i) Time restrictions. (ii) Any special instructions e.g. approach and departure

		maneuvers. (iii) Communication instructions. i) an aerodrome ii) a reporting point or iii) a controlled or advisory airspace boundary
12	a) Define; i) Transition altitude ii) Transition layer iii) Transition level b) What are the objectives of air traffic services?	***Transition altitude*** is the altitude at or below which the vertical position of an aircraft is controlled by reference to altitudes. ***Transition layer*** is the airspace between the transition altitude and the transition level. ***Transition level*** is the lowest flight level available for use above the transition altitude. a) Prevent collisions between aircraft; b) Prevent collisions between aircraft on the maneuvering area and obstructions on that area; C) Expedite and maintain an orderly flow of air traffic; d) Provide advice and information useful for the safe and efficient conduct of flights; e) Notify appropriate organizations regarding aircraft in need of search and rescue aid, and assist such organizations as require
13	a) BAW60C, a B763 Entebbe to EGLL true airspeed 480 kts, is cleared FL340 Atuga and took off at 0840Z. ACC gives you a clearance on KLM562, an A333 with same speed to EHAM, FL340 Atuga and	The clearance will not be passed; it is not valid because standard separation of 10 minutes required in this case is not achieved.

	clearance expires at 0849. How will you pass this clearance to KLM562 and what will be your action? b) KQA412, a B763 TAS 460 kts climbing to FL310, ATD 0915. ETH481, an A333 TAS 495 kts FL290, ATD 0918. What ATC clearances will be issued to each of these aircraft if their destination is Nairobi?	KQA412 cleared FL 310 ALKON (Via UA609); COORDINATE RATE OF CLIMB ETH481 cleared FL 290 ALKON (Via UA609); COORDINATE RATE OF CLIMB
14	i) What must a pilot wishing to change from VFR to IFR comply with? ii) What is the phraseology used by pilots to terminate IFR flight? iii) What is the phraseology used by controllers to acknowledge termination of IFR flight?	An aircraft operating in accordance with VFR which wishes to change to IFR shall comply with one of the following conditions: (a) if a flight plan was submitted, communicate whenever possible the necessary changes to be effected to its current flight plan to the appropriate ATC Unit. (b) Submit flight plan to the appropriate ATC unit and obtain a clearance prior to operating under IFR in controlled airspace. (c) Continue to operate under VFR if unable to communicate with an ATC unit or obtain the necessary clearance for flight within controlled airspace. CANCELLING MY IFR FLIGHT”,

		"IFR FLIGHT CANCELLED AT ... (time)",
15	What information should be transmitted to the Aircraft at the commencement of initial approach?	• significant changes in the mean surface wind direction and speed; • the latest information, if any, on wind shear and/or turbulence in the final approach area • the current visibility representative of the direction of approach and landing or, when provided, the current runway visual range value(s) and the trend.
16	What information do you pass to IFR departing a/c as an approach controller	Direction of take off a) Turn after-take off b) Track to be made good before turning on the desired reading c) Levels to be maintained before continuing to climb assigned cruising levels d) Time, point and/or rate at which changes of levels should be e) Any other necessary manoeuvre consistent with the safe operation of aircraft f) Airways; ADR or other necessary clearance g) Transition level on request h) Time check
17	When sequencing arriving traffic when will you clear the succeeding aircraft relative to the proceeding a/c to commence at approach	When preceding a/c: a) Has reached a position where the required separation from the succeeding a/c can be considered to exist; or b) Has reported that it is able to complete its approach without entering IMC and

		been cleared to complete its approach in VMC; or c) Is in communication with and sighted by aerodrome control tower and reasonable assurance exists that a normal landing can be accomplished
18	A pilot flies IFR to your station and is not familiar with your instrument approach. Procedures what information must your transmission contain?	a) This is the approach procedure for….. (aid) the safe clearance path is based on a TAS of 180kts b) By initial level c) Outbound track, length in minutes and any level of instructions d) Direction of procedure turn a level of instruction e) Final approach track and level instructions f) Obstacle clearance limit g) Missed approach procedure (if deemed necessary)
19	When can approach controller clear an arriving a/c for the initial approach below the approved minimum altitude or to descent below that altitude	When: a. The pilot has reported passing an appropriate radio – navigation facility of aerodrome b. The pilot report that he has and can maintain the aerodrome in sight; or c. The a/c's position has been positively determined by the use of radar
20	What are your actions in the event of radio failure?	a) Suitable separation shall be maintained between a/c having communication failure and other a/c known to be operating in its vicinity b) Transmit blind on the appropriate frequencies giving level route and EAT or EIA to which it is a summed the a/c is adhering c) Advise other a/c near the presumed position of the radio failure a/c d) If radar is available every effort shall be made to check position of the radio failure a/c

		e) Company shall be advised f) If arrangements have been made through company that a/c can proceed to alternate aerodrome shall be informed of the radio communication failure and request to attempt to establish communication with the a/c g) If information has been received that the a/c has landed or communication has been re established ATC unit controlling the a/c will be informed.
21	a) State all the VOR/DME lateral separations that use 20°?	(a) Both aircraft must have reported established on radials at least 20º apart. i) Two outbound both are established on diverging radials by at least 20° or more and at least one aircraft is 15nm or more from the same VOR/DME station. ii) Two inbound both are established on converging radials of at least 20° or more and at a distance of 30nm or more from VOR/DME station. iii) One inbound and the other outbound both aircraft are established on radials which diverge by at least 20° or more and the outbound is 15nm or more from the VOR/DME and the inbound is 30nm or more from the same facility.
22	When using DME what separation minimum is	a) 20 nm provided

	used between aircraft at the same cruising level and on the same track?	(i) Each aircraft utilizes the same "on-track" DME stations and (ii) Separation is checked by obtaining simultaneous DME readings from the aircraft at frequent intervals to ensure that the minimum will not be infringed. (b) 10nm provided (i) The leading aircraft maintains a time airspeed of 20kts or more faster than the succeeding aircraft (ii) Each aircraft utilizes "on-track" DME stations and (iii) Separation is checked by obtaining simultaneous DME readings from the aircraft at such intervals as are necessary to ensure that the minimum is established and will not be infringed.
23	(a) What is essential traffic? (b) What is included in giving essential traffic information to controlled flights concerned?	Is that controlled traffic to which the provision of separation by ATC is applicable but which is relation to particular controlled flight is not separated there from the minimum required. i. Type of aircraft concerned ii. Cruising level of aircraft concerned iii. Estimated time over the reporting point nearest to where level will be crossed iv. Call sign of the flight concerned.
24	What are the recommended conditions to be observed when a/c wishes to jettison	i) Must be in a non populated area ii) A/c involved must not fly in a circular pattern to avoid returning to vapour

	fuel	zone A/c using **petro**l **fuel** must fly 2000ft above terrain and vertical separation from other a/c must be 2000ft i) A/c using **jet fuel** must fly 6000ft above terrain and must be 2000 ft vertically separated from any other a/c. Not to fly in that zone until 15 min after
25	What coordinates exists between Approach control Unit with radar Unit?	Before an a/c is controlled or monitored by radar unit Approach controller shall ensure the following information has been supplied to the unit: Call sign , type, level, route, UTA or TMA estimate ETA i) Procedural clearance and EAT where appropriate ii) Radar service required iii) Release and contact instructions iv) Conflicting traffic information(where necessary) v) Departure time (outbound a/c only) Approach in addition will ensure Radar unit is advised on the following: vi) Details of all IRF traffic vii) Current WX report (RVR included if available) viii) Radio, aerodrome and lighting u/s ix) Any other information RWY-change missed approaches etc.
26	i) What is the purpose of an approach sequence? ii) Under what special circumstances is the approach sequence not followed?	i The approach sequence shall be established in the manner which will facilitate arrival of the maximum number of aircraft with the least average delay. ii A special priority may be given to: (a) An aircraft which anticipate being compelled to land because of

		factors affecting the safe operation of aircraft. (Engine failure, shortage of fuel, e.t.c.) (b) Ambulance aircraft when the safety of life is involved; (c) VIP aircraft i.e. aircraft carrying Head of States, in that order.
27	A)How is longitudinal separation established b)State the longitudinal separation for a/c climbing or descending on the same track	a)By requiring a/c to: (i)depart at specified time or (ii)lose time to arrive over a location at a specified tome or (iii)hold over a location until a specified time b) (i)20 min at the time the level is crossed or greater when circumstances require (ii)15 min or greater when circumstances require on airways (iii)10 min at the time level is crossed if navigational aids permit frequent determination of position and speed (iv)5 min at the time the level is crossed provided that the level change is commenced within 10 min of the time the second a/c has reported over the exact reporting point
28	i) What is SVFR ii) What is SVFR WX Minima? iii) When can you allow VFR flight in traffic circuit when the zone is IMC?	SVFR is a VFR flight cleared by ATC to operate within the control zone in metrological conditions below VMC. Ground visibility less than 1.5km and the ceiling not lower than 500ft VFR may be permitted provided: They operate within range of vision of the Aerodrome ATCO

		The landing area is visible to the person in command of each a/c at all times during such flights Adequate arrangements have been made for the termination of such operations
29	State the VOR separation for one inbound one outbound aircraft	• 20° outbound is the time equivalent of 30NM or 8Min whichever is greater. • 40° outbound aircraft is time equivalent of 15NM or 4Min whichever is greater • 20° one aircraft is at least time equivalent of 15MN or 4MiN whichever is greater
30	What are the responsibilities of approach controller?	Will provide standard separation to IFR flights within the control zone from the time or place at which:- Arriving aircraft are released by the ACC until they are transferred to aerodrome control, and Departing aircraft are taken over from Aerodrome control until they are handed over to the ACC: and Transit a/c are taken over from ACC until they are returned to the ACC Responsible for notifying a/c under its control of any failure or irregularity of any apparatus, light or other device provided at an aerodrome for the guidance of aerodrome traffic Provide flight information service and alerting to all a/c under its control to any other aircraft if so requested or deemed necessary Responsible for initiating overdue action on any aircraft if at destination aerodrome
31	When will Approach Unit	Approach unit will transfer arriving

	transfer arriving aircraft to Aerodrome control Unit?	aircraft to Aerodrome control unit when the aircraft; a) is in the vicinity of the aerodrome, and i) it is considered that approach and landing will be completed in visual reference to the ground, or ii) has reached uninterrupted visual meteorological conditions, or b) is at a prescribed point or level, or c) has landed, as specified in letters of agreement or ATS unit instructions.
32	. What data is supplied by Approach to ACC in IFR flights?	Approach control shall supply to area control the following data on IFR flights: (a) Lowest level available for use by area control; (b) The average time between successive approaches (i.e. landing rates); (c) Revision of expected approach times issued by area control when approach control calculation shows variation of 5 minutes or more; (d) Arrival times over the holding points if these vary from the estimates by 3 minutes or more; (e) Missed approaches when re-routing is entailed in order that the subsequent action may be coordinated; (f) Departure times of aircraft; (g) All available information relating to overdue aircraft and runway changes.

33	i) What do you understand by EAT? ii) What is it based on? iii) What purpose does it serve? iv) How will aircraft in the holding stark be cleared for approach to land? v) What would be your action to a situation when no realistic EAT can be given?	**Expected approach time.** The time at which ATC expects that an arriving aircraft, following a delay, will leave the holding fix to complete its approach for a landing. ii The actual time of leaving the holding fix will depend upon the approach clearance. iii To achieve separation of aircraft as they execute approaches to land at the aerodrome and hence maintain the landing sequence. iv Levels at a holding fix or visual holding location shall as far as practicable be assigned in a manner that will facilitate clearing each aircraft to approach in its proper priority. Normally, the first aircraft to arrive over a holding fix or visual holding location should be at the lowest level, with following aircraft at successively higher levels. v Advise the pilot that “delay not determined” and give reasons for the delay
34	a) When applying vertical separation during climb and descent, when may the clearance of the succeeding aircraft to a level be with held even after the preceding aircraft has reported vacating the level? b) For how long will such clearance be with held? c) What separation minima is used between en-route aircraft and holding aircraft?	When severe turbulence is known to exist • The higher aircraft is executing a cruise climb • The difference in aircraft performance is such that less than the applicable separation minimum may result • Until the aircraft vacating the level has reported at or passing another level separated by the required minimum. 5 minutes to the path of the

		holding aircraft
35	a) What information should be transmitted without delay to an aircraft on final approach? b) When can an approach controller clear an arriving aircraft for initial approach below the approved minimum altitude or to descend below that altitude?	• Sudden occurrence of hazards e.g. unauthorized traffic on the runway • Significant surface wind variations • Significant change in runway surface conditions • Changes in the operational status as required of visual or non visual aids • Change in Runway Visual Range (RVR) • When the pilot has reported passing an appropriate radial navigation facility • When the pilot reports that he has and can maintain the aerodrome in sight When the aircraft position has been positively determined by radar
36	a) Can two aircraft be cleared to execute visual approach, if so what separation can be used? b) What separation is provided for an aircraft which request VMC descent? c) What is special VFR?	• 7. Yes, vertical separation until the succeeding aircraft has got the preceding aircraft in sight. None, it maintains its own separation SVFR is a VFR flight cleared by ATC to operate within the control zone in metrological conditions below VMC.
37	a) What action should the approach control unit take in case a diversion situation arises?	• Hold the aircraft in the vicinity of the aerodrome vii) Contact the ACC and advise him of the aerodrome selected for diversion, or if none selected, seek his advise as to the one most suitable. The selected aerodrome should be informed. viii) Obtain clearance instructions together with any other instructions to be passed to aircraft

	b) When an aircraft requests to divert to your station, what action do you take? c) What is the phraseology used for communicating a diversion message from the operator to the aircraft?	ix) Pass diversion message to the aircraft x) If required pass alternate aerodrome weather report xi) Advise the operating company/or representative b. Advise the operator/ his representative. v) Advise aerodrome management (Aprons control) vi) Inform customs/immigration office vii) Send an arrival message to the departure aerodrome and the previous destination aerodrome. c."Company advise/request…….. Weather at ……. Reason for Diversion……Clearance if any…… acknowledge"
38	Mention **only five** of the five minutes separations you know	1 Same track, same cruising level. 5 minutes in the following provided the proceeding aircraft maintains TAS 20Kts or faster—between aircraft from the same aerodrome 2 Between en-route aircraft that have reported over the same exact reporting point 3 Between en-route and departing after the en-route aircraft has reported over a fix that is so located in relation to the departure point as to ensure that 5 minutes separation can be established at the point, the departing aircraft will join the en-route 4 Climbing and descending---five minutes at the time the level is crossed provided that the level

		change is commenced within 10 minutes of the time the second aircraft has reported over an exact repainting point 5 Longitudinal separation—departing aircraft , 5 minutes at the time cruising levels are crossed if departing aircraft will be flown through the level of a proceeding departing aircraft and both aircraft propose to follow the same track 6 Arriving and Departing—if an arriving aircraft is making a straight in approach; a departing aircraft may take off any direction until five minutes before the arriving aircraft is estimated to be over the instrument runway 7 Holding and en-route---when aircraft are being held in flight, vertical separation will be applied between such holding aircraft and en0route aircraft whilst the latter are within 5 minutes flying time of the holding aircraft path—unless lateral separation exists
39	a)How is longitudinal separation established b) State the longitudinal separation for a/c climbing or descending on the same track	a) By requiring a/c to: (i)depart at specified time or (ii) Lose time to arrive over a location at a specified tome or (iii) Hold over a location until a specified time b) (i)20 min at the time the level is crossed or greater when circumstances require (ii) 15 min or greater when circumstances require on airways (iii) 10 min at the time level is crossed if navigational aids permit frequent determination of position

		and speed (iv) 5 min at the time the level is crossed provided that the level change is commenced within 10 min of the time the second a/c has reported over the exact reporting point
40	What are the procedures for an aircraft that has experienced radio communication failure? a) General procedures b) VFR aircraft c) IFR aircraft d) ATC unit concerned	. a) As soon as it is known that 2 way communications has failed, action shall be taken to ascertain whether the aircraft is able to receive the transmissions from the ATC unit by requesting it to execute a specific manoeuvre which can be observed by radar or to transmit if possible a specified signal in order to indicate acknowledgement. If an aircraft fails to indicate that it is able to receive and acknowledge transmissions, separation shall be maintained between aircraft having RCF and other aircraft based on the assumption that; (4 marks) b) If flying VFR; - continue to fly VFR - land at nearest suitable aerodrome - report its arrival by the most expeditious means to appropriate ATC unit (3 marks) c) If flying IFR or when the weather conditions are such that it does not appear feasible to complete flight in VMC; - proceed according to the CPL to appropriate designated navaid serving the aerodrome of intended landing and hold until commencement of descent - commence descent from the navaid at or as close as possible to the last EAT

		acknowledged or if no EAT was received and acknowledged at or as close as possible to the ETA indicated in the FPL and revised according to the CPL. - complete a normal IAP as specified for the navaid -land if possible within 30 minutes after the ETA or last acknowledged EAT whichever is later. (7 marks) d) ATC unit concerned; -As soon as it is known that two way communication has failed, appropriate information describing the action taken by the ATC unit or instructions shall be transmitted blind for the attention of aircraft concerned, on the frequencies available on which the aircraft is believed to be listening including voice frequencies of available radio navaids. -information shall be given concerning; -weather conditions favourable to cloud breaking procedure where congested traffic may be avoidable - weather conditions at suitable aerodromes -pertinent information shall be given to other aircraft in the vicinity of the presumed position of the affected aircraft - the alternate aerodromes shall be informed of the failure and requested to attempt to establish communication with the affected aircraft
41	What is the standard separation required to be provided to aircraft jettisoning fuel?	Horizontally 10NM but not behind the aircraft jettisoning fuel Vertically if behind the aircraft jettisoning fuel within 15 minutes flying time or 50NM;

		-at least 1000ft if above the aircraft or -at least 3000ft if below the aircraft.
42	a) What is a strayed aircraft? b) What is an unidentified aircraft? c) Can a strayed aircraft be considered an unidentified aircraft, explain. d) What are the procedures laid out for handling an aircraft whose position is not known?	A strayed aircraft is an aircraft which has deviated significantly from its intended track or reports that it is lost. An unidentified aircraft is an aircraft which has been observed or reported to be operating in a given area but whose identity has not been established. Hence an aircraft can be considered at the same time , as a strayed aircraft by one unit and as an unidentified aircraft by another unit. If the aircraft position is not known, ATS unit shall; -attempt to establish two way communication with the aircraft unless such communication already exists -use all available means to determine its position -inform all other ATS units into whose area the aircraft may have or may stray taking into account all the factors that may have affected the navigation of the aircraft -inform, in accordance with locally agreed procedures, the appropriate military units and provide them with pertinent flight plan and any other data concerning the strayed aircraft -request from the other units mentioned above and from other aircraft in flight every assistance in establishing communication with the aircraft and determining its position.
43	What are the steps you will take as an approach controller when you learn of an aircraft	As soon as ATS unit learns that an aircraft is being intercepted in its area of responsibility, it shall take such of the following steps as are

	being intercepted in your area of jurisdiction?	appropriate in the circumstances -attempt to establish two way communication with the intercepted aircraft an any available frequency including emergency frequency 121.5MHZ unless such communication already exists -inform the pilot of the interception -establish contact with intercept control unit maintaining two way communication with the intercepting aircraft and provide it with available information regarding the aircraft -relay messages between the intercepting or intercept control unit and intercepted aircraft -in close coordination with intercept control take all necessary steps to ensure the safety of the intercepted aircraft -inform ATS units in adjacent FIRs if it appears the aircraft could have strayed from those FIRs (7 marks)
44	Define the following; a) Accident.	Accident – An occurrence associated with the operation of the aircraft which takes place between the time any persons boards the aircraft with the intention of flight until such persons have disembarked in which a) a person is fatally or seriously injured as a result of -being in the aircraft or -direct contact with any part of the aircraft including those parts that are detached from the aircraft or -direct exposure to jet blast Except when the injuries are from natural causes, self inflicted or inflicted by other persons or when the injuries are to stowaways hiding outside areas normally available to

		passengers and crew or ii) the aircraft sustains damage or structural failure which -adversely affects the structural strength, performance or flight characteristics of the aircraft and -would normally require major repair or replacement of affected component except for engine failure or damage, when the damage is limited to the engine, its cowlings or accessories; or for damage limited to propellers, wingtips, antennae, tires, brakes, fairings, small dents or puncture holes in the skin of the aircraft or iii) the aircraft is missing or completely inaccessible. (5 marks)
	b) Area navigation.	b)Area Navigation – A method of navigation which permits aircraft operation on any desired flight path within the coverage of station referenced navigation aids or within the limits of capabilities of self contained aids or a combination of these.
	c) Cruise climb.	c)Cruise climb – An aeroplane cruising technique resulting in a net increase in altitude as aeroplane mass decreases
	d) ETA.	d) ETA – For IFR flights, the time at which it is estimated that an aircraft will arrive over that designated point, defined by reference to navigational aids, from which it is intended that an instrument approach procedure will be commenced, or if no navigation aid is associated with the aerodrome, the time at which the aircraft will arrive over the aerodrome. For VFR flights, the time at which it is estimated that the aircraft will

	e) Procedural control	arrive over the aerodrome. e) Procedural control – Term used to indicate that information derived from an ATS surveillance system is not required for the provision of ATCS.
45	What information shall be passed to an IFR aircraft that is not familiar with the instrument procedures in your airspace? Using NN as an example detail how this shall be passed.	. This is the approach procedure for……. **NN** Initial approach level……**7000ft** Outbound track, length in minutes and level instructions……..**T352 degrees maintain 7000ft 3min** Direction of procedure turn and level instructions……**Turn right H037 followed by left turn H217 descending 6000ft.** Final approach track and level instruction……**T172 descend 4000ft** Obstacle clearance limit……**6000ft** MSA…….**Climb straight ahead to 5500ft turn right dct NN climbing 6000ft.**
46	a) To whom shall ATC be provided? b) To whom shall separation be provided?	. ATCS shall be provided to -IFR in airspace classes A, B, C, D &E. -VFR in airspace class B,C&D -all SVFR -all aerodrome traffic at controlled aerodromes. Separation shall be provided to -All flights in airspace class A&B -IFR flights in airspace class C,D,E -IFR & VFR in airspace class C -IFR & SVFR -SVFR -All aircraft participating in RADAR advisory service -Participating IFR in class F

		-IFR in class G being provided with a service by APP
47	State the separation standard between arriving and departing aircraft.	If the arriving is making complete instrument approaches, the departing may take off -in any direction until the arriving has started its procedure turn or base turn leading to final approach -in any direction which is different by at least 45 degrees from the reciprocal of the direction of approach after the arriving aircraft has started procedure turn or base turn leading to final approach provided that take off will be made at least 3 minutes before the arriving aircraft is estimated over the beginning of the instrument runway. If the arriving aircraft is making a straight in approach, the departing may take off -in any direction until 5 min before the arriving is estimated to be over the instrument runway -in a direction which is different by at least 45 degrees from the reciprocal of the direction of approach of the arriving aircraft until -3 min before the arriving aircraft is estimated to be over the beginning of the instrument runway -3 min before the arriving aircraft crosses a designated fix on the approach track. (8marks)
48	What is essential traffic? List the components of essential traffic information.	Essential traffic is traffic which is separated for any period by less than the specified standard separation. Essential traffic information includes -direction of flight of conflicting aircraft

		-type of conflicting traffic -cruising level, ETA to reporting point or point nearest to where aircraft will cross -any alternate clearance
49	You are on the desk and receive estimates on SVA446, B777, OEJN-FAOR, routing UB527, est JUB at 1256, FL 390. BAW60C, B763, requests start up for EGLL at 1305, requesting FL 400. When can you depart her unrestricted? If unable formulate an alternative clearance for her.	. Consider SVA to be routing NN Thus EST JUB =1256, ATUGA = 1303, TOR = 1314, NN = 1332. Consider BAW ROC 3000fpm thus to reach FL400 = 12 minutes. Using calculation, u get CE 1310.Alternatively, FL380 RLCE.
50	a) Define the following; i) Aircraft proximity ii) Air traffic control instruction iii) Procedure turn iv) Total estimated elapse time. **(6 marks)** b) Using an example illustrate the difference between ATC instruction and ATC clearance. **(2)**	1. i) **Aircraft Proximity.** A situation in which, in the opinion of a pilot or air traffic services personnel, the distance between aircraft as well as their relative positions and speed have been such that the safety of the aircraft involved may have been compromised. Aircraft proximity is classified as follows: *Risk of collision*. The risk classification of an aircraft proximity in which serious risk of collision has existed. *Safety not assured*. The risk classification of aircraft proximity in which, the safety of the aircraft may have been compromised. *No risk of collision*. The risk classification of an aircraft proximity in which no risk of collision has existed. *Risk not determined.* The risk classification of aircraft proximity in which, insufficient information was available to determine the risk involved or inconclusive or conflicting

		evidence precluded such determination. ii) **Air traffic control instruction**. Directives issued by air traffic control for the purpose of requiring a pilot to take a specific action. iii) **Procedure turn**. A manoeuvre in which a turn is made away from a designated track followed by a turn in the opposite direction to permit the aircraft to intercept and proceed along the reciprocal of the designated track. iv) **Total estimated elapsed time.** For IFR flights, the estimated time required from take-off to arrive over that designated point, defined by reference to navigation aids, from which it is intended that an instrument approach procedure will be commenced, or, if no navigation aid is associated with the destination aerodrome, to arrive over the destination aerodrome. For VFR flights, the estimated time required from take-off to arrive over the destination aerodrome. b) An ATC instruction is in any format/normal English while an ATC clearance follows a particular format and standard phraseology.
51	. a) Delineate and designate the ATS airspace(airspace classification) b) Delineate and designate the HUEC airspace including the responsibility for provision of the ATS services.	a)**Class A** Only IFR flights are permitted. All flights are provided with air traffic control service and are separated from each other. **Class C** Both IFR and VFR flights are permitted. All flights are provided with air traffic control service and IFR flights are separated from other IFR flights and from VFR flights. VFR

flights are separated from IFR flights and receive traffic information in respect of other VFR flights.

Class D

Both IFR and VFR flights are permitted and all flights are provided with air traffic control service, IFR flights are separated from other IFR flights and receive traffic information in respect of VFR flights, VFR flights receive traffic information in respect of other flights.

Class E

Both IFR and VFR flights are permitted; IFR flights are provided with air traffic control service and are separated from other IFR flights. All flights receive traffic information as far as is practical. Class E shall not be used for control zones.

Class G

Both IFR and VFR flights are permitted and receive flight information service if requested.

b)

AIR TRAFFIC SERVICES	**AREAS WHERE TH PROVIDED**
Aerodrome Control Service	Provided at all controll within all Control Zones
Approach control Service	Provided within the TMA NN DVOR, From 1500 A
Approach Radar Services	Provided with the TMA NN DVOR, From 1500 A
Area Control Service	Provided within the U Airways
Flight Information Serves	Within the Entebbe FIR

		and Alerting Service	
		Search and Rescue Coordination	Within the Entebbe FIR
52	. a) Outline the responsibility of provision of approach control service b) To whom shall traffic information and/or avoidance advice be provided?	3a) Within controlled Airspace; An air traffic control unit at an aerodrome within controlled airspace shall provide approach control services to aircraft, according to the classification of the airspace within which the aerodrome is located from the time and place at which: -arriving aircraft are released by area control until control is transferred to aerodrome control; -aircraft approaching from outside controlled airspace place themselves under the control of approach control until control is transferred to aerodrome control; -departing aircraft are taken over from aerodrome control unit until; i) they are transferred to area control; or ii) they are clear of controlled airspace and separated from other IFR flights in receipt of an approach control service from that unit. -Overflying aircraft are within the relevant controlled airspace. Approach control shall provide standard separation between special VFR and IFR flights and between special VFR flights. Aircraft within an aerodrome traffic zone are required to comply with instructions from the air traffic control unit.	

<table>
<tr><td></td><td></td><td>b) Traffic information shall be passed and traffic avoidance advice given to aircraft on any occasion that a controller considers it necessary in the interests of safety. Controllers at aerodrome located in class C, D and E airspace are to pass traffic information as shown in the table below.

<table><tr><th>Airspace where Aerodrome is located</th><th>Traffic information</th></tr><tr><td>Class C
Class D</td><td>Traffic information to be passed
To;
(a) to IFR on VFR flights
(b) to VFR on IFR flights
(c) to VFR on other VFR
(d) to VFR on special VFR
(e) to Special VFR on VFR</td></tr><tr><td>Class E</td><td>As far as practicable
(a) to IFR on VFR flights
(b) to VFR on IFR flights
(c) to VFR on other VFR
(d) to VFR on Special VFR flights
(e) to Special VFR on VFR flights</td></tr></table></td></tr>
<tr><td>53</td><td>. a) State the coordination</td><td>a) Where both approach procedural and</td></tr>
</table>

	between approach control unit and the approach radar control unit**.** b) What procedure is normally followed when sequencing inbound traffic subject to delays if alternative procedures to avoid that delay do not exist?	**approach radar units exist,** before an aircraft is controlled or monitored by an Approach Control Radar Unit, Approach Control shall ensure that the Radar Unit is supplied with the following information. -Aircraft callsign, type, level, route, ETA (position), frequency -EAT if appropriate -Radar Service Required -Release and contact instructions -Conflicting traffic information (where necessary) -Departure time (outbound aircraft only) In addition approach control shall ensure that approach control Radar is kept supplied with the following information as required. -conflicting traffic details -current weather report -aerodrome/lighting unserviceability -any other significant information (e.g. changes of runway in use) b) When the procedure normally followed when sequencing inbound traffic subject to delays does not existis not practicable the following procedure is to be adopted: - first aircraft into the holding pattern: Entebbe ACC will give EAT as "No traffic delay expected. Approach control will keep aircraft advised of current weather conditions and the tendency. No instructions to leave the holding stack will be given until the pilot indicates his

		intention of attempting an approach -subsequent aircraft into the holding pattern when one or more is holding: Entebbe ACC will initially inform the aircraft "delay not determined……. (number) aircraft holding for weather improvement; The pilot will be kept advised of the current weather conditions and tendency, and on reaching the holding stack will be asked his intentions, if these have not been already indicated. No EAT will be given until the pilot indicates his wish to commence an approach. He will then be given routing and descend instruction to achieve at least the minimum separations from other holding aircraft in the pattern, followed by an EAT based on the traffic situation in relation to those aircraft in front of and/or below him which have also indicated a wish to attempt a landing. It should be noted that this EAT will be the time at which the aircraft is expected to leave the holding pattern at lowest level, and not the time at which it will commence descend to the lowest level; when aircraft are holding due weather the lowest holding level is normally to be kept vacant so that it may be used at any time by an aircraft wishing to attempt a landing while others below it are still holding.
54	. a) To whom shall horizontal or vertical separation be provided? b) State the required standard VOR separations.	5a) **Standard Vertical or Horizontal Separation shall be provided between:** All flights in Class A airspace IFR flights in class C, D and E airspace

	c) State the required standard NDB separations. d) You are on duty as an approach controller and receive the following estimates; KQA410, B788, HKJK – HUEN, FL340, ALKON 0540. ETH332, Q400, HSSJ – HUEN, FL270, ATUGA 0515. If the only serviceable facility at your disposal is the EM NDB, give explicit clxs for these aircraft.	IFR flights and VFR flights in class C airspace IFR flights and special VFR flight Special VFR flight Aircraft participating in the radar advisory service Participating IFR flights in Class F airspace IFR flight in Class G airspace being provided with a service by an approach control unit. b) **VOR Separation** **Two outbound Aircraft using VOR radials;** - when one aircraft is time equivalent of 15 miles or more or 4 minutes (whichever is the greater) from the VOR station and both aircraft have reported established on radials which diverge by 20º or more -Both aircraft must have passed a VOR on radials that diverge by 45^0 or more and have reported established on the relevant radials **One Outbound and One Inbound Aircraft using VOR radials;** Both aircraft have reported established on radials which are separated by a minimum number of degrees and the outbound aircraft is at least a minimum distance from the VOR as stated below. - 20^0 or more and a time equivalent of 30 NM or 8 minutes (whichever is the greater) - 40^0 and the time equivalent of 15 NM or 4 minutes (whichever is the greater) c) **NDB Separation** Using specified tracks from an NDB, when one aircraft is time equivalent of 15 miles or 4 minutes (whichever is greater) from an NDB station and both aircraft have reported established on tracks which diverge by 30º or

		more. (needs more research) d) ETH332 CLEARED TO EM NO DELAY EXPEECTED FOR NDB/ILS R17…… WX….. KQA410 CLEARED TO EM EXPECTED APPROACH TIME…..FOR NDB/ILS…….. (unless otherwise with credible reason)
55	a) Using examples, define a transfer of control point. b) When does a transfer of communication point differ from a transfer of control point; when are they the same.	a) Transfer of control is achieved when a flight which is operating in accordance with the coordination, has reached the position or level agreed between the transferring and accepting units. Transfer of control normally takes place: -At an agreed reporting point; e.g. ALKON -On an estimate for an FIR boundary; e.g. AMB ALKON(VFR to HKKI) -At or passing an agreed level; e.g. PASSING FL 150 to APP and vice versa or -While the aircraft is climbing or descending to a previously agreed level provided that the transferring controller has ensured that standard separation will exist between the transferred aircraft and all others for the reminder of the climb or descent. E.g. KQA climbing released to HKNA before reaching ALKON. b) Transfer of communication point is the point where communication to the next ATS unit is not reliable and the aircraft is allowed to first establish communication before release, no ATC clearances can be associated with this, both the transferring and accepting unit. In areas of good communication, then the transfer of communication point coincides with the transfer of control point.

56	. Explain the 6 different categories of emergencies at your workstation.	i)**Aircraft Accident/Aircraft Accident Imminent** Aircraft accidents which have occurred or are inevitable, on, or in the vicinity of the aerodrome; ii)**Full emergency** To be instituted when it is known that an aircraft is, or is suspected to be, in such trouble that there is danger of an accident; When an aircraft is to be searched following a bomb warning iii)**Local Standby** To be instituted when an aircraft approaching the aerodrome is known or is suspected to have developed some defect but the trouble is not such as would normally involve any serious difficulty in effecting a safe landing; iv)**Aircraft Ground Incident** A further category which may be instituted at some aerodromes to cover the situation where an aircraft on the ground is known to have an emergency situation other than an accident, requiring the direct attendance of the ARFS for investigation of assistance; v)**Weather Standby** May be instituted when weather conditions are such as to render the landing or take off difficult or difficult to observe; vi)**Domestic Fire** Any fire on the aerodrome not included above, or, a fire other than that from an aircraft accident outside the aerodrome

		boundary which is liable to constitute a danger to flying, or to aerodrome property, or which the ARFS should attend by virtue of an agreement with the local airport neighboring community, or which the ARFS should attend in response to calls from the public or Police on humanitarian grounds.
57	State the procedures for; i) Hand over Watch ii) Take over Watch	8i) Controllers handing overwatch shall ensure that they provide their successors with the Fullest possible information regarding the current traffic situation, including any items Of specific interest or urgency, which have influenced the development of the situation and which may have a bearing on the progress of the ensuing watch. Where flight progress strips are in Use or pictorial displays are in operation, they shall give a true presentation of the traffic situation There may be occasion when in the interest of safety or continuity of operation, it is more appropriate for the controller handing over to remain on duty to complete any associated actions, subsequent reports and records rather than transfer the responsibility for completion to another controller, than notwithstanding the fact that the watch roster defines the appointed time to handover, the controller handing overwatch shall remain on duty until such time as this responsibility has been discharged.

		When the controller taking over is fully conversant with the air traffic situation and is prepared to assume full responsibility for the watch, the controller handing over shall sign the ATC watch logbook as having handed over watch. Controller taking over should be alert to the possibility of errors and omissions in the Information being provided and must verify the data transferred to them by a thorough check Of the radar display, flight progress strips and any other relevant information. Only when they Are completely satisfied that they have a total awareness of the situation should they indicate to The controller handing over that they are ready to accept responsibility for the operational position. ii) Ensure that they are fully conversant with the latest promulgated orders, instructions, notices and signals, with particular reference where appropriate to the serviceability of the aerodrome and its facilities; a) Obtain full information regarding the weather situation and tendencies for the period of their watch. This may be accomplished either by a personal briefing from the meteorological office or

		by a study of forecast and prognostic charts supplied specifically for this purpose by the meteorological office; b) Ensure that they have a full understanding of the air traffic situation prevailing, with particular reference to separation standards; c) Familiarize themselves with the serviceability of all equipment under their charge and liable to be used during the period of their watch; d) Familiarize themselves with the state of the maneuvering area and general aerodrome conditions including lighting, markings, perimeter fencing, and adequacy of fire, crash and Rescue Service. Having completed these procedures controllers shall sign the air traffic control watch log book as having taken over watch. This signature shall imply that items (a) to (d)above have been complied with and that the controller taking over watch has assumed all the defined responsibilities of the controller handing over watch, including the safe custody of equipment and any secret or confidential documents within the place of duty. At stations where more than one controller is employed at one time On Approach, Aerodrome, Area or Radar control duties, the

		ATC Watch log shall be signed by the senior controller on duty. Other controllers shall record taking over their specific duties as per the local station instructions.
58	a) When an ATS route is being named, it can be assigned various designators that have varying meanings. State these designators and their meanings. b) State and describe any 3 STARs/SIDs for HUEN.	9a) Designators A, B, G, R for routes which form part of the regional networks of ATS routes and are not area navigation routes. Designators L, M, N, P for routes which form part of the regional networks of ATS routes and are area navigation routes. Designators H, J, V, W for routes which do not form part of the regional networks of ATS routes and are not area navigation routes. Designators Q, T, Y, Z for routes which do not form part of the regional networks of ATS routes and are area navigation routes. b) STARs R17 –TORNO 1A SIDS R17 – KOLON 1A SEZIM 1B ALBIN 1A ALTIN1A BETAF 1A APNAD1B APNAD 1A LABAT 1A LUVUN 1A NESAL 1A SEZIM 1A ALKON 1A LAWOK 1A PATAR 1A R35 TORNO 1B LUVUN 1B SEZIM 1C SEZIM 1D ALTIN 1B ALTIN 1C APNAD 1C BINDA 1A LABAT 1B KOLON 1B

		NESAL 1B PASAN 1A ALKON 1B ALBIN 1B PATAR 1B
59	a) To whom shall alerting service be provided. b) When shall an aircraft be considered to be in ALERFA?	10a) To all aircraft provided with ATCS In so far as practicable, to all other aircraft having filed a flight plan or otherwise known to air traffic services To any aircraft known or believed to be subject of unlawful interference. b) Following the uncertainty phase, subsequent attempts to establish communication with the aircraft or inquiries to other relevant sources have failed to reveal any news of the aircraft; or when an aircraft has been cleared to land and fails to land within 5 minutes of its estimated time of landing and communication has not been re-established with the aircraft; or when information has been received which indicates that the operating efficiency of the aircraft has been impaired but not to the extent that a forced landing is likely, except when evidence exists that would allay apprehension as to the safety of the aircraft and its occupants; or when an aircraft is known or believed to be the subject of unlawful interference.

2a)Class A

Only IFR flights are permitted. All flights are provided with air traffic control service and are separated from each other.

Class C

Both IFR and VFR flights are permitted. All flights are provided with air traffic control service and IFR flights are separated from other IFR flights and from VFR

flights. VFR flights are separated from IFR flights and receive traffic information in respect of other VFR flights.

Class D

Both IFR and VFR flights are permitted and all flights are provided with air traffic control service, IFR flights are separated from other IFR flights and receive traffic information in respect of VFR flights, VFR flights receive traffic information in respect of other flights.

Class E

Both IFR and VFR flights are permitted; IFR flights are provided with air traffic control service and are separated from other IFR flights. All flights receive traffic information as far as is practical. Class E shall not be used for control zones.

Class G

Both IFR and VFR flights are permitted and receive flight information service if requested.

b)

AIR TRAFFIC SERVICES	**AREAS WHERE THE SERVICE IS PROVIDED**
Aerodrome Control Service	Provided at all controlled Aerodromes and within all Control Zones
Approach control Service	Provided within the TMA (65NM Centred at NN DVOR, From 1500 AGL to FL145)
Approach Radar Services	Provided with the TMA (65NM Centred at NN DVOR, From 1500 AGL to FL145)
Area Control Service	Provided within the UTA and along the Airways
Flight Information Serves and Alerting Service	Within the Entebbe FIR
Search and Rescue Coordination	Within the Entebbe FIR

3a) Within controlled Airspace;

An air traffic control unit at an aerodrome within controlled airspace shall provide approach control services to aircraft, according to the classification of the airspace within which the aerodrome is located from the time and place at which:

-arriving aircraft are released by area control until control is transferred to aerodrome control;

-aircraft approaching from outside controlled airspace place themselves under the control of approach control until control is transferred to aerodrome control;

-departing aircraft are taken over from aerodrome control unit until;

iii) they are transferred to area control; or

iv) they are clear of controlled airspace and separated from other IFR flights in receipt of an approach control service from that unit.

-Overflying aircraft are within the relevant controlled airspace.

Approach control shall provide standard separation between special VFR and IFR flights and between special VFR flights. Aircraft within an aerodrome traffic zone are required to comply with instructions from the air traffic control unit.

b) Traffic information shall be passed and traffic avoidance advice given to aircraft on any occasion that a controller considers it necessary in the interests of safety. Controllers at aerodrome located in class C, D and E airspace are to pass traffic information as shown in the table below.

Airspace where Aerodrome is located	**Traffic information**
Class C Class D	Traffic information to be passed To; (a) to IFR on VFR flights (b) to VFR on IFR flights (c) to VFR on other VFR (d) to VFR on special VFR (e) to Special VFR on VFR
Class E	As far as practicable (a) to IFR on VFR flights (b) to VFR on IFR flights (c) to VFR on other VFR

	(d) to VFR on Special VFR flights (e) to Special VFR on VFR flights

APPROACH PROCEDURAL ATC FOURTH PROGRESS TEST 17/12/2014

1. When instrument flight rules are in force in the control zone, when may you permit local flying operations if traffic conditions permit?

2. a) BAW60C, a B763 Entebbe to EGLL true airspeed 480 kts, is cleared FL340 Atuga and took off at 0840Z. ACC gives you a clearance on KLM562; an A333 with same speed to EHAM, FL340 Atuga and clearance expires at 0849. How will you pass this clearance to KLM562 and what will be your action?

b) KQA412, a B763 TAS 460 kts climbing to FL310, ATD 0915. ETH481; A333; TAS 495 kts FL290, ATD 0918. What ATC clearances will be issued to each of these aircraft if their destination is Nairobi?

3.a) What information do you pass to IFR departing a/c as an approach controller

b) When sequencing arriving traffic when will you clear the succeeding aircraft relative to the proceeding a/c to commence at approach?

4. a) State all the VOR/DME lateral separations that use 20°?

b) When using DME what separation minimum is used between aircraft at the same cruising level and on the same track?

5.a) i) What is the purpose of an approach sequence?

ii) Under what special circumstances is the approach sequence not followed?

b) How is longitudinal separation established?

6.a) i) What is SVFR

ii) What is SVFR WX Minima?

iii) When can you allow VFR flight in traffic circuit when the zone is IMC?

b) State the VOR separation for one inbound one outbound aircraft

7.a) When instrument flight rules are in force in the control zone, when may you permit local flying operations if traffic conditions permit?

b) What is the standard separation required to be provided to aircraft jettisoning fuel?

8. a) Define; i) Transition altitude

ii) Transition layer

iii) Transition level

b) What are the objectives of air traffic services?

9. i) What must a pilot wishing to change from VFR to IFR comply with?

ii) What is the phraseology used by pilots to terminate IFR flight?

iii) What is the phraseology used by controllers to acknowledge termination of IFR flight?

10. Define the following;

i. Air Traffic Management (ATM)

ii, Approach control unit

iii, Approach sequence
iv, Obstacle clearance altitude (OCA) or obstacle clearance height (OCH)(exclude the notes)
v, Procedure turn

GUIDE LINE FOR APP PROCEDURAL ATC FOURTH PROGRESS TEST

1. When Instrument Flight Rules are in force in a control zone, VFR local flying operations may be authorized if traffic conditions permit provided;
(a) The operation is conducted within the range of the vision of the Air Traffic Control Officer.
(b) The landing area is visible to the person in command of each aircraft at all times during such flights.
(c) Adequate arrangements have been made for the termination of such operations and
(d) When the person in command is a student pilot;
(i) A flying instructor shall supervise the operation and
(ii) The instructor shall be satisfied that the student is competent to fly according to the conditions of authorization.
2. The clearance will not be passed; it is not valid because standard separation of 10 minutes required in this case is not achieved.

KQA412 cleared FL 310 ALKON (Via UA609); COORDINATE RATE OF CLIMB
ETH481 cleared FL 290 ALKON (Via UA609); COORDINATE RATE OF CLIMB
3.a) Direction of take off
a) Turn after-take off
b) Track to be made good before turning on the desired reading
c) Levels to be maintained before continuing to climb assigned cruising levels
d) Time, point and/or rate at which changes of levels should be
e) Any other necessary manoeuvre consistent with the safe operation of aircraft
f) Airways; ADR or other necessary clearance

g) Transition level on request
h)Time check

b) When preceding a/c:

a) Has reached a position where the required separation from the succeeding a/c can be considered to exist; or
b) Has reported that it is able to complete its approach without entering IMC and been cleared to complete its approach in VMC; or

Is in communication with and sighted by aerodrome control tower and reasonable assurance exists that a normal landing can be accomplished

4.a) Both aircraft must have reported established on radials at least 20º apart.

i)Two outbound both are established on diverging radials by at least 20° or more and at least one aircraft is 15nm or more from the same VOR/DME station.

ii)Two inbound both are established on converging radials of at least 20° or more and at a distance of 30nm or more from VOR/DME station.

iii)One inbound and the other outbound both aircraft are established on radials which diverge by at least 20° or more and the outbound is 15nm or more from the VOR/DME and the inbound is 30nm or more from the same facility.

b) a) 20 nm provided

(i) Each aircraft utilizes the same “on-track” DME stations and

(ii) Separation is checked by obtaining simultaneous DME readings from the aircraft at frequent intervals to ensure that the minimum will not be infringed.

(b) 10nm provided

(i) The leading aircraft maintains a time airspeed of 20kts or more faster than the succeeding aircraft

(ii) Each aircraft utilizes “on-track” DME stations and

(iii) Separation is checked by obtaining simultaneous DME readings from the aircraft at such intervals as are necessary to ensure that the minimum is established and will not be infringed.

5.a) i The approach sequence shall be established in the manner which will facilitate arrival of the maximum number of aircraft with the least average delay.

ii A special priority may be given to:

(a) An aircraft which anticipate being compelled to land because of factors affecting the safe operation of aircraft. (Engine failure, shortage of fuel, e.t.c.)
(b) Ambulance aircraft when the safety of life is involved;
(c) VIP aircraft i.e. aircraft carrying Head of States, in that order.

B) By requiring a/c to:
(i)depart at specified time or
(ii) lose time to arrive over a location at a specified tome

6. a) i)SVFR is a VFR flight cleared by ATC to operate within the control zone in metrological conditions below VMC.
ii) Ground visibility less than 1.5km and the ceiling not lower than 500ft VFR may be permitted provided:
iii) They operate within range of vision of the Aerodrome ATCO
The landing area is visible to the person in command of each a/c at all times during such flights
Adequate arrangements have been made for the termination of such operations

b) 20° outbound is the time equivalent of 30NM or 8Min whichever is greater.
40° outbound aircraft is time equivalent of 15NM or 4Min whichever is greater
20° one aircraft is at least time equivalent of 15MN or 4MiN whichever is greater

7. When Instrument Flight Rules are in force in a control zone, VFR local flying operations may be authorized if traffic conditions permit provided;
(a) The operation is conducted within the range of the vision of the Air Traffic Control Officer.
(b) The landing area is visible to the person in command of each aircraft at all times during such flights.
(c) Adequate arrangements have been made for the termination of such operations and
(d) When the person in command is a student pilot;
(i) A flying instructor shall supervise the operation and
(ii) The instructor shall be satisfied that the student is competent to fly according to the conditions of authorization.

b) Horizontally 10NM but not behind the aircraft jettisoning fuel

Vertically if behind the aircraft jettisoning fuel within 15 minutes flying time or 50NM; -at least 1000ft if above the aircraft or-at least 3000ft if below the aircraft

8. ***Transition altitude*** is the altitude at or below which the vertical position of an aircraft is controlled by reference to altitudes.
Transition layer is the airspace between the transition altitude and the transition level.
Transition level is the lowest flight level available for use above the transition altitude.
a) Prevent collisions between aircraft;
b) Prevent collisions between aircraft on the maneuvering area and obstructions on that area;
C) Expedite and maintain an orderly flow of air traffic;
d) Provide advice and information useful for the safe and efficient conduct of flights;
e) Notify appropriate organizations regarding aircraft in need of search and rescue aid, and assist such organizations as require

9.i) An aircraft operating in accordance with VFR which wishes to change to IFR shall comply with one of the following conditions:
(a) if a flight plan was submitted, communicate whenever possible the necessary changes to be effected to its current flight plan to the appropriate ATC Unit.
(b) Submit flight plan to the appropriate ATC unit and obtain a clearance prior to operating under IFR in controlled airspace.
(c) Continue to operate under VFR if unable to communicate with an ATC unit or obtain the necessary clearance for flight within controlled airspace.
ii) CANCELLING MY IFR FLIGHT",
iii)"IFR FLIGHT CANCELLED AT ... (time)",

10. i, The dynamic, integrated management of air traffic and airspace including air traffic services, airspace management and air traffic flow management—safely economically and efficiently---through the provision of facilities and seamless services in collaboration with all parties and involving airborne and ground based functions

ii, A unit established to provide air traffic control service to controlled flights arriving at, or departing from, one or more aerodromes

iii, The order in which two or more aircraft are cleared to approach to land at the aerodrome

iv, The lowest altitude or the lowest height above the elevation of the relevant runway threshold or the aerodrome elevation as applicable used in establishing compliance with appropriate obstacle clearance criteria

v, A manoeuvre in which a turn is made away from a designated track followed by a turn in the opposite direction to permit the aircraft to intercept and proceed along the reciprocal of the designated track

APPROACH AIR LAW FOURTH PROGRESS TEST 17/12/2014

1. Define

- Safety
-Solo flight
- Acrobatic flight
-Air traffic control clearance
-Pilot-in-command (PIC)

10 marks

2a) when is a person prohibited from towing a glider?
5 marks

b) At what height is a person allowed to conduct banner towing? 5 marks

3a) When does one qualify for an air traffic control license?
5 marks

b) According to Personnel Licensing, what are the knowledge requirements for issuance of an approach control rating?
4 marks

c) What are the aeronautical experience and skill requirements for an Air Traffic Control rating?

4 a) Mention the four prohibited areas in Entebbe FIR and there designators
b) What are provisions under which night flying training will be permitted at Entebbe International Airport?
c)With what will general aviation operating up country airports required to submit in regard to search and rescue services
5a) What are the common reference systems used in aviation?
6 marks

b) Name the different types of aerodromes (aerodrome categories).
4 marks

6a) To whom shall the UGCAA (airworthiness, 2014) regulations apply?
3 marks

b) What entries are expected to be included in an aircraft log book?
7 marks

7) What criteria must be met for one to be issued an ANS certificate?
9 marks

8a) What services is the ANSP required to provide according to the CAA (ANS, 2014) regulations?
7 marks

b) What factors are considered when the regulatory authority is determining the need for provision of ATS?
4 marks

9a) where are low flying activities allowed according to the regulations?
8 marks

b) What are the exceptions to this rule?
9 marks

c) Describe the navigation lights required to be carried by an aircraft in flight.
3 marks

GUIDE LINE FOR APPROACH AIR LAW FOURTH PROGRESS TEST

1 “Safety” means a state in which the risks associated with aviation activities, related to, or in direct support of the operation of aircraft, are reduced or controlled at an acceptable level.

-Solo flight” means a flight on which a student pilot of the aircraft is the sole occupant of the aircraft.
-Acrobatic Flight” means manoeuvres intentionally performed by an aircraft involving an abrupt change in its attitude, an abnormal attitude or an abnormal variation in speed,
- Air Traffic control clearance” means authorisation for an aircraft to proceed under conditions specified by an air traffic control unit
--Pilot-in-command (PIC)”means the pilot designated by the operator, or in case of general aviation, the owner, as being in command and charged with the safe conduct of a flight

2a) A person shall not tow a glider;

-unless the certificate of airworthiness is valid and includes an express provision that the aircraft shall be used for towing a particular type of glider

-unless the pilot in command is qualified for this part

-unless the aircraft is equipped with a tow hook and release control system that meets applicable standards of airworthiness

-unless the length of the combination of towing aircraft, tow rope and glider in flight does not exceed150 meters.

-Except in accordance with such conditions and requirements as the Authority may have notified

2b) A person shall not be allowed to conduct banner towing;

At such a height over congested areas or open assembly of persons, whichever is higher?

-at a height below 1000ft above the highest fixed point within 600m of the aircraft; or

-below such a height that would enable the aircraft to alight clear of the area and without danger to persons or property on the surface, in case of failure of a power unit; or

Elsewhere, not below such a height as would enable the aircraft to alight clear of the assembly in the event of failure of a power unit

3a) An applicant for an air traffic control license shall;

-be at least 21 years of age;

-demonstrate the ability to read, speak, write and understand the English language in accordance with the language proficiency requirements contained in the third schedule of the Personnel Licensing regulations without impediment of speech that would interfere with two way radio conversation.

-comply with knowledge requirements of regulation 98 and 100 of the Personnel Licensing regulations.

-hold a current class 3 medical certificate.

b) –Airspace structure

-Applicable rules, procedures and source of information

-Air navigation facilities

-Air traffic control equipment and its use

-Terrain and prominent landmarks

-Characteristics of air traffic and traffic flow

-weather phenomena

-emergency and search and rescue plans

c) Approach control service for a period of not less than 180 hours or three months whichever is greater at the unit for which the rating is sought

4. a)i-HUP 1state house Entebbe
ii-HUP 6 Nakesero state house
iii-HUP 8 Nshwere state house
iv-HUP 10 Kisozi state house
b)i)A maximum of four aircraft will be permitted in the circuit at any one time.
ii)A minimum of one hour's notice must be given for any night flying program.
iii) Clearance should be obtained from the security liaison office at the Airport.
iv) A flight plan giving details of the type of exercise, radio telephony call sign, type of aircraft, endurance and people on board shall be filed before commencing such flights.
v)A copy of any standard briefing instructions given to the training pilots shall be forwarded to the officer-in-Charge of ANS
c) i)File flight plan with relevant offices or responsible persons
ii)Report arrivals to Entebbe ACC on HF or telephone 0414 320907
iii)A copy of passenger Manifest should be left with relevant officials at upcountry aerodromes of departure
iv)Any issues related to SAR should be reported

5a) –The World Geodetic System (WGS-84) as a horizontal reference system to express aeronautical coordinates.

-The Mean Sea Level (MSL) as a vertical reference system to express elevation at an aerodrome.

-The Gregorian calendar and coordinated universal time (UTC) as the temporal reference system.

-The International system of Units developed and maintained by the General Conference of Weights and Measures (GCWM) as the standard system of units of measurement

b) Category A-international and domestic flight use

Category B- Domestic flight use including aircraft with MTOW above 5700Kgs.

Category C- Domestic flight use including aircraft with MTOW less than 5700Kgs

Category D – Heliports
s

6a) To all persons operating or maintaining the following;

-Ugandan registered aircraft wherever they are operated.

-Aircraft that is registered in another contracting state that is operated by a person licensed in Uganda and shall be maintained in accordance with the aircraft state of registry whenever maintenance is done.

-Aircraft of other contacting states operating in Uganda.

b) -Name of constructor, type of aircraft, number assigned to it by the constructor and date of construction.

-nationality and registration marks of the aircraft

- name and address of the aircraft operator

-date of each flight, duration of period between take-offs and landings, or if more than one flight is made per day, the number of flights and total duration of the periods between take-offs and landings.

-participants of the maintenance work carried out on the aircraft or its occupants

-particulars of any defects occurring in an aircraft or on its equipment required to be carried in it by the regulations and action taken to rectify these defects

-particulars of any overhaul, repairs, replacements and modifications to the aircraft or any equipment associated with the aircraft

7) –The personnel of the applicant are adequate in number and have the necessary competence to provide the service.

-The MANSOPS prepared and submitted with the application contains all the relevant information

-The facilities, services and equipment are established in accordance with the regulations.

-The operating procedures make a satisfactory provision for safety of aircraft.

-An acceptable SMS is in place.

-An approved QMS is in place.

-The applicant meet the requirements of CAA (Security, 2014) regulations and the National Civil Aviation Security Program.

-The applicant has the financial capability to provide this service.

-The applicant has an insurance policy in place in relation to the services provided.

8a) Air traffic services

Communication, Navigation and Surveillance systems

Meteorological services for air navigation

Aeronautical search and rescue coordination

Aeronautical information systems

Aeronautical maps and charts

Construction of visual and instrument flight procedures.

b) Types of air traffic involved

Density of air traffic involved

Meteorological conditions

Any other factors deemed necessary

9a)i- An aircraft, other than a helicopter shall not fly over a congested area of towns, cities or settlements below;

Such a height as would enable the aircraft to alight clear of the area and without danger to persons or property on the surface, in the event of failure of a power unit

A height of 1,000 feet above the highest fixed object within 600 feet of the aircraft, whichever is higher;

ii-A helicopter shall not fly below such a height as would enable it to alight clear of the area and without danger to persons or property on the surface, in the event of failure of a power unit; or

iii-Except with the permission in writing of the authority and according to the conditions therein specified, a helicopter shall not fly over a congested area of towns, settlements or cities below a height of 1,000 feet above the highest fixed object within 600 feet of the helicopter.

iv-An aircraft shall not fly;

Over or within 1,000 meters of any assembly in the open air of more than 1,000 persons assembled for the purposes of witnessing or participating in any organized event, except with the permission in writing and in accordance with any conditions specified therein and with the consent in writing of the organizers of the event; or

Below such a height as would enable the aircraft to land clear of the assembly in the event of failure of a power unit or if such an aircraft is towing a banner the height must be calculated on the basis that the banner shall not be dropped within 1,000 meters of the assembly.

v-An aircraft shall not fly less than 500 feet above ground or water.

b) Aircraft being used for police purposes

Aircraft used for aerial work operations related to agriculture, horticulture or forest preservation in accordance with the CAA (Aerial work, 2014) regulations

The flight of an aircraft over or within 1,000 meters of an assembly of persons gathered for the purpose of witnessing an event which consists wholly or principally of an aircraft race contest or exhibition of flying, if the aircraft is taking part in such a race or exhibition or is engaged in a flight arranged by or made with consent in writing of, the organizers of the event, and the races, contest, exhibition or flight is approved by the Authority.

An aircraft landing or taking off in accordance with normal aviation practice.

A glider while its hill soaring

An aircraft taking off, landing or practicing approaches to landing; provided that in the case of practicing approaches to landing, such practicing is confined to the airspace customarily used by the aircraft when landing and taking off in accordance with normal aviation practices at that aerodrome.

An aircraft flying for the purpose of checking navigational aids or procedures in accordance with normal aviation practice at any licensed or certified aerodrome in Uganda or at any aerodrome in any other state

An aircraft flying for the purpose of saving lives

Any captive balloon or kite

c) – A red light projected above and below the horizontal plane through an angle of coverage L

- A green light projected above and below the horizontal plane through an angle of coverage R

- A white light projected above and below the horizontal plane rearward through an angle of coverage A