THESIS FOR CONDITIONS A CREDIT AND EXAMINATION

Subject: Aviation Regulations

Basic information / taks:

- you are expected to preprare and submit three semestral papers (*one primary and two secondary*);
- you could choose topics for your semesteral papers during our first lesson (***if you missed first lesson, the topic of the semestral papers was designed for you by lecturer***);
- you can find title of your semestral papers in the following text (*it is possible to use shortcut by list*);
- first select one topic for primary semestral paper and two others topis for secondary semestral papers (*the choise is free*);
- all topics are divided into three groups and each paper have to be submited to a exact deadline according to which group it belongs to;
- it is necessary to submit semestral papers on time (*dates are listen in folloning text of this document*);
- scope of processing of each kind of semestral papers (primary and secondary) and evaluation method of them you can found at following text of this document or in the presentation from first lesson (https://tezaurus.pageride.com/en/subjects/aviation-regulations/).

Instructions for elaborating and submitting papers:

Working group:

*each student elaborates two + one semester papers – **on this own***

Form of submission:

electronic form on USB or CD

Form of processing:

*application **MS Word 2007/2010***

Form of elaborating:

ESSAY

Scope of processing:

main semester paper:	*27.000 - 36.000 characters (15-20 pages)*
secondary semester papers:	*9.000 - 18.000 characters (5-10 pages)*

Graphic processing:

- https://portal.lib.tuke.sk/etd/templates/tuke_word2007_en.docx

Tips, how to write essay:

- https://writingcenter.fas.harvard.edu/pages/essay-structure
- https://writingcenter.fas.harvard.edu/pages/strategies-essay-writing
- https://www.fastweb.com/student-life/articles/essay-tips-7-tips-on-writing-an-effective-essay
- https://www.internationalstudent.com/essay_writing/essay_tips/

Date of submission:

1st. group of topics	*(topics 01-30)*	*up to 20-MAR-2020*
2nd. group of topics	*(topics 31-60)*	*up to 17-APR-2020*
3rd. group of topics	*(topics 31-60)*	*up to 15-MAY-2020*

Name of file:

FS_three-digit Number of topic_Surname_First Name

*(**FS_001_Klír_Robert.docx**)*

List of students:

STUDENT		Number of topics		
SURNAME	NAME	1st. grop	2nd. group	3rd. group
Alexan Jose	Praisan Lino	10	40	70
Anand Abeson Daniel	Rakesh Daniel	7	37	67
Anil	Akhil	20	50	80
Anil	Ofvin	0	49	79
Binu	Bipin	8	38	68
Francis	Austin	22	52	82
Jayakumar Sandhya	Gayathri Nair	1	31	61
Jose	Kevin	2	32	62
Jose Abraham	Hruthikh	4	34	64
Mir	Sibgatullah	14	44	74
Mohan	Kiran	3	33	63
Muhammed	Riyas	9	39	69
Muthirikkulam	Mohammed Shibili	21	51	81
Nizar	Anas	6	36	66
Pious	Jaison	13	43	73
Shaikh	Mohd Manaour Riyaz	11	41	71
Suseelkumar	Akhil	5	35	65
Varghese	Libi	12	42	72
Vettolil	Richu Raju	18	48	78
Habeeb Muhammed	Haris Muhammed	25	55	85
Jose Fernz	Jerry	15	45	75
Madhusoodhanan Sindhu	Vaishnavi	16	46	76
Manikandan Nair	Balu	17	47	77
Patil	Tanishq Vikas	24	54	84
Raj	Amal	23	53	83
Sam	Grevin	26	56	86
Sheelan	Lakhan	27	57	87
Sunil Kumar	Sarang	29	59	89
Thankaraj Rajani	Sandeep	28	58	88

Topics, objectives and sources:

1. The Convention on International Civil Aviation (Chicago) — ICAO Doc 7300/9 and Convention on the High Seas (Geneva, 29 April 1958)

- The establishment of the Convention on International Civil Aviation, Chicago, 7 December 1944
- Explain the circumstances that led to the establishment of the Convention on International Civil Aviation, Chicago, 7 December 1944.

Source: ICAO Doc 7300/9 Preamble
Convention on the High Seas (Geneva, 29 April 1958)

2. Air navigation

- Recall the general contents of relevant parts of the following chapters:
  - general principles and application of the Convention;
  - flight over territory of Contracting States;
  - nationality of aircraft;
  - international standards and recommended practices (SARPs), especially notification of differences and validity of endorsed certificates and licences.
- Describe the application of the following terms in civil aviation:
  - sovereignty;
  - territory and high seas according to the UN Convention on the High Seas.

Source: ICAO Doc 7300/9 Part 1, Articles 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 16, 17, 18, 19, 20, 37, 38, 39, 40
Convention on the High Seas (Geneva, 29 April 1958) Articles 1, 2

3. Air navigation

- Explain the following terms and how they apply to international air traffic:
  - right of non-scheduled flight (including the two technical freedoms of the air);
  - scheduled air services;
  - cabotage;
  - landing at customs airports;
  - Rules of the Air;
  - search of aircraft.
- Explain the duties of Contracting States in relation to:
  - documents carried on board the aircraft:
  - certificate of registration;
  - certificates of airworthiness;
  - licences of personnel;
  - recognition of certificates and licences;
  - cargo restrictions;
  - photographic apparatus.

Source: ICAO Doc 7300/9, Articles 5, 6, 7, 10, 12, 16, 29, 31, 32, 33, 35, 36

4. The International Civil Aviation Organization (ICAO)

- Describe the objectives of ICAO.
- Recognise the organisation and duties of the ICAO Assembly, Council and Air Navigation Commission (ANC).
- Describe the annexes to the Convention.

Source: ICAO Doc 7300/9, Article 44

5. The International Air Services Transit Agreement (ICAO Doc 7500)

- Explain the two technical freedoms of the air.
- Explain the three commercial freedoms of the air.

Source: ICAO Doc 7500; ICAO Doc 9626

6. Suppression of Unlawful Acts Against the Safety of Civil Aviation — The Tokyo Convention of 1963

- Describe the measures and actions to be taken by the pilot-in- command (PIC) of an aircraft in order to suppress unlawful acts against the safety of the aircraft.

Source: ICAO Doc 8364 — Convention on Offences and Certain Other Acts Committed on Board Aircraft, signed in Tokyo on 14 September 1963

7. Private international law

- Explain the legal significance of the issue of a passenger ticket or of baggage/cargo documents (that the issue is a form of contract).
- Describe the consequences for an airline or the PIC when a document of carriage is not issued (that the contract is unaffected).
- Explain the consequences for an airline operator of Regulation (EC) No 261/2004 on passenger rights in the event of delay, cancellation or denial of boarding.
- Explain the liability limit in relation to destruction, loss, damage or delay of baggage.

Source: ICAO Doc 9740 Convention for the Unification of Certain Rules for International Carriage — The Montreal Convention of 1999;
Regulation (EC) No 261/2004

8. The International Air Transport Association (IATA)

- Describe the objectives of IATA

Source: http://www.iata.org/about/pages/mission.aspx

9. European Aviation Safety Agency (EASA)

- Describe the objectives of EASA.
- Describe the role of EASA in European civil aviation.
- State that the structure of the regulatory material related to EASA involves:
  - hard law (regulations, implementing rules);
  - soft law (certification specifications, acceptable means of compliance, guidance material).
- State the meaning of the terminology associated with the EASA regulations' structure, specifically:
  - regulations;
  - implementing rules;
  - certification specifications;
  - acceptable means of compliance;
  - guidance material.

Source: Regulation (EC) No 216/2008;
www.easa.eu

10. EUROCONTROL

- Describe the Single European Sky (SES) regulations.

Source: www.eurocontrol.int
www.eurocontrol.int/prudata/dashboard/about/

11. Certificate of Airworthiness (CofA)

- State the issuing authority of a CofA.
- State the necessity to hold a CofA.
- Explain the prerequisites for the issue of a CofA according to Commission Regulation (EU) No 748/2012.
- State who shall determine an aircraft's continuing airworthiness.
- Describe how a CofA can be renewed or may remain valid.

Source: ICAO Annex 8, Chapter 3.2; Chapter 3.5; Chapter 3.6
ICAO Doc 7300, Article 31
Commission Regulation (EU) No 748/2012, SUBPART H

12. ICAO Annex 7 — Aircraft Nationality and Registration Marks

- Recall the definition of the following terms:
  - aircraft;
  - heavier-than-air aircraft;
  - State of Registry.
- Nationality marks, common marks and registration marks — assignment and location
- State the location of nationality marks, common marks and registration marks.
- Explain who is responsible for assigning nationality marks, common marks and registration marks.

Source: ICAO Annex 7, Chapter 1 Definitions; Chapter 3 Nationality, common and registration marks to be used; Chapter 4.3 Heavier-than-air aircraft; Chapter 9 Identification plate

13. Differences between ICAO Annex 1 and Regulation (EU) No 1178/2011 (hereinafter: Aircrew Regulation)

- Describe the relationship and differences between ICAO Annex 1 and the Aircrew Regulation.

Source: Aircrew Regulation

14. Aircrew Regulation — Annex I (Part-FCL)

- Define the following: Category, class and type of aircraft, cross-country, dual instruction time, flight time, student pilot-in-command (SPIC), instrument time, instrument flight time, instrument ground time, night, private pilot, proficiency check, renewal, revalidation, skill test, solo flight time.
- Define the following: multi-crew cooperation (MCC), multi-pilot aircraft, rating.

Source: Aircrew Regulation, point FCL.010 Definitions; Note: 'rating' is defined in Article 3 of Regulation (EC) No 216/2008

15. Content and structure of Aircrew Regulation

- Explain the structure of Part-FCL.
- Explain the requirements to act as a flight crew member of a civil aircraft registered in a Member State, and know the general principles of the licensing system (light aircraft pilot licence (LAPL), private pilot licence (PPL), commercial pilot licence (CPL), multi-crew pilot licence (MPL), airline transport pilot licence (ATPL)).

Source: Aircrew Regulation, Article 1 Subject mater
Regulation (EC) No 216/2008, Article 7;
Aircrew Regulation

16. Content and structure of Aircrew Regulation

- List the two factors that are relevant to the exercise of the privileges of a licence.
- State the circumstances in which a language proficiency endorsement is required.
- List the restrictions for licence holders with an age of 60 years or more.
- Explain the term ‘competent authority’.
- Describe the obligation to carry and present documents (e.g. a flight crew licence) under Part-FCL.

Source: Aircrew Regulation, point FCL.040 Exercise of the privileges of licences; point FCL.055 Language proficiency; point FCL.065 Curtailment of privileges of licence holders aged 60 years or more in commercial air transport; point FCL.001 Competent authority; point FCL.045 Obligation to carry and present documents

17. Commercial pilot licence (CPL)

- State the requirements for the issue of a CPL.
- State the privileges of a CPL. Source: Aircrew Regulation, point FCL.305 CPL — Privileges and conditions

Source: Aircrew Regulation point FCL.300 CPL — Minimum age; Appendix 3, D. CPL integrated course — Aeroplanes, Flying Training (8, a–f); Appendix 3, E. CPL modular course — Aeroplanes, Experience (12, a–d)

18. Airline transport pilot licence (ATPL) and multi-crew pilot licence (MPL)

- State the requirements for the issue of an ATPL.
- State the privileges of an ATPL.
- State the requirements for the issue of an MPL.
- State the privileges of an MPL.

Source: Aircrew Regulation, point FCL.500 ATPL — Minimum age; Aircrew Regulation, point FCL.510.A ATPL(A) — Prerequisites, experience and crediting ((a) and (b)); Aircrew Regulation, point FCL.510.H ATPL(H) — Prerequisites, experience and crediting; Aircrew Regulation, point FCL.505 ATPL — Privileges;
Aircrew Regulation, point FCL.400.A MPL — Minimum age;
Aircrew Regulation, point FCL.410.A MPL — Training course and theoretical knowledge examinations and Appendix 5 (items 1 to 8);
Aircrew Regulation, point FCL.405.A MPL — Privileges

19. Ratings

- State the requirements for class ratings, their validity and privileges.
- State the requirements for type ratings, their validity and privileges.
- State the requirements for instrument ratings, their validity and privileges (instrument rating (IR), competency-based instrument rating (CB-IR) and en-route instrument rating (EIR)).
- State the requirements for other ratings, their validity and privileges according to Part-FCL.

Source: Aircrew Regulation, point FCL.740 Validity and renewal of class and type ratings; Aircrew Regulation, point FCL.705 Privileges of the holder of a class or type rating; Aircrew Regulation, point FCL.720.A Experience requirements and prerequisites for the issue of class or type ratings — aeroplanes;
Aircrew Regulation, point FCL.610 IR — Prerequisites and crediting; Aircrew Regulation, point FCL.605 IR — Privileges; Aircrew Regulation, point FCL.625 IR — Validity, revalidation and renewal;
Aircrew Regulation, point FCL.800 Aerobatic rating; Aircrew Regulation, point FCL.805 Sailplane towing and banner towing ratings; Aircrew Regulation, point FCL.810 Night rating; Aircrew Regulation, point FCL.815 Mountain rating; Aircrew Regulation, point FCL.820 Flight test rating.

20. Aircrew Regulation — Annex IV (Part-MED)

- Describe the relevant content of Part-MED — Medical requirements (administrative parts and requirements related to licensing only).
- State the requirements for the issue of a medical certificate.
- Name the class of medical certificate required when exercising the privileges of a CPL, MPL or ATPL.
- State the actions to be taken in case of a decrease in medical fitness.

Source: Aircrew Regulation, point MED.A.001 Competent authority; Aircrew Regulation, point MED.A.005 Scope; Aircrew Regulation, point MED.A.045 Validity, revalidation and renewal of medical certificates;
Aircrew Regulation, point MED.A.040 Issue, revalidation and renewal of medical certificates;
Aircrew Regulation, point MED.A.030 Medical certificates;
Aircrew Regulation, point MED.A.020 Decrease in medical fitness

21. Overview of ICAO Annex 2 and SERA (Commission Implementing Regulation (EU) No 923/2012 and its references and subsequent amendments)

- Explain the scope and purpose of ICAO Annex 2.
- Explain the scope and main content of SERA.

Source: ICAO Annex 2, Foreword, Applicability; SERA, Article 1 Subject matter and scope

22. Applicability of the Rules of the Air

- Explain the principle of territorial application of the various Rules of the Air, e.g. ICAO, SERA, national rules. Source: ICAO Annex 2, Chapter 2, 2.1 Territorial application of the rules of the air; SERA.1001 and SERA.2001
- Explain the necessity to comply with the Rules of the Air.
- State the responsibilities of the PIC.
- Identify under what circumstances departure from the Rules of the Air may be allowed.
- Explain the duties of the PIC concerning pre-flight actions in case of an instrument flight rule (IFR) flight.
- State that the PIC of an aircraft has final authority as to the disposition of the aircraft while in command.
- Explain when the use of psychoactive substances, taking into consideration their effects, by flight crew members is prohibited.

Source: SERA.2005 Compliance with the rules of the air;
SERA.2010 Responsibilities;
SERA.2015 Authority of pilot-in-command of an aircraft;
SERA.2020 Problematic use of psychoactive substances

23. General rules — Collision avoidance — SERA

- Describe the rules for the avoidance of collisions.
- Describe the lights, including their angles, to be displayed by aircraft.
- Interpret marshalling signals.
- State the basic requirements for minimum height (HGT) for the flight over congested areas of cities, towns or settlements, or over an open-air assembly of persons.
- Define when the cruising levels shall be expressed in terms of flight levels (FLs).
- Define under what circumstances cruising levels shall be expressed in terms of altitude (ALT).
- Explain the limitation for proximity to other aircraft and the right-of-way rules, including holding at runway (RWY) holding positions and lighted stop bars.

Source: SERA Chapter 2 Avoidance of collisions (except water operations);
SERA.3215 Lights to be displayed by aircraft; ICAO Annex 2, Chapter 3, 3.2.3; ICAO Annex 6, Part I, Chapter 6, 6.10 and Appendix 1; and ICAO Annex 6, Part III, Chapter 4, 4.42.; SERA Appendix 1, Chapter 4 Marshalling signals; SERA.3105 Minimum heights; SERA.3110 Cruising levels; SERA.3205 Proximity; SERA.3210 Right-of-way

24. General rules — Collision avoidance — SERA

- Describe the meaning of light signals displayed to aircraft and by aircraft.
- Describe the requirements when carrying out simulated instrument flights.
- Explain the basic rules for an aircraft operating on and in the vicinity of an aerodrome (AD).
- Explain the requirements for the submission of an air traffic service (ATS) flight plan.
- Explain the actions to be taken in case of flight plan change or delay.
- State the actions to be taken in case of inadvertent changes to track, true airspeed (TAS) and time estimate affecting the current flight plan.
- Explain the procedures for closing a flight plan.

Source: SERA.3215 Lights to be displayed by aircraft; SERA, Appendix 1, Chapter 3 Signals for aerodrome traffic; SERA.3220 Simulated instrument flights;
SERA.3225 Operation on and in the vicinity of an aerodrome;
SERA.4001 Submission of a flight plan; SERA.4015 Changes to a flight plan; SERA.8020 Adherence to flight plan; Source: SERA.4020 Closing a flight plan

25. General rules — Collision avoidance — SERA

- State for which flights an air traffic control (ATC) clearance shall be obtained.
- State how a pilot may request ATC clearance.
- State the action to be taken if an ATC clearance is not satisfactory to a PIC.
- Describe the required actions to be carried out if the continuation of a controlled visual flight rule (VFR) flight in visual meteorological conditions (VMC) is not practicable any more.
- Describe the provisions for transmitting a position report to the appropriate ATS unit including time of transmission and normal content of the message.
- Describe the necessary action when an aircraft experiences a communication (COM) failure.
- State what information an aircraft being subjected to unlawful interference shall give to the appropriate ATS unit.

Source: SERA.11001 Unlawful interference; SERA.8015 Air traffic control clearances; SERA.8020 Adherence to flight plan; SERA.8025 Position reports;
SERA.8035 Communications

26. Visual flight rules (VFR) and Instrument flight rules (IFR)

- Describe the VFR as contained in Commission Implementing Regulation (EU) No 923/2012.
- Describe the IFR as contained in Commission Implementing Regulation (EU) No 923/2012.

Source: SERA.5001 VMC visibility and distance from cloud minima; SERA.5005 Visual flight rules; SERA.5010 Special VFR in control zones;
SERA.5015 Instrument flight rules (IFR) - Rules applicable to all IFR flights; SERA.5020 IFR - Rules applicable to IFR flights within controlled airspace; SERA.5025 IFR - Rules applicable to IFR flights outside controlled airspace

27. Interception of civil aircraft

- List the possible reasons for intercepting a civil aircraft.
- State what primary action should be carried out by an intercepted aircraft.
- State which frequency should primarily be tried in order to contact an intercepting aircraft.
- State on which mode and code a transponder on board the intercepted aircraft should be operated.
- Recall the interception signals and phrases.

Source: SERA.11015 Interception, Tables S11-1, S11-2, S11-3

28. Definitions and abbreviations (PANS-OPS Flight Procedures, ICAO Doc 8168, Volume I)

- Recall all definitions included in ICAO Doc 8168, Volume I, Part I, Section 1, Chapter 1.
- Interpret all abbreviations and acronyms as shown in ICAO Doc 8168, Volume I, Part I, Section 1, Chapter 2.

Source: ICAO Doc 8168, Volume I, Part I, Section 1, Chapter 1 and Chapter 2

29. Departure procedures — (ICAO Doc 8168, Volume I)

- State the factors dictating the design of instrument departure procedures.
- Explain in which situations the criteria for omnidirectional departures are applied.
- Explain the terms ‘straight departure’ and ‘turning departure’.
- Explain when the ‘omnidirectional method’ is used for departure.

Source: ICAO Doc 8168, Volume I, Part I, Section 2, Chapter 1, 1.1 General; Section 3, Chapter 1, 1.3 Instrument departure procedure: 1.3.1; 1.3.2; 1.3.3; Section 3, Chapter 2, 2.1 General; 2.2 Straight Departures; 2.3 Turning (excluding maximum speeds)

30. Approach procedures — (ICAO Doc 8168, Volume I)

- State the general criteria (except ‘Speeds for procedure calculations’) of the approach procedure design:
  - instrument approach areas;
  - accuracy of fixes;
  - fixes formed by intersections;
  - intersection fix-tolerance factors;
  - other fix-tolerance factors;
  - descent gradient.
- Name the five possible segments of an instrument approach procedure.
- State the reasons for establishing aircraft categories for the approach.
- State the maximum angle between the final approach track and the extended RWY centre line to still consider a non-precision approach as being a ‘straight-in approach’.

Source: ICAO Doc 8168, Volume I, Part I, Section 4, Chapter 1, 1.2.2 Segments of the approach procedure

31. Approach procedures — (ICAO Doc 8168, Volume I)

- State the minimum obstacle clearance (MOC) provided by the minimum sector altitudes (MSAs) established for an aerodrome.
- State that a pilot shall apply wind corrections when carrying out an instrument approach procedure.
- State the most significant factor influencing the conduct of instrument approach procedures.
- Explain why a pilot should not descend below obstacle clearance altitude/height (OCA/H), which are established for:
  - precision approach procedures;
  - non-precision approach procedures;
  - visual (circling) procedures;
  - APV approach procedures.
- Describe in general terms the relevant factors for the calculation of operational minima.
- State the following acronyms in plain language: DA, DH, OCA, OCH, MDA, MDH, MOC, DA/H, OCA/H, MDA/H. Source: ICAO Doc 8168, Volume I, Part I, Section 4, Chapter 1
- Explain the relationship between the terms: DA, DH, OCA, OCH, MDA, MDH, MOC, DA/H, OCA/H, and MDA/H.

Source: ICAO Doc 8168, Volume I, Part I, Section 4, Chapter 1, 1.5 Obstacle clearance altitude/height (OCA/H); 1.6 Factors affecting operational minima; Chapter 2, 12.3 Minimum sector altitudes (MSA)/terminal arrival altitudes (TAA)

32. Approach procedure design

- Describe how the vertical cross section for each of the five approach segments is broken down into the various areas.
- State within which area of the cross section the minimum obstacle clearance (MOC) is provided for the whole width of the area.
- Define the terms ‘IAF’, ‘IF’, ‘FAF’, ‘FAP’, ‘MAPt’ and ‘TP’.
- State the accuracy of facilities providing track (VHF omnidirectional radio range (VOR), instrument landing system (ILS), non-directional beacon (NDB)).
- State the optimum descent gradient (preferred for a precision approach) in degrees and per cent.

Source: ICAO Doc 8168, Volume I, Part I, Section 1 Definitions, abbreviations and acronyms and units of measurement; Section 2, Chapter 2, Table I-2-2-1. System use accuracy (2 SD) of facility providing track guidance and facility not providing track guidance; Section 4, Chapter 1, 1.9 Descent gradient; Chapter 2

33. Arrival and approach segments

- Name the five standard segments of an instrument approach procedure, and state the beginning and end for each of them.
- Describe where an arrival route normally ends.
- State the main task of the initial approach segment.
- Describe the maximum angle of interception between the initial approach segment and the intermediate approach segment (provided at the intermediate fix) for a precision approach and a non-precision approach.
- Describe the main task of the intermediate approach segment.
- State the main task of the final approach segment.
- Name the two possible aims of a final approach.
- Explain the term 'final approach point' in case of an ILS approach.
- State what happens if an ILS glide path (GP) becomes inoperative during the approach.

Source: ICAO Doc 8168, Volume I, Part I, Section 4, Chapter 1, 1.2 Instrument approach procedure; Chapter 2 Arrival segment; Chapter 3 Initial approach segment; Chapter 4 Intermediate approach segment; Chapter 5 Final approach segment

34. Missed approach

- Name the three phases of a missed approach procedure and describe their geometric limits.
- State the main task of a missed approach procedure.
- Define the term 'missed approach point (MAPt)'.
- Describe how an MAPt may be established in an approach procedure.
- State the pilot's action if, upon reaching the MAPt, the required visual reference is not established.
- Describe what a pilot is expected to do in the event a missed approach is initiated prior to arriving at the MAPt.
- State whether the pilot is obliged to cross the MAPt at the height (HGT)/altitude (ALT) required by the procedure or whether they are allowed to cross the MAPt at a HGT/ALT greater than that required by the procedure.

Source: ICAO Doc 8168, Volume I, Part I, Section 1 Definitions, abbreviations and acronyms and units of measurement; Section 4, Chapter 6 Missed approach segment

35. Visual manoeuvring (circling) in the vicinity of the aerodrome (AD)

- Describe what is meant by 'visual manoeuvring (circling)'.
- Describe how a prominent obstacle in the visual manoeuvring (circling) area outside the final approach and missed approach area has to be considered for the visual circling.
- State for which category of aircraft the obstacle clearance altitude/height (OCA/H) within an established visual manoeuvring (circling) area is determined.
- Describe how the minimum descent altitude/height (MDA/H) is specified for visual manoeuvring (circling) if the OCA/H is known.
- State the conditions to be fulfilled before descending below MDA/H in a visual manoeuvring (circling) approach.
- Explain why there can be no single procedure designed that will cater for conducting a circling approach in every situation.
- State how the pilot is expected to act after initial visual contact during a visual manoeuvring (circling).
- Describe what the pilot is expected to do if visual reference is lost while circling to land from an instrument approach.

Source: ICAO Doc 8168, Volume I, Part I, Section 4, Chapter 7 Visual manoeuvring (circling) area

36. RNAV approach procedures based on VOR/distance-measuring equipment (DME)

- Describe the provisions that must be fulfilled before carrying out VOR/DME RNAV approaches.
- Explain the disadvantages of the VOR/DME RNAV system compared to a DME/DME RNAV approach.
- List the factors the navigational accuracy of the VOR/DME RNAV system depends on.
- State whether the VOR/DME RNAV approach is a precision or a non-precision procedure.

Source: ICAO Doc 8168, Volume I, Part II, Section 3, Chapter 3

37. Holding procedures — (ICAO Doc 8168, Volume I)

- Explain why deviations from the in-flight procedures of a holding established in accordance with ICAO Doc 8168 are dangerous.
- State that if for any reason a pilot is unable to conform to the procedures for normal conditions laid down for any particular holding pattern, this pilot should advise ATC as early as possible.
- Describe the shape and terminology associated with the holding pattern.
- State the bank angle and rate of turn to be used whilst flying in a holding pattern.
- Explain why a pilot in a holding pattern should attempt to maintain tracks and how this can be achieved.

Source: ICAO Doc 8168, Volume I, Part I, Section 6, Chapter 1

38. Holding procedures — (ICAO Doc 8168, Volume I)

- Describe where outbound timing begins in a holding pattern.
- State where the outbound leg in a holding terminates if the outbound leg is based on DME.
- Describe the three heading entry sectors for entries into a holding pattern.
- Describe the terms ‘parallel entry’, ‘offset entry’ and ‘direct entry’.
- Determine the correct entry procedure for a given holding pattern.
- State the still-air time for flying the outbound entry heading with or without DME.
- Describe what the pilot is expected to do when clearance is received specifying the time of departure from the holding point.

Source: ICAO Doc 8168, Volume I, Part I, Section 6, Chapter 1

39. Obstacle clearance

- Describe the layout of the basic holding area, entry area and buffer area of a holding pattern.
- State which obstacle clearance is provided by a minimum permissible holding level referring to the holding area, the buffer area (general only) and over high terrain or in mountainous areas.

Source: ICAO Doc 8168, Volume I, Part I, Section 6, Chapter 2

40. Altimeter-setting procedures — (ICAO Doc 8168, Volume I)

- Describe the two main objectives of altimeter settings.
- Define the terms ‘QNH’ and ‘QFE’.
- Describe the different terms for ALT or flight levels (FLs) respectively, which are the references during climb or descent to change the altimeter settings from QNH to 1013.2 hPa and vice versa.
- Define the term ‘flight level (FL)’.
- State where FL zero shall be located.
- State the interval by which consecutive FLs shall be separated.
- Describe how FLs are defined.
- Define the term ‘transition altitude (TA)’.
- State how TAs shall normally be specified.
- Explain how the HGT of the TA is calculated and expressed in practice.
- State where TAs shall be published.

Source: ICAO Doc 8168, Volume I, Part I, Section 1 Definitions, abbreviations and acronyms and units of measurement; Part III, Section 1, Chapter 1; Part III, Section 1, Chapter 2

41. Altimeter-setting procedures — (ICAO Doc 8168, Volume I)

- Define the term 'transition level (TRL)'.
- State when the TRL is normally passed on to the aircraft.
- State how the vertical position of the aircraft shall be expressed at or below the TA and TRL.
- Define the term 'transition layer'.
- Describe when the vertical position of an aircraft passing through the transition layer shall be expressed in terms of FLs and when in terms of ALT.
- State when the QNH altimeter setting shall be made available to departing aircraft.
- Explain when the vertical separation of an aircraft during en- route flight shall be assessed in terms of ALT and when in terms of FLs.
- Explain when, in air–ground communications during an en- route flight, the vertical position of an aircraft shall be expressed in terms of ALT and when in terms of FLs.
- Describe why QNH altimeter-setting reports should be provided from sufficient locations.
- State how a QNH altimeter setting shall be made available to aircraft approaching a controlled aerodrome (AD) for landing.
- State under which circumstances the vertical position of an aircraft above the TRL may be referenced in ALT.

Source: ICAO Doc 8168, Volume I, Part I, Section 1 Definitions, abbreviations and acronyms and units of measurement; Part III, Section 1, Chapter 2; Part III, Section 1, Chapter 3

42. Procedures for operators and pilots

- State on which setting at least one altimeter shall be set prior to take-off.
- State where during the climb the altimeter setting shall be changed from QNH to 1013.2 hPa.
- Describe when a pilot of an aircraft intending to land at an AD shall obtain the TRL.
- Describe when a pilot of an aircraft intending to land at an AD shall obtain the actual QNH altimeter setting.
- State where the altimeter settings shall be changed from 1013.2 hPa to QNH during descent for landing.

Source: ICAO Doc 8168, Volume I, Part III, Section 1, Chapter 3

43. Parallel or near-parallel instrument RWYs — (ICAO Doc 8168, Volume I)

- Describe the difference between independent and dependent parallel approaches.
- Describe the following different operations:
  - simultaneous instrument departures;
  - segregated parallel approaches/departures;
  - semi-mixed and mixed operations.
- Describe the terms 'normal operating zone (NOZ)' and 'no transgression zone (NTZ)'.
- State the aircraft avionics requirements for conducting parallel instrument approaches.
- State where guidance material may be located for simultaneous operations on parallel or near-parallel instrument runways.
- State the radar requirements for simultaneous, independent, and parallel instrument approaches, and how weather conditions effect these.
- State the maximum angle of interception for an ILS localiser course (CRS) or microwave landing system (MLS) final approach track in case of simultaneous, independent, and parallel instrument approaches.
- Describe the special conditions for tracks on missed approach procedures and departures in case of simultaneous or parallel operations.

Source: ICAO Doc 8168, Volume I, Part III, Section 2, Chapter 1, 1.4

44. Operation of transponders

- State when and where the pilot shall operate the transponder.
- State the modes and codes that the pilot shall operate in the absence of any ATC directions or regional air navigation agreements.
- State when the pilot shall operate Mode C.
- State when the pilot shall 'SQUAWK IDENT'.
- State the transponder code to indicate:
  - a state of emergency;
  - a COM failure;
  - unlawful interference.
- Describe the consequences of a transponder failure in flight.
- State the primary action of the pilot in the case of an unserviceable transponder before departure when no repair or replacement at the given AD is possible.
- State when the pilot shall operate Mode S.

Source: ICAO Doc 8168, Volume I, Part III, Section 3, Chapter 1

45. Operation of airborne collision avoidance system (ACAS) equipment

- Describe the main reason for using ACAS.
- State whether the 'use of ACAS indications' described in ICAO Doc 8168 is absolutely mandatory.
- Explain the pilots' reaction required to allow ACAS to fulfil its role of assisting pilots in the avoidance of potential collisions.
- Explain why pilots shall not manoeuvre their aircraft in response to traffic advisories (TAs) only.
- Explain the significance of TAs in view of possible resolution advisories (RAs).
- State why a pilot should follow RAs immediately.
- List the reasons which may force a pilot to disregard an RA.
- Explain the importance of instructing ATC immediately that an RA has been followed.
- Explain the duties of a pilot with regard to ATC when an RA situation is resolved.

Source: ICAO Doc 8168, Volume I, Part III, Section 3, Chapter 3, 3.1 ACAS overview; 3.2 Use of ACAS indications

46. REGULATION (EU) No 965/2012 ON AIR OPERATIONS

- Describe the subject matter and scope of that Regulation.
- State that Regulation (EU) No 965/2012 covers all types of commercial and non-commercial operations.
- Recall the definitions in the Regulation not already given in ICAO PAN-OPS.
- Describe the scope of Part-SPA (Annex V), Part-NCC (Annex VI) and Part-NCO (Annex VII)
- Explain the main content of Part-SPA (Annex V), Part-NCC (Annex VI) and Part-NCO (Annex VII), except the operational procedures.

Source: Regulation (EU) No 965/2012,

47. ICAO Annex 11 — Air Traffic Services

- Recall the definitions given in ICAO Annex 11.
- State the objectives of ATS.
- Describe the three basic types of ATS.
- Describe the three basic types of ATC services.
- State on which frequencies a pilot can expect ATC to contact them in case of an emergency.
- Describe the procedure for the transfer of an aircraft from one ATC unit to another.

Source: ICAO Annex 11, Chapter 1; Chapter 2; Chapter 3; Chapter 4; Chapter 5; Chapter 6

48. Airspace

- Describe the purpose for establishing flight information regions (FIRs) including upper flight information regions (UIRs).
- Describe the various rules and services that apply to the various classes of airspace.
- Explain which airspace shall be included in an FIR or UIR.
- State the designation for those portions of the airspace where flight information service (FIS) and alerting service shall be provided.
- State the designations for those portions of the airspace where ATC services shall be provided.
- Identify whether or not control areas (CTAs) and control zones (CTRs) designated within an FIR shall form part of that FIR.
- State the lower limit of a CTA as far as ICAO Standards are concerned.
- State whether or not the lower limit of a CTA has to be established uniformly.
- Explain why a UIR or upper CTA should be delineated to include the upper airspace within the lateral limits of a number of lower FIRs or CTAs.
- Describe in general the lateral limits of CTRs.
- State the minimum extension (in NM) of the lateral limits of a CTR.
- State the upper limits of a CTR located within the lateral limits of a CTA.

Source: ICAO Annex 11, Chapter 2, 2.11.3 Control areas

49. Air traffic control (ATC) services

- Name all classes of airspace in which ATC services shall be provided.
- Name the ATS units providing ATC services (area control service, approach control service, aerodrome control service).
- Describe which unit(s) may be assigned with the task to provide specified services on the apron.
- State the purpose of clearances issued by an ATC unit.
- List the various (five possible) parts of an ATC clearance.
- Explain why the movement of persons, vehicles and towed aircraft on the manoeuvring area of an AD shall be controlled by the aerodrome control tower (TWR) (as necessary).

Source: ICAO Annex 11, Chapter 3

50. Flight information service (FIS)

- State for which aircraft FIS shall be provided.
- State whether or not FIS shall include the provision of pertinent significant meteorological information (SIGMET) and air meteorological information report (AIRMET) information.
- State which information FIS shall include in addition to SIGMET and AIRMET information.
- Indicate which other information the FIS shall include in addition to the special information given in Annex 11.
- State the meaning of the acronym ‘ATIS’ in plain language.
- List the basic information concerning automatic terminal information service (ATIS) broadcasts (e.g. frequencies used, number of ADs included, updating, identification, acknowledgment of receipt, language and channels, ALT- setting).
- State the content of an ATIS message.
- State the reasons and circumstances when an ATIS message shall be updated.

Source: ICAO Annex 11, Chapter 4,

51. Alerting service

- State who provides the alerting service.
- State who is responsible for initiating the appropriate emergency phase.
- State the aircraft to which alerting service shall be provided.
- State which unit shall be notified by the responsible ATS unit immediately when an aircraft is considered to be in a state of emergency.
- Name the three stages of emergency and describe the basic conditions for each kind of emergency.
- State the meaning of the expressions 'INCERFA', 'ALERFA' and 'DETRESFA'.
- State the information to be provided to those aircraft that operate in the vicinity of an aircraft that is either in a state of emergency or unlawful interference.

Source: ICAO Annex 11, Chapter 2; Chapter 5 Alerting service

52. Principles governing required navigation performance (RNP) and air traffic service (ATS) route designators

- State the meaning of the acronym 'RNP'.
- State the factors that RNP is based on.
- Describe the reason for establishing a system of route designators and navigation specifications.
- State whether or not a prescribed RNP type is considered an integral part of the ATS route designator.
- Explain the composition of an ATS route designator.

Source: ICAO Annex 11, Chapter 1; Appendix 1

53. ICAO Doc 4444 — Air Traffic Management

- State which ATS units provide clearances that do, and do not, include the prevention of collision with terrain.
- Recall all definitions given in ICAO Doc 4444 except the following: accepting unit/controller, AD taxi circuit, aeronautical fixed service (AFS), aeronautical fixed station, air-taxiing, allocation, approach funnel, assignment, data convention, data processing, discrete code, D-value, flight status, ground effect, receiving unit/controller, sending unit/controller, transfer of control point, transferring unit/controller, unmanned free balloon.
- Explain when and where ATFM services shall be implemented.
- Describe who is responsible for the provision of flight information and alerting services within an FIR, within controlled airspace and at controlled ADs.

Source: ICAO Doc 4444, Foreword, 2 Scope and purpose, 2.1; Chapter 1; Chapter 3; Chapter 4.

54. ATC clearances

- State which information the issue of an ATC clearance is based on.
- Describe what a PIC should do if an ATC clearance is not suitable.
- State who bears the responsibility for adhering to the applicable rules and regulations whilst flying under the control of an ATC unit.
- State the two primary purposes of clearances issued by ATC units.
- State why clearances must be issued 'early enough' to aircraft.
- Explain what is meant by the expression 'clearance limit'.
- Explain the meaning of the phrases 'cleared via flight planned route', 'cleared via (designation) departure' and 'cleared via (designation) arrival' in an ATC clearance.
- List which items of an ATC clearance shall always be read back by the flight crew.

Source: ICAO Doc 4444, Chapter 4,

55. Horizontal speed control instructions

- Explain the reason for speed control by ATC.
- Define the maximum speed changes that ATC may impose.
- State within what distance from the THR the PIC should not expect any kind of speed control.

Source: ICAO Doc 4444, Chapter 4,

56. Change from IFR to VFR flight

- Explain how the change from IFR to VFR can be initiated by the PIC.
- Describe the expected reaction of the appropriate ATC unit upon a request to change from IFR to VFR.

Source: ICAO Doc 4444, Chapter 4,

57. Wake turbulence

- State the wake-turbulence categories of aircraft.
- State the wake-turbulence separation minima.
- Describe how a 'heavy' aircraft shall indicate this in the initial radiotelephony contact with ATS.

Source: ICAO Doc 4444, Chapter 4; Chapter 5; Chapter 8

58. Altimeter-setting procedures

- Define the following terms:
  - TRL;
  - transition layer; and
  - TA.
- Describe how the vertical position of an aircraft in the vicinity of an AD shall be expressed at or below the TA, at or above the TRL, and while climbing or descending through the transition layer.
- Describe when the HGT of an aircraft using QFE during an NDB approach is referred to the landing THR instead of the AD elevation.Source: ICAO Doc 4444, Chapter 1 Definitions
- State in which margin altimeter settings provided to aircraft shall be rounded up or down.
- Describe the expression 'lowest usable FL'.
- Determine how the vertical position of an aircraft on an en- route flight is expressed at or above the lowest usable FL and below the lowest usable FL.
- State who establishes the TRL to be used in the vicinity of an AD.
- Decide how and when a flight crew member shall be informed about the TRL.
- State whether or not the pilot can request TRL to be included in the approach clearance.

Source: ICAO Doc 4444, Chapter 4,

59. Position reporting

- Describe when position reports shall be made by an aircraft flying on routes defined by designated significant points.
- List the six items that are normally included in a voice position report.
- State the requirements for using a simplified position report with FL, next position (and time-over) and ensuing significant points omitted.
- State the item of a position report which must be forwarded on to ATC with the initial call after changing to a new frequency.
- Indicate the item of a position report which may be omitted if secondary surveillance radar (SSR) Mode C is used.
- Explain in which circumstances the airspeed should be included in a position report.
- Explain the meaning of the acronym 'ADS'.
- Describe which expression shall precede the level figures in a position report if the level is reported in relation to 1013.2 hPa (standard pressure).

Source: ICAO Doc 4444, Chapter 4,

60. Separation methods and minima

- Explain the general provisions for the separation of controlled air traffic.
- Name the different kinds of separation used in aviation.
- State the difference between the type of separation provided within the various classes of airspace and the various types of flight.
- State who is responsible for the avoidance of collision with other aircraft when operating in VMC.
- Describe how vertical separation is obtained.
- State the required vertical separation minimum.
- Describe how the cruising levels of aircraft flying to the same destination and in the expected approach sequence are correlated with each other.
- Name the conditions that must be adhered to when two aircraft are cleared to maintain a specified vertical separation between them during climb or descent.
- State the two main methods for horizontal separation.
- Describe how lateral separation of aircraft at the same level may be obtained.
- Explain the term 'geographical separation'.
- Describe track separation between aircraft using the same navigation aid or method.
- Describe the three basic means for the establishment of longitudinal separation.
- State the minimum standard horizontal radar separation in NM.
- Describe the method of the Mach number technique.

Source: ICAO Doc 4444, Chapter 5

61. Separation in the vicinity of aerodromes (ADs)

- Describe the expression 'essential local traffic'.
- State which possible decision the PIC may choose to take if they are asked to accept take-off in a direction which is not 'into the wind'.
- State the condition to enable ATC to initiate a visual approach for an IFR flight.
- State whether or not separation shall be provided by ATC between an aircraft executing a visual approach and other arriving or departing aircraft.
- State in which case, when the flight crew are not familiar with the instrument approach procedure being carried out, only the final approach track has to be given to them by ATC.
- Describe which FL should be assigned to an aircraft first arriving over a holding fix for landing.
- State which kinds of priority can be applied to aircraft for a landing.
- Describe the situation when a pilot of an aircraft in an approach sequence indicates their intention to hold for weather improvements.
- Explain the term 'expected approach time' and the procedures for its use.
- State the reasons which could probably lead to the decision to use another take-off or landing direction than the one into the wind.
- State the possible consequences for a PIC if the 'RWY-in-use' is not considered suitable for the operation involved.

Source: ICAO Doc 4444, Chapter 6; Chapter 7

62. Miscellaneous separation procedures

- State the minimum separation between departing and arriving aircraft.
- State the non-radar wake-turbulence longitudinal separation minima.
- Describe the consequences of a clearance to 'maintain own separation' while in VMC.
- Give a brief description of 'essential traffic' and 'essential traffic information'.
- Describe the circumstances under which a reduction in separation minima may be allowed.

Source: ICAO Doc 4444, Chapter 5; Chapter 6

63. Arriving and departing aircraft

- List the elements of information which shall be transmitted to an aircraft as early as practicable if an approach for landing is intended.
- List the elements of information to be transmitted to an aircraft at the commencement of final approach.
- List the elements of information to be transmitted to an aircraft during final approach.
- State the prerequisites for operating on parallel or near-parallel RWYs including the different combinations of parallel arrivals or departures.
- State the sequence of priority between aircraft landing (or in the final stage of an approach to land) and aircraft intending to depart.
- State the significant changes in the meteorological conditions in the take-off or climb-out area that shall be transmitted without delay to a departing aircraft.
- State the significant changes that shall be transmitted as early as practicably possible to an arriving aircraft, particularly changes in the meteorological conditions.

Source: ICAO Doc 4444, Chapter 6; Chapter 7

64. Procedures for aerodrome (AD) control service

- Name the operational failure or irregularity of AD equipment which shall be reported by the TWR immediately.
- Explain that, after a given period of time, the TWR shall report to the area control centre (ACC) or flight information centre (FIC) if an aircraft does not land as expected.
- Describe the procedures to be observed by the TWR whenever VFR operations are suspended.
- Explain the term 'RWY-in-use' and its selection.
- List the information the TWR should give to an aircraft prior to:
  - taxiing for take-off;
  - take-off;
  - entering the traffic circuit.
- Explain that a report of surface wind direction given to a pilot by the TWR is magnetic.
- Explain the exact meaning of the expression 'RWY vacated'.

Source: ICAO Doc 4444, Chapter 7

65. Radar services

- State the basic identification procedures used with radar.
- Define the term 'PSR'.
- Describe the circumstances under which an aircraft provided with radar service should be informed of its position.
- List the possible forms of position information passed on to the aircraft by radar services.
- Describe the term 'radar vectoring'.
- State the aims of radar vectoring as shown in ICAO Doc 4444.
- Describe how radar vectoring shall be achieved.
- Describe the information which shall be given to an aircraft when radar vectoring is terminated and the pilot is instructed to resume own navigation.
- Explain the procedures for the conduct of surveillance radar approaches (SRAs).
- Describe what kind of action (concerning the transponder) the pilot is expected to perform in case of emergency if they have previously been directed by ATC to operate the transponder on a specific code.

Source: ICAO Doc 4444, Chapter 1; Chapter 8

66. Air traffic advisory service

- Describe the objective and basic principles of the air traffic advisory service.
- State to which aircraft air traffic advisory service may be provided.
- Explain the difference between advisory information and clearances, stating which ATS units are responsible for their issue.

Source: ICAO Doc 4444, Chapter 9

67. Procedures related to emergencies, communication (COM) failure and contingencies

- State the mode and code of SSR equipment a pilot might operate in a (general) state of emergency or (specifically) in case the aircraft is subject to unlawful interference.
- State the special rights an aircraft in a state of emergency can expect from ATC.
- Describe the expected action of aircraft after receiving a broadcast from ATS concerning the emergency descent of an aircraft.
- State how it can be ascertained, in case of a failure of two-way COM, whether the aircraft is able to receive transmissions from the ATS unit.
- State on which frequencies appropriate information, for an aircraft encountering two-way COM failure, shall be sent by ATS.
- State what is meant by the expressions 'strayed aircraft' and 'unidentified aircraft'.
- Explain the reasons for fuel-dumping and state the minimum level.
- Explain the possible request of ATC to an aircraft to change its radio-telephone (RTF) call sign.

Source: ICAO Doc 4444, Chapter 15,

68. Miscellaneous procedures

- Explain the meaning of 'AIRPROX'.
- Describe the task of an air traffic incident report.

Source: ICAO Doc 4444, Chapter 1; Chapter 16

69. Aeronautical Information Service (AIS)

- State, in general terms, the objective of an AIS.
- Recall the following definitions: aeronautical information circular (AIC), aeronautical information publication (AIP), AIP amendment, AIP supplement, aeronautical information regulation and control (AIRAC), danger area, integrated aeronautical information package, international airport, international NOTAM office (NOF), manoeuvring area, movement area, NOTAM, pre-flight information bulletin (PIB), prohibited area, restricted area, SNOWTAM, ASHTAM.
- State during which period of time an AIS shall be available with reference to an aircraft flying in the area of responsibility of an AIS, provided a 24-hour service is not available.
- List, in general, the kind of aeronautical information/data which an AIS service shall make available in a suitable form to flight crew.
- Summarise the duties of an AIS concerning aeronautical information data for the territory of a particular State.

Source: ICAO Annex 15, Chapter 1; Chapter 2

70. Aeronautical information publication (AIP)

- State the primary purpose of the AIP.
- Name the different parts of the AIP.
- State the main parts of the AIP where the following information can be found:
  - differences from the ICAO Standards, Recommended Practices and Procedures;
  - location indicators, AIS, minimum flight ALT, meteorological information for aircraft in flight (VOLMET) service, SIGMET service;
  - general rules and procedures (especially general rules, VFR, IFR, ALT-setting procedure, interception of civil aircraft, unlawful interference, air traffic incidents);
  - ATS airspace (especially FIR, UIR, TMA);
  - ATS routes (especially lower ATS routes, upper ATS routes, area navigation routes);
  - AD data including aprons, taxiways (TWYs) and check locations/positions data;
  - navigation warnings (especially prohibited, restricted and danger areas);
  - aircraft instruments, equipment and flight documents;
  - AD surface movement guidance and control system and markings;
  - RWY physical characteristics, declared distances, approach (APP) and RWY lighting;
  - AD radio navigation and landing aids;
  - charts related to an AD;
  - entry, transit and departure of aircraft, passengers, crew and cargo, and the significance of this information to flight crew.
- State how permanent changes to the AIP shall be published.
- Explain what kind of information shall be published in the form of AIP Supplements.

Source: ICAO Annex 15

71. Notices to airmen (NOTAMs)

- Describe how information shall be published which in principle would belong to NOTAMs but includes extensive text or graphics.
- Summarise the essential information which leads to the issue of a NOTAM.
- State to whom NOTAMs shall be distributed.
- Explain how information regarding snow, ice and standing water on AD pavements shall be reported.
- Describe the means by which NOTAMs shall be distributed.
- Define and state which information an ASHTAM may contain.

Source: ICAO Annex 15

72. Aeronautical information regulation and control (AIRAC)

- List the circumstances under which the information concerned shall or should be distributed as an AIRAC.
- Describe the type of information that may be published in AICs.
- Explain the organisation of AICs.

Source: ICAO Annex 15, Chapter 6; Chapter 7

73. Pre-flight and post-flight information/data

- Summarise, in addition to the elements of the integrated AIP and maps/charts, the additional current information relating to the AD of departure that shall be provided as pre-flight information.
- Describe how a recapitulation of current NOTAM and other information of urgent character shall be made available to flight crew.
- State which post-flight information from flight crew shall be submitted to AIS for distribution as required by the circumstances.

Source: ICAO Annex 15, Chapter 8,

74. ATM service providers

- State that Commission Implementing Regulation (EU) 2017/373 provides:
  - general requirements for the provision of air navigation services;
  - specific requirements for the provision of air traffic services;
  - specific requirements for the provision of meteorological services;
  - specific requirements for the provision of aeronautical information services;
  - specific requirements for the provision of communication, navigation or surveillance services.

75. Aerodromes (ICAO Annex 14, Volume I — Aerodrome Design and Operations, and Regulation (EU) No 139/2014)

- Describe the intent of the AD reference code and state the functions of the two code elements.
- Describe where the AD reference point shall be located and where it shall normally remain.
- Explain the terms: 'pavement classification number (PCN)' and 'aircraft classification number (ACN)', and describe their mutual dependence.
- Describe how the bearing strength for an aircraft with an apron mass equal to or less than 5 700 kg shall be reported.
- State that ICAO Annex 14 provides guidance on the calculation of declared distances (TORA, TODA, ASDA, LDA).
- Recall the definitions for the four main declared distances.

Source: ICAO Annex 14, Volume 1, Chapter 1; Chapter 2

76. Condition of the movement area and related facilities

- State the purpose of informing AIS and ATS units about the condition of the movement area and related facilities.
- List the matters of operational significance or affecting aircraft performance which should be reported to AIS and ATS units to be transmitted to aircraft involved.
- Describe the three different types of water deposit on RWYs.
- Explain the different types of frozen water on the RWY and their impact on aircraft braking performance.
- Describe the five levels of braking action including the associated coefficients and codes.

Source: ICAO Annex 14, Volume 1, Chapter 1; Chapter 2;, Attachment A, 6

77. Physical characteristics of Runways (RWYs)

- Describe where a THR should normally be located.
- Describe the general considerations concerning RWYs associated with a stopway (SWY) or clearway (CWY).
- Explain the term 'runway strip'.
- Explain the term 'runway-end safety area'.
- Explain the term 'clearway'.
- Explain the term 'stopway'.
- Describe the reasons and the requirements for rapid-exit TWYs.
- Explain TWY widening in curves.
- Explain when and where holding bays should be provided.
- Describe where RWY holding positions shall be established.
- Describe the term 'road holding position'.
- Describe where intermediate TWY holding positions should be established.

Source: ICAO Annex 14, Volume 1, Chapter 1; Chapter 3

78. Visual aids for navigation

- Describe the wind-direction indicators with which ADs shall be equipped.
- Describe a landing-direction indicator.
- Explain the capabilities of a signalling lamp.
- State which characteristics a signal area should have.
- Interpret all indications and signals that may be used in a signal area.

Source: ICAO Annex 14, Volume 1, Chapter 5,
Commission Implementing Regulation (EU) No 923/2012 (SERA) — Appendix 1 Signals, 3.2 Visual ground signals

79. Markings

- Name the colours used for the various markings (RWY, TWY, aircraft stands, apron safety lines).
- State where a RWY designation marking shall be provided and describe the different layouts (excluding dimensions).
- Describe the application and general characteristics (excluding dimensions) of:
  - RWY-centre-line markings;
  - THR markings;
  - touchdown-zone (TDZ) markings;
  - RWY-side-stripe markings;
  - TWY-centre-line markings;
  - RWY holding position markings;
  - intermediate holding position markings;
  - aircraft-stand markings;
  - apron safety lines;
  - road holding position markings;
  - mandatory instruction markings;
  - information markings.

Source: ICAO Annex 14, Volume 1, Chapter 5,

80. Lights

- Describe the mechanical safety considerations regarding elevated approach lights and elevated RWY, SWY and TWY lights.
- List the conditions for the installation of an aerodrome beacon (ABN) and describe its general characteristics.
- Describe the different kinds of operations for which a simple approach lighting system shall be used.
- Describe the basic installations of a simple approach lighting system including the dimensions and distances normally used.
- Describe the principle of a precision approach category I lighting system including information such as location and characteristics.
- Describe the principle of a precision approach category II and III lighting system including information such as location and characteristics, especially the inner 300 m of the system.
- Describe the wing bars of the precision approach path indicator (PAPI) and the abbreviated precision approach path indicator (APAPI). Interpret what the pilot will see during the approach using PAPI.
- Interpret what the pilot will see during an approach using a helicopter approach path indicator (HAPI).
- Explain the application and characteristics (as applicable, but limited to colour, intensity, direction and whether fixed or flashing) of:
  - RWY-edge lights;
  - RWY-THR and wing-bar lights;
  - RWY-end lights;
  - RWY-centre-line lights;
  - RWY-lead-in lights;
  - RWY-TDZ lights;
  - SWY lights;
  - TWY-centre-line lights;
  - TWY-edge lights;
  - stop bars;
  - intermediate holding position lights;
  - RWY guard lights;
  - road holding position lights.
- State the timescale within which aeronautical ground lights shall be made available to arriving aircraft.

Source: ICAO Annex 14, Volume 1, Chapter 5; Volume II, Chapter 5;
ICAO Doc 4444, Section 7.15 Aeronautical ground lights

81. Signs

- Explain which signs are the only ones on the movement area utilising red.
- List the provisions for illuminating signs.
- Name the kinds of signs which shall be included in mandatory instruction signs.
- Name the colours used for mandatory instruction signs.
- Describe by which sign a pattern 'A' RWY holding position (i.e. at an intersection of a TWY and a non-instrument, non- precision approach or take-off RWY) marking shall be supplemented.
- Describe by which sign a pattern 'B' RWY holding position (i.e. at an intersection of a TWY and a precision approach RWY) marking shall be supplemented.
- Describe the location of:
  - a RWY designation sign at a TWY/RWY intersection;
  - a 'NO ENTRY' sign;
  - a RWY holding position sign.
- State which sign indicates that a taxiing aircraft is about to infringe an obstacle limitation surface or interfere with the operation of radio navigation aids (e.g. ILS/MLS critical/sensitive area).
- Describe the various possible inscriptions on RWY designation signs and on holding position signs.
- Describe the colours used in connection with information signs.
- Describe the possible inscriptions on information signs.
- Explain the application, location and characteristics of aircraft stand identification signs.
- Explain the application, location and characteristics of road holding position signs.

Source: ICAO Annex 14, Volume 1, Chapter 5

82. Markers

- Explain why markers located near a RWY or TWY shall be HGT limited.
- Explain the application and characteristics (excluding dimensions) of:
  - unpaved RWY-edge markers;
  - TWY-edge markers;
  - TWY-centre-line markers;
  - unpaved TWY-edge markers;
  - boundary markers;
  - SWY-edge markers.

Source: ICAO Annex 14, Volume 1, Chapter 5.5

83. Visual aids for denoting obstacles

- State how fixed or mobile objects shall be marked if colouring is not practicable.
- Describe marking by colours (fixed or mobile objects).
- Explain the use of markers for the marking of objects, overhead wires, cables, etc.
- Explain the use of flags for the marking of objects.
- Name the different types of lights to indicate the presence of objects which must be lighted.
- Describe (in general terms) the location of obstacle lights.
- Describe (in general and for normal circumstances) the colour and sequence of low-intensity obstacle lights, medium-intensity obstacle lights and high-intensity obstacle lights.
- State that information about lights to be displayed by aircraft is provided in both ICAO Annex 2 (Rules of the Air) and SERA.

Source: ICAO Annex 14, Volume 1, Chapter 6,

84. Visual aids for denoting restricted use of areas on RWYs and TWYs

- Describe the colours and meaning of 'closed markings' on RWYs and TWYs.
- State how the pilot of an aircraft moving on the surface of a TWY, holding bay or apron shall be warned that the shoulders of these surfaces are 'non-load-bearing'.
- Describe the pre-THR marking (including colours) when the surface before the THR is not suitable for normal use by aircraft.

Source: ICAO Annex 14, Volume 1, Chapter 7,

85. Aerodrome (AD) operational services, equipment and installations

- State the principal objective of Rescue and firefighting (RFF) services.
- Explain the basic information the AD category (for RFF) depends upon.
- Describe what is meant by the term 'response time', and state its normal and maximum limits.
- State who has a right-of-way against vehicles operating on an apron.
- Describe the necessary actions during the ground-servicing of an aircraft with regard to the possible event of a fuel fire.

Source: ICAO Annex 14, Volume 1, Chapter 9,

86. Attachment A to ICAO Annex 14, Volume 1 — Supplementary Guidance Material

- List the four types of 'declared distances' on a RWY and also the appropriate abbreviations.
- Explain the circumstances which lead to the situation that the four declared distances on a RWY are equal to the length of the RWY.
- Describe the influence of a CWY, SWY or displaced THR upon the four 'declared distances'.
- Name the two main groups of approach lighting systems.
- Describe the two different versions of a simple approach lighting system.
- Describe the two different basic versions of precision approach lighting systems for CAT I.
- Describe the diagram of the inner 300 m of the precision approach lighting system in the case of CAT II and III. X
- Describe how the arrangement of an approach lighting system and the location of the appropriate THR are interrelated.

Source: ICAO Annex 14, Volume 1, Attachment A,

87. FACILITATION (ICAO Annex 9)

- Describe the purpose and use of aircraft documents as regards a 'general declaration'.
- Explain entry requirements for crew.
- Explain the reasons for the use of crew member certificates (CMC) for crew members engaged in international air transport.
- Explain in which cases Contracting States should accept the CMC as an identity document instead of a passport or visa.
- Explain the entry requirements for passengers and their baggage.
- Explain the requirements and documentation for unaccompanied baggage.
- Identify the documentation required for the departure and entry of passengers and their baggage.
- Explain the arrangements in the event of a passenger being declared an inadmissible person.
- Describe the pilot's authority towards unruly passengers.
- Explain the entry requirements for cargo.

Source: ICAO Annex 9, Chapter 2; Chapter 3 ; Chapter 5; Chapter 6

88. SEARCH AND RESCUE (SAR)

- Recall the definitions of the following terms: alert phase, distress phase, emergency phase, operator, PIC, rescue coordination centre, State of Registry, uncertainty phase.
- Describe how ICAO Contracting States shall arrange for the establishment and prompt provision of SAR services.
- Explain the establishment of SAR by Contracting States.
- Describe the areas within which SAR services shall be established by Contracting States.
- State the period of time per day within which SAR services shall be available.
- Describe for which areas rescue coordination centres shall be established.
- Explain the SAR operating procedures for the PIC who arrives first at the scene of an accident.
- Explain the SAR operating procedures for the PIC intercepting a distress transmission.
- Explain the 'ground–air visual signal code' for use by survivors.
- Recognise the SAR 'air-to-ground signals' for use by survivors.

Source: ICAO Annex 12, Chapter 1 ; Chapter 2; Chapter 5 and Appendix

89. SECURITY — Safeguarding International Civil Aviation against Acts of Unlawful Interference (ICAO Annex 17)

- Recall the definitions of the following terms: airside, aircraft security check, screening, security, security control, security-restricted area, unidentified baggage.
- State the objectives of security.
- Describe the objects not allowed (for reasons of aviation security) on board an aircraft that is engaged in international civil aviation.
- State what each Contracting State is supposed to do if passengers subjected to security control have mixed after a security screening point.
- Explain what has to be done when passengers who are obliged to travel because of judicial or administrative proceedings are supposed to board an aircraft.
- Explain what has to be considered if law enforcement officers carry weapons on board.
- Describe the assistance each Contracting State shall provide to an aircraft subjected to an act of unlawful seizure.
- State the circumstances which could prevent a Contracting State from detaining an aircraft on the ground after being subjected to an act of unlawful seizure.

Source: ICAO Annex 17, Chapter 1; Chapter 2; Chapter 4; Chapter 5

90. Operators' security programme

- Describe the principles of the written operator's security programme each Contracting State requires from operators.
- Describe what the PIC should do, in a situation of unlawful interference, unless considerations aboard the aircraft dictate otherwise.
- Describe what the PIC, of an aircraft subjected to unlawful interference, should do if: the aircraft must depart from its assigned track; the aircraft must depart from its assigned cruising level; the aircraft is unable to notify an ATS unit of the unlawful interference.
- Describe what the PIC should attempt to do with regard to broadcast warnings and the level at which to proceed, in a situation of unlawful interference, if no applicable regional procedures for in-flight contingencies have been established.
- Describe the special considerations referring to flight crew compartment doors with regard to aviation security.
- Describe what minimum distance an isolated aircraft parking position (after the aircraft has been subjected to unlawful interference) should have from other parking positions, buildings or public areas.
- Describe the considerations that must take place with regard to a taxi clearance in case an aircraft is known or believed to have been subjected to unlawful interference.

Source: ICAO Annexes 2, 6, 14 and 17;
ICAO ICAO Doc 4444,
Regulation (EU) No 965/2012 and CS- ADR-DSN

91. AIRCRAFT ACCIDENT AND INCIDENT INVESTIGATION

- Recall the definitions of the following terms: accident, aircraft, flight recorder, incident, investigation, maximum mass, operator, serious incident, serious injury, State of Design, State of Manufacture, State of Occurrence, State of the Operator, State of Registry.
- Explain the difference between 'serious incident' and 'accident'.
- Determine whether a certain occurrence has to be defined as a serious incident or as an accident.
- Recognise the description of an accident or incident.
- State the objective(s) of the investigation of an accident or incident according to ICAO Annex 13.
- Describe the general procedures for the investigation of an accident or incident according to ICAO Annex 13.

Source: ICAO Annex 13, Chapter 1; Chapter 3; Chapter 4; Chapter 5

92. Accident and incident investigation in EU regulations

- Identify an occurrence as being either an accident, incident or serious incident in Regulation (EU) No 996/2010 of the European Parliament and of the Council of 20 October 2010 on the investigation and prevention of accidents and incidents in civil aviation.
- Describe the relationship between Regulation (EU) No 996/2010 of the European Parliament and of the Council of 20 October 2010 on the investigation and prevention of accidents and incidents in civil aviation and Regulation (EU) No 376/2014 of the European Parliament and of the Council of 3 April 2014 on the reporting, analysis and follow-up of occurrences in civil aviation.
- State the subject matter and scope of Regulation (EU) No 376/2014 (Article 3).
- Identify occurrences that must be reported (Regulation (EU) No 376/2014, Article 4).
- Identify occurrences that should be voluntarily reported (Regulation (EU) No 376/2014, Article 5).
- Describe how information from occurrences is collected, stored and analysed (Regulation (EU) No 376/2014, Articles 6, 8, 13 and 14).

Source: Regulation (EU) No 996/2010; Regulation (EU) No 376/2014