



DEPARTMENT OF AIR TRAFFIC MANAGEMENT

AREA AIRWAYS OJT PROGRESS TEST 1

AIRLAW AND REGULATIONS

22nd August 2022

Duration: 1½Hours

Instructions: Attempt all questions.

1. a) What is the knowledge requirement for area control procedural rating? 4marks.
 - b) What is the aeronautical experience and skill requirement for area control procedural rating? 1mark
 - c) What are the following measuring reference systems in air navigation? 3marks
 - i) Temporal reference system
 - ii) Horizontal reference system
 - iii) Vertical reference system
 - d) Mention any 4 types of charts included in the AIP Uganda. 2marks
- a) To provide, or supervise, the provision of area control service within the control area or portion for which the licence holder is rated, with knowledge of;
- i) Airspace structure
 - ii) Applicable rules, procedures and source of information
 - iii) Air navigation facilities
 - iv) Air traffic control equipment and its use
 - v) Terrain and prominent landmarks
 - vi) Characteristics of air traffic and traffic flow
 - vii) Weather phenomena
 - viii) Emergency and search and rescue plans.
- b) Area control OJT, for a period of not less than 180 hours, or three months, whichever is greater, at the unit for which the rating is sought.
- c)
- i) Gregorian calendar and Coordinated Universal time (UTC)
 - ii) World Geodetic system
 - iii) Mean Sea Level
- d)
- i) Instrument Approach Charts - ICAO
 - ii) Aerodrome Charts - ICAO
 - iii) Aerodrome Obstacle Chart - ICAO Type A
 - iv) World Aeronautical Chart - ICAO 1:1,000,000.
 - v) Enroute Chart - ICAO.

2. a) Define Overtaking aircraft.

1mark

b) When is a pilot obliged to file a flight plan? Write down any 4.

4marks

c) What do the following acronyms stand for?

- i) ETOPS
- ii) UIR
- iii) ASBU
- iv) CTAM
- v) RAC

5marks

a) Overtaking aircraft means an aircraft that approaches another from the rear on a line forming an angle of less than 70 degrees with the plane of symmetry of the latter, so that it is in such a position with reference to the other aircraft that at night it would be unable to see either of the aircraft's left (port) or right (starboard) navigation lights.

b) Prior to operating one of the following;

- i) Any flight to be provided with air traffic control service
- ii) Any IFR flight within advisory airspace
- iii) Any flight within or into designated areas or along designated routes
- iv) Any flight within or into designated areas or along designated routes
- v) Any flight across international borders
- vi) Any flight departing from an aerodrome manned by the Authority.

c)

- | | |
|-----------|--|
| i) ETOPS | Extended – range Twin-engine Operational Performance Standards |
| ii) UIR | Upper Flight Information Region |
| iii) ASBU | Aviation Systems Block Upgrade |
| iv) CTAM | Climb To And Maintain |
| v) RAC | Rules of the air and Air traffic services |

3. Define the following as per the Civil Aviation (Air Traffic Services) regulation 2020:

a) Air Navigation Service Provider

b) Duty Period

c) Remote Pilot

d) Fatigue

e) Time-in-position

10marks

a) Air Navigation Service Provider means a directorate in the Authority designated for the purposes of operating and managing air navigation services.

b) Duty Period means a period which starts when an air traffic controller is required by an air traffic services provider to report for or to commence a duty and ends when he or she is free from all duties.

c) Remote Pilot means a person charged by the operator with duties essential to the operation of a remotely piloted aircraft and who manipulates the flight controls, as appropriate, during flight time.



d) **Fatigue** means a physiological state of reduced mental or physical performance capability resulting from sleep loss, extended wakefulness, circadian phase, or workload both mental or physical activity, that can impair a person's alertness and ability to perform safety-related operational duties.

e) **Time-in-position** means the period of time when an air traffic controller is exercising the privileges of the air traffic controller's licence at an operational position.

4. a) Define Safety Management System (SMS) 1 mark

b) What are the titles of the following ICAO documents? 3 marks

i) DOC 7300

ii) DOC 9859

iii) DOC 7030

iv) DOC 9426

v) DOC 9613

vi) DOC 7910

c) What factors are considered when determining the need for the provision of ATS? 3 marks

d) State two objectives of ATS Safety Management. 2 marks

e) What is night rating? 1 mark

a) **Safety Management System (SMS)** means a systematic approach to managing safety, including the necessary organisational structures, accountabilities, policies and procedures.

b)

i) Convention on international civil aviation

ii) Safety management manual

iii) Regional supplementary procedures

iv) Air traffic services planning manual

v) PBN Manual.

vi) ICAO Location indicators

c)

i) Types of air traffic involved

ii) Density of air traffic involved

iii) Meteorological conditions

iv) Any other factors deemed necessary

d) To ensure that;

i. The established level of safety in providing ATS within an airspace or aerodrome is met

ii. Safety related enhancements are implemented wherever necessary

e) A night rating is a rating added to enable the holder to fly passengers at night.

5. a) Define the following as per Civil Aviation ATS regulation 2020.

2 marks

i) Danger Area

ii) Incident

b) According to the Civil Aviation (Aircraft Nationality and Registration marks) Regulation, 2020, When can an aircraft be refused registration in Uganda? 4marks

c)

- i) What is the purpose of the regional air navigation plan?
- ii) Where do ICAO SARPs apply without difference?
- iii) Name the convention that led to the inception of ICAO and the year it came into force
- iv) What is contained in ICAO Annexes?
- v) How many states comprise the ICAO council?
- vi) Which article states the aims and objectives of ICAO?

3marks

d) Define the term License as per the Civil Aviation (Personnel Licensing) Regulation, 2020. 1mark.

a)

- i) **Danger Area means an airspace of defined dimensions within which activities dangerous to the flight of aircraft may exist at specified times.**
- ii) **Incident means an occurrence, other than an accident, associated with the operation of an aircraft which affects or could affect the safety of operation.**

b) an aircraft shall not be registered or continue to be registered in Uganda where;

- i) **The aircraft is registered outside Uganda;**
- ii) **An unqualified person is entitled as the owner, to any legal or beneficial interest in the aircraft or to any share in the legal or beneficial interest;**
- iii) **It would be inexpedient in the public interest for the aircraft to be or to continue to be registered in Uganda; or**
- iv) **The aircraft does not qualify to be issued with a certificate of airworthiness as specified in the Civil Aviation (Airworthiness) regulation, 2020.**

c)

- i) **For uniformity of procedures**
- ii) **Over high seas**
- iii) **The Chicago convention of 1944**
- iv) **Standards and recommended practices**
- v) **36 states**
- vi) **Article 44**

d) **Any certificate of competency or certificate of validity issued with the license or required to be held in connection with the license by the law of the state in which the license is granted**

6. a) Define the following.

- (i) Alert phase
- (ii) Forecast

2marks

b) Where in the Civil Aviation regulations (including the applicable year) would you find the following regulatory requirements?

- i) **Aviation training centres**
- ii) **Aircraft engine and propeller logbooks**
- iii) **Approval of transportation of dangerous goods**



- iv) Management of response to acts of unlawful interference
- v) Cruising levels

5marks

c) In which document would you find the following information?

3marks

- i) ATC hours of watch
- ii) Limitations of NDB
- iii) Personnel licensing

6. a)

- i) **Alert Phase means a situation where apprehension exists as to the safety of an aircraft and its occupants.**
- ii) **Forecast means a statement of expected meteorological conditions for a specified time or period, and for a specified area or portion of airspace.**

b)

- i) **Civil Aviation (Approved training organization) regulation, 2020**
- ii) **Civil Aviation (Airworthiness of Aircraft) regulation, 2020**
- iii) **Civil Aviation (Aerodromes) regulation, 2020**
- iv) **Civil Aviation (Security) regulation, 2017**
- v) **Civil Aviation (Rules of the Air) regulation, 2020**

c)

- i) **ATC hours of watch: Aerodrome Section of the AIP**
- ii) **Limitations of NDB: AIC**
- iii) **Personnel licensing: ICAO Annex 1**

7. a) Define the following as per the Uganda Civil Aviation regulations governing the provision of Air Navigation Services;

- i) Acceptable
- ii) Rating
- iii) Anti-collision light
- iv) Flight visibility

4marks

b) State the minimum age for the following license holders:

4marks

- i) Air traffic controllers
- ii) Private pilot's license
- iii) Commercial pilot's license
- iv) Airline Transport Pilot's license

c) What privileges does the area control rating entitle the holder?

2marks

7. a)

- i) **Acceptable means the authority has reviewed the method, procedure or policy and has neither objected to nor approved its proposed use or implementation.**

- ii) Rating means the authorisation entered on or associated with a license or certificate and forming part thereof, stating special conditions, privileges or limitations pertaining to such license or certificate.
- iii) Anti-collision light means a flashing red or flashing white light showing in all directions for the purpose of enabling the aircraft to be more readily detected by a pilot of distant aircraft.
- iv) Flight visibility means the visibility forward from the cockpit of an aircraft in flight.

b)

- i) Air traffic controllers; 21 years
- ii) Private pilot's license; 17 years
- iii) Commercial pilot's license; 18 years
- iv) Airline Transport Pilot's license; 21 years

c) To provide or supervise the provision of area control service for the area/jurisdiction for which the license holder is validated.

- 8.a) When and where was the convention on international civil aviation signed? 1mark
- b) How many states signed the convention on international civil aviation at its inception? 1mark
- c) What is the current membership of ICAO? 1mark
- d) State the criteria used in selecting members of the ICAO council? 3marks

e) State any four cases where an aircraft may be flown at a height of less than 500ft. 4marks

- a) The convention on international civil aviation was signed on 7th December 1944 in Chicago.
- b) 193 Members
- c) 52 States
- d)

- States of chief importance in Air transport
- States not otherwise included which make the largest contribution in the provision of facilities for international civil air navigation
- States not otherwise included whose designation will ensure that all the major geographical areas of the world are represented on the council.

e)

- Any aircraft while it is landing or taking off in accordance with normal aviation practice.
- Any glider while it is hill soaring
- Any aircraft while flying for the purpose of dropping articles for the purpose of agriculture, horticulture, forestry, or public health
- Aircraft being used for police purposes.
- Aircraft flown for the purpose of checking navigational aids or procedures in accordance with normal aviation practice at a government or UCAA licensed aerodrome or in any aerodrome in any contracting state
- Aircraft flown in a manner that may be necessary for the purpose to save life.



9. a) What is the medical validity and the personnel to whom the following medical certificates are issued? 6marks

- i) Class I
- ii) Class II
- iii) Class III

b) What shall be included in a licence for it to be recognised as an air traffic control licence? 3marks

c) What is the validity of the English language proficiency levels 4 and 5? 1mark

a) **Class I**

Class 1 applies to applicants for or holders of;

- (i) Commercial pilot license: aeroplanes and helicopters;
- (ii) Airline transport pilot license: aeroplanes and helicopters;
- (iii) Flight engineer license;

- **Validity; under the age of 40 is 12 months**
Above 40 years is 6 months

Class II

Class 2 applies to applicants for or holders of;

- (i) Commercial pilot license: lighter-than-air;
- (ii) Private pilot license: aeroplanes, helicopters and glider;
- (iii) Student pilot license: for all aircraft; and
- (iv) Cabin crew certificate;

- **validity; under the age of 40 is 24 months**
Above 40 years is 12 months

Class III

Class 3, applies to applicants for or holders of air traffic controller license.

- **Validity; Under the age of 40 is 24 months**
Above 40 years is 12 months

b)

1. Ratings of one or more classes specified in personnel licensing Regulation, specifying the type of air traffic control service which the holder of the license is competent to provide.
2. A list of the places at which he/she may provide the service
3. Type of Radar equipment, if any with the aid of which he/she may provide the service.

c)

- **Level 4 - Three Years**
- **Level 5- Six Years**

10. a) When does an ATC rating validation expire?

1mark

b) State the ATC ratings as per the Civil Aviation (Personnel Licensing) regulations, 2020. 6marks

c) What are the main contents to Part 2 of the AIP?

3marks

10.a) In 6 months if it has not been used during this period.

10.b)

- 1) **Aerodrome Control Rating;**
- 2) **Approach Control Procedural Rating;**
- 3) **Approach Control Surveillance Rating;**
- 4) **Approach Precision Radar Control Rating;**

- 5) Area Control Procedural Rating; and
- 6) Area Control Surveillance Rating

10.c)

- 1) General rules and procedures
- 2) Air traffic services airspace
- 3) ATS Routes
- 4) Radio Navigation Aids/Systems
- 5) Navigation warning
- 6) En-route

END



DEPARTMENT OF AIR TRAFFIC MANAGEMENT

AREA AIRWAYS OJT PROGRESS TEST 1

AIR TRAFFIC CONTROL PROCEDURES

22nd August 2022

Duration: 1½Hours

Instructions: Attempt all questions

1.a) Define the following terms:

- a) Performance Based Navigation (PBN)
- b) Rescue Coordination Centre
- c) Transfer of Control Point
- d) Area Navigation
- e) Air Traffic Services Airspaces

10marks

- a) **Performance-Based Navigation (PBN)** means area navigation based on performance requirements for aircraft operating along an ATS route, on an instrument approach procedure or in a designated airspace.
- b) **Rescue Coordination Centre** means a unit responsible for promoting efficient organisation of search and rescue services and for coordinating the conduct of search and rescue operations within a search and rescue region.
- c) **Transfer of control point** means 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 position to the next.
- d) **Area Navigation (RNAV)** means a method of navigation which permits aircraft operation on any desired flight path within the coverage of ground or space based navigation aids or within the limits of the capability of self-contained aids, or a combination of these.
- e) **Air Traffic Services Airspaces** means airspaces of defined dimensions, alphabetically designated, within which specific types of flights may operate and for which air traffic services and rules of operation are specified.

2.a) State the four services provided by Entebbe Area Control centre.

2marks

b) What services are provided outside both controlled and advisory airspaces?

1mark

c) How is longitudinal separation established?

3marks

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

4marks

2.a)

- Air Traffic Control Services
- Flight Information Services
- Air Traffic advisory services
- Alerting Services

2.b) Flight Information Service and Alerting services.

2.c) By requiring aircraft to;

- i) Depart at specified time or
- ii) To arrive over a geographical location at a specified time or
- iii) Hold over a geographical location until a specified time.

2.d)

- i) 15 minutes while vertical separation does not exist
- ii) 10 minutes while vertical separation does not exist, provided that such separation is authorized only where ground – based navigation aids or GNSS permit frequent determination of position and speed.
- iii) 5 minutes while vertical separation does not exist, provided that:
 - 1) The level change is commenced within 10 minutes of the time the second aircraft has reported over a common point which must be derived from ground – based navigation aids or by GNSS; and
 - 2) When issuing the clearance through third party communication or CPDLC, a restriction shall be added to the clearance to ensure that the 10-minute condition is satisfied.

3. a) What does SIGMET information mean?

2mark

b) As an ACC ATMO, when do you issue an onward clearance?

1mark

c) What conditions apply to the clearance in b (i) above?

2marks

d) A VFR flight from Kisoro to Entebbe reports encountering adverse meteorological conditions. As the Area controller on duty, what pertinent information should you request from the pilot that will enable you provide assistance to the aircraft?

5marks

3. a) SIGMET information means information issued by a meteorological watch office concerning the occurrence or expected occurrence of specified en-route weather and other phenomena in the atmosphere that may affect the safety of aircraft operations.

b) When an aircraft is instructed to hold en-route.

c) 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.

d)

- 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) Fuel Endurance

4. a) What is meant by the expression strayed aircraft?

2marks

b) Detail the cause of action to be taken by an ATSU when it becomes aware of a strayed aircraft in order to assist and safe guard its flight?

8marks

4. a) A strayed aircraft is one which has significantly deviated from its intended track or which reports that it is lost.

4. 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

- i) Advise the aircraft of its position, and corrective action to be taken.
- ii) Advise, as necessary, other ATC and military units.

5. (a) What do you understand by the term "aircraft proximity"? 2marks

(b) Name and describe the four (4) classifications of aircraft proximity. 8marks

5.a) 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.

5.b) An aircraft proximity is classified as follows:

- (i) Risk of collision: The risk classification of an aircraft proximity in which serious risk of collision has existed
- (ii) Safety not assured: The risk classification of an aircraft proximity in which the safety of aircraft may have been compromised
- (iii) No risk of collision: The risk classification of an aircraft proximity in which no risk of collision has existed
- (iv) Risk not determined: The risk classification of an aircraft proximity in which insufficient information was available to determine the risk involved or inconclusive or conflicting evidence precluded such determination.

6. a) Define the following terms:

- i) Controlled Airspace
- ii) Significant Point

4marks

b) When applying vertical separation during climb or descent, when may the clearance of the second aircraft to a level be withheld even after the first aircraft has reported vacating the level? 3marks

c) For how long will such clearance in part (b) above be withheld? 1mark

d) When shall time for take-off be specified by the Area controller to either the Approach or the Aerodrome controller? 2marks

6 a) (i) Controlled Airspace means an airspace of defined dimensions within which air traffic control service is provided in accordance with the airspace classification

(ii) Significant Point means a specified geographical location used in defining an ATS route or the flight path of an aircraft and for other navigation and ATS purposes.

b) When,

(i) Severe turbulence is known to exist

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

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

(c) Until the aircraft vacating the level has reported at or passing another level separated by the required minimum

(d)

- i) when it is necessary to coordinate the departure with traffic not released to the unit providing approach control service and;
- ii) To provide En-route separation between departing aircraft following same route

7. a) Define Flight Information Service (FIS). 1mark

b) Which aircraft are provided with FIS? 2marks

c) What is the scope of FIS? 7marks

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

b) FIS shall be provided to all aircraft which are likely to be affected by the information which are

- i) provided with air traffic control services; or
- ii) Otherwise known to the relevant air traffic control 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;
- Any other information likely to affect safety.

8. a) Define Controlled Airspace 1mark

b) According to ICAO Doc 4444, which units can provide Area Control Service? 2marks

c) When shall the responsibility for the control of an Aircraft be transferred from a unit providing Area control service in a control Area to the unit providing Area control service in an adjacent control area? 2marks

d) You are the Area controller on duty at Entebbe ACC and you have FDS01 C550 on UL433 from HKJK to FEFF at FL380 estimating ALKON 0936Z, NN at 0951Z with a speed of 360kts and KQA532 B788 on UL433 from HKJK to DNMM at FL380 estimating ALKON 0952Z with a speed of 480kts. Calculate the time at which the longitudinal separation between the two flights will be reduced to 10 minutes. 5marks

8. a) Controlled Airspace means airspace of defined dimensions within which air traffic control service is provided in accordance with the airspace classification.

b) Area control service shall be provided:

- i) by an Area control centre (ACC); or
- ii) by the unit providing approach control service in a control zone or in a control area of limited extent which is designated primarily for the provision of Approach control service, when no ACC is established.

c) The responsibility for the control of an aircraft shall be transferred from one Area control unit to the adjacent Area control unit at the time of crossing the common control area boundary as estimated by the ACC having control of the aircraft or at such other point or level or time as has been agreed between the two units.



d)

$$\frac{\text{Difference in Groud speed}}{\text{Ground speed of faster Aircraft}} = \frac{\text{Time difference at Reporting point} - \text{Required Speration in minutes}}{x}$$

The Value of x to be added to the time of slower aircraft over the Reporting point gives the time at which minimum separation is provided.

Required Separation = 10 Minutes

Time difference at reporting point: 0952Z – 0936Z = 16 minutes

$$\frac{480 - 360}{480} = \frac{16 - 10}{x}$$

$$\frac{120}{480} = \frac{6}{x}$$

$$\frac{1}{4} = \frac{6}{x}$$

$$x = 6 \times 4$$

$$x = 24 \text{ minutes}$$

Slower Aircraft Estimates Reporting Point at 0936Z,

So we add 24minutes to 0936Z which gives 1000Z

Therefore, separation between the two flights will be reduced to 10minutes at 1000Z.

9. a) Define the term "Change over point". 1mark
- b) What do you understand by the term coordination? 1mark
- c) State the methods by which coordination may be achieved. 3marks
- d) When shall the complete process of coordination that must precede transfer of control be achieved? 3marks
- e) When shall an aircraft be cleared for the entire route to the aerodrome of first intended landing? 2marks
9. 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) Coordination is the act of negotiation between two or more partners each vested with authority to make decisions appropriate to the task being discharged.
- c)
- i) Direct negotiation and agreement for individual flights
 - ii) Standing agreements, letter of procedure between two or more ATC units
 - iii) Use of permanent procedures agreed between national aviation authorities.

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

- i) Notification, negotiation and agreement has taken place progressively;
- ii) It has been agreed that aircraft can proceed under specified conditions without the need for individual co-ordination
- iii) An estimate message has been passed and no objection has been raised by the accepting ACC unit.

e)

- 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.

10. a) Define the term Waypoint.

1mark

10. b) State the contents of an aircraft position report.

3marks

10. c) State the longitudinal separation minima based on distance using DME and/or GNSS for aircraft climbing or descending on the same track.

6marks

10. a) a specified geographical location used to define an Area Navigation route or the flight path of an aircraft employing Area Navigation.

10. b)

- i) Aircraft identification
- ii) Position
- iii) Time
- iv) Flight level or altitude, including passing level and cleared level if not maintaining
- v) Next position and time over; and
- vi) Ensuing significant point

10. c) The longitudinal separation for aircraft climbing or descending on the same track shall be 10NM while vertical separation does not exist provided:

- a) Each aircraft utilizes:
 - i) The same "on – track" DME station when both aircraft are utilizing DME; or
 - ii) An "on – track" DME station and a collocated waypoint when one aircraft is utilizing DME and the other is utilizing GNSS; or
 - iii) The same waypoint when both aircraft are utilizing GNSS; and
- b) One aircraft maintains a level while vertical separation does not exist; and
- c) Separation is established by obtaining simultaneous DME and/or GNSS readings from the aircraft.

END