

# Infrastructures del Transport Aeri

## Mid Term exam - Fall semester 2014

**Name:**

Short questions: answer them with one word or one sentence in the space provided.  
**Correct answer: +1 point – Incorrect answer: -1point – Blank answer: 0 points.**

Give **one (1)** example of ATM **efficiency indicator**

Give **the name** or just the acronym of **three (3)** different **aircraft operators**

Which system does provide more geographical coverage: **SBAS or GBAS?**

When talking about a radionavigation system, which performance metric does measure the percentage of time that accuracy, integrity and continuity requirements are met?

Generally speaking, which separation layer is more conservative in terms of separation distance: **procedural separation or air traffic management separation?**

There are three types of **fixes**, enumerate just **two (2)** of them.

What is the **name AND acronym** of the standard IFR procedure for the arrival phase of a flight?

What is typically bigger, a **CTR or an ATZ?**

**ATM capacity** depends on several factors. Give **two (2)** examples.

The missed approach published in the **Kahului VOR chart for RWY20** (annexed to this exam) has mainly two legs. How is defined the **fix delimiting the end of the first leg and the beginning of the second leg?**

Regarding **Kahului VOR chart for RWY20** (annexed to this exam), an aircraft is flying to DIPPS intersection with heading **260°** and it is instructed to hold. What would be the **holding entry type** in this situation?

Regarding **Kahului VOR chart for RWY20** (annexed to this exam), where does the initial approach segment end?

What type of initial approach segment can we observe at the **Kahului VOR approach for RWY20**?

Regarding **Kahului VOR approach for RWY20**, what is the **minimum descent altitude** for a Category C aircraft performing an approach to **runway 05**? (yes, runway 05).

Regarding **Kahului VOR chart for RWY20** (annexed to this exam), how the **MAPt** is defined?

Regarding **Kahului VOR chart for RWY20** (annexed to this exam), what is the minimum visibility for a Category C aircraft landing in **runway 20**?

Short questions: answer them with one or two sentences in the space provided.  
**Correct answer: +1.5 points – Incorrect answer or blank answer: 0 points**

What is a NOTAM?

Instrument flight procedures have some **advantages** with respect to visual procedures. Enumerate **three (3)** of them:

What is “**procedural control**”, when talking about ATC?

In the context of the Single European Sky program, what is a **Functional Airspace Block (FAB)**?

# INFRAESTRUCTURES DEL TRANSPORT AERI (ITA)

## Mid Term Exam - Fall semester 2014

Correct answer: +1 point – Incorrect answer: -1/3 points – Blank answer: 0 points

For each question **only one answer** is correct

Assignatura 00213 – Centre 300 – Parcial 01 – Permutacio A:0 B:1 C:2 D:3

Use the **right** side numbering to mark your answers into the optical mark recognition sheet

Marking a case of the first answer line selects the answer, marking a case into the second line cancels it

### Permutacio A

1. A racetrack procedure...
  - (a) could be, for instance, a 45/180 procedure turn.
  - (b) is a type of initial approach segment.
  - (c) is a type of holding pattern.
  - (d) is when an aircraft uses an active runway to taxi in the opposite direction from which it will take off or has landed.
2. In a ILS approach procedure, the decision to land or to execute a missed approach must be taken, at the latest, when...
  - (a) reaching the MDA.
  - (b) reaching the OCA.
  - (c) reaching the DA.
  - (d) reaching the MAPt.
3. If an aircraft declares an emergency, indicating that it is impaired and a forced landing is likely, which of the following phases shall be activated?
  - (a) Uncertainty phase.
  - (b) Awareness phase.
  - (c) Distress phase.
  - (d) Alert phase.
4. In airspace class C, separation services are provided...
  - (a) only between two conflicting IFR flights.
  - (b) between two conflicting IFR flights and between an IFR conflicting with a VFR.
  - (c) to all IFR and VFR flights in the airspace.
  - (d) only between two conflicting VFR flights.
5. Which of the following are key technologies of the global positioning system (GPS) development?
  - (a) Stable platforms and stable/precise clocks.
  - (b) Stable platforms and communications
  - (c) Stable/precise clocks and communications.
  - (d) None of the other answers are correct.
6. Standard airfield traffic patterns are...
  - (a) with turns to the right and at 2000 ft above the aerodrome elevation.
  - (b) with turns to the left and at 1000 ft above the aerodrome elevation.
  - (c) with turns to the left and at 2000 ft above the aerodrome elevation.
  - (d) with turns to the right and at 1000 ft above the aerodrome elevation.
7. Given a specific runway, which of the approaches will lead (in general) to the lowest MDA or DA?
  - (a) a ILS CAT-I straight-in approach approach procedure.
  - (b) a ILS CAT-II straight-in approach approach procedure.
  - (c) a VOR circling to approach approach procedure.
  - (d) a VOR straight-in approach approach procedure.
8. In the frame of ATS, who is responsible for executing transfers of aircraft between two ATC sectors?
  - (a) The supervisor controller.
  - (b) None of the other answers is correct.
  - (c) The tactical controller.
  - (d) The planner controller.
9. Which of the following statements is true?
  - (a) CPDL may allow reducing the use of voice communication between ATC and pilots.
  - (b) CPDL is based in long text messages with attached images.
  - (c) CPDL may make worse the current shortage of available frequencies.
  - (d) None of the other options is correct.
10. Consider the VFR chart of the area around Limoges, provided in annex to this exam. The airspace class over the NDB LSU (south-west of Limoges airport) at 4500 ft is:
  - (a) Class D.
  - (b) Class G.
  - (c) Class C.
  - (d) Class E.
11. One of the advantages of performing continuous climb operations is that:
  - (a) the environmental impact of the operations is reduced.
  - (b) all the answers are correct.
  - (c) the capacity of departures at the airport is increased.
  - (d) the conflicts with other traffic are reduced.
12. An aircraft has just landed at a major airport and has vacated the runway. In order to reach its gate at the terminal, an active runway needs to be crossed. Which control is responsible to deliver the needed clearance to cross the runway?
  - (a) The tower control.
  - (b) The ground control.
  - (c) The approach control.
  - (d) The delivery control.

13. A small aircraft **with no VHF radio equipment** flying in VFR wants to fly from *St Junien (LFBJ)*, located at the west of Limoges, to the north-east following a route of constant heading of approximately  $030^\circ$ . Check the VFR chart provided in annex to this exam. Which of the following answers is correct?
- This flight cannot be done without a radio.
  - This flight can be done providing the aircraft will not enter the CTR of Limoges, and remain always below 1000 ft above ground level.
  - This flight can be done providing the aircraft will not enter the CTR of Limoges.
  - This flight can be done providing the aircraft will not enter the CTR of Limoges, and remain always above 1000 ft above ground level and below 4000 ft above the mean sea level.
14. In which case you could find an approach procedure with no decision height?
- In a circling to approach.
  - In a Heavy category approach.
  - In an E category approach.
  - In an ILS CAT-III approach.
15. Some limitations of the introduction of continuous climb operations in a given procedure include that:
- the fuel consumption will not be reduced with respect to current operations.
  - all the answers are correct.
  - the noise reduction due to such operations will not be reduced at the vicinity of the airport.
  - the total flight time will be always increased with respect to current operations.
16. Which of the following VHF frequencies is the emergency or guard frequency?
- 177.00 MHz
  - 123.50 MHz
  - 121.50 MHz
  - 175.00 MHz
17. Who is the responsible to detect and solve short term conflicts within an ATC sector?
- The ATC supervisor.
  - The approach controller.
  - The tactical controller.
  - The strategic controller
18. In what situation an approach procedure cannot be a straight-in approach?
- when the final descent gradient exceeds a given value (\*).
  - both answers marked with a (\*) are correct.
  - in case the procedure is a non-precision approach.
  - when the angular difference between the final track alignment and the runway heading exceeds a given value (\*).
19. Consider the VFR chart of the area of Perpignan, provided in annex to this exam. The elevation of the town *Millas* (at the West of Perpignan city) is 800ft above the mean sea level. The airspace class over this town at 1500ft QNH is
- Class E.
  - Class G.
  - Class A.
  - Class D.
20. Regarding the Instrumental Approach Chart (IAC) **La Palma NDB**, annexed to this exam, imagine an aircraft arriving at NASOL IAF with heading  $005^\circ$ . Imagine the ATC instructs the aircraft to execute the holding pattern. In this case, the aircraft will enter the hold with...
- a racetrack entry procedure.
  - a direct entry procedure.
  - an offset entry procedure.
  - a parallel entry procedure.
21. Which of the following emergency ATS phases is the first one to be activated?
- Incerfa
  - Palerfa
  - Alerfa
  - Detresfa
22. What is an omnidirectional instrumental departure?
- It is the name it takes the chart containing all the standard instrumental departures of a given airport.
  - The departure that typically execute VFR flights.
  - The departure that typically execute VFR flights, but only in non busy airports.
  - The possibility to directly proceed to the desired airway, immediately after the take-off, by following a VOR radial or a NDB course.
23. Dead reckoning navigation...
- can only be used by VFR flights (except in case of an emergency).
  - is typically used by IFR flights and eventually used by VFR flights.
  - is typically used by VFR flights and eventually used by IFR flights.
  - can only be used by IFR flights (except in case of an emergency).
24. Which of the following statements is correct?
- The precision is defined as the probability that the accuracy requirement will be supported by the navigation system throughout a flight operation or flight hour.
  - While accuracy is the proximity of measurement results to the true value, precision is a measure of the repeatability or reproducibility of the measurement.
  - While precision is the proximity of measurement results to the true value, accuracy is a measure of the repeatability or reproducibility of the measurement.
  - The accuracy is defined as the probability that the precision requirement will be supported by the navigation system throughout a flight operation or flight hour.
25. Which of the following statements is **false**?
- Not all airports have published SIDs.
  - Not all airports have published STARs.
  - In general, all aircraft begin the descent when overflying the first fix of the STAR.
  - A SID procedure can only be executed in IFR.

26. Regarding the Instrumental Approach Chart (IAC) **La Palma NDB**, annexed to this exam, the missed approach segment is mainly:
- a DME arc.
  - a NDB course.
  - a dead-reckoning segment.
  - a VOR radial.
27. Regarding the Instrumental Approach Chart (IAC) **La Palma NDB**, annexed to this exam, the approach starts at:
- The intersection of course 214 of BX with the arc of 4.0NM from BV
  - The intersection of course 214 of BX with the arc of 11.0NM from BV
  - The intersection of course 214 of BX with the arc of 16.0NM from BV
  - The intersection of course 238 of BX with the arc of 22.5NM from BV
28. If we talk about a FIR, which of the following statements is **wrong**?
- If possible, Alert Services are provided in the whole airspace of the FIR.
  - Flight Information Services are provided in the FIR by means of different flight information sectors.
  - If possible, Air Traffic Control services are provided in the whole airspace of the FIR.
  - If possible, Flight Information Services are provided in the whole airspace of the FIR.
29. Regarding Figure 1, what does the point *Echo* (E) in the chart indicate?
- an NDB.
  - a visual reference point for the departure procedure.
  - a visual reference point for the arrival procedure.
  - a VOR.
30. An IFR flight is crossing the Limoges airspace at 3500ft QNH following a straight line from **south to north** that overflies Limoges airport. According to the VFR chart provided in annex to this exam, at which point this aircraft will need a clearance before entering controlled airspace?
- Before entering the TMA Limoges 1 (approximately over Nexoh).
  - Before entering the CTR Limoges 1.
  - Before entering the CTR Limoges 2.
  - Before entering the TMA Limoges 2 (approximately over St. Yrieix-la-Perche).
31. According to Figure 1...
- Turns in the airfield traffic pattern are to the left for runway 31 and to the right for runway 13.
  - Turns in the airfield traffic pattern are always to the right.
  - Turns in the airfield traffic pattern are to the right for runway 31 and to the left for runway 13.
  - Turns in the airfield traffic pattern are always to the left.
32. Which of the following statements is correct?
- The aircraft operator must compute and publish the OCA in the charts used by their pilots.
  - The aircraft operator must compute and publish the MDA in the charts used by their pilots.
  - The appropriate national administration must compute and publish the MDA in the AIP charts.
  - The appropriate national administration must compute a lower bound for the MDA and publish it in the AIP charts.
33. A search and rescue helicopter has arrived to the St. Cyprien beach, at the south-east of Perpignan and must transport urgently a wounded person to the Hospital of Perpignan, which is located in Perpignan city (slightly north-west of the PL NDB). This transfer flight is planned at 500 ft above the terrain and in VFR. In these conditions, which of the following statements is correct (check the VFR chart provided in annex to this exam)?
- VFR flights cannot enter the CTR of Perpignan. However, being a search and rescue aircraft this helicopter can proceed with the planned flight.
  - Is not necessary for the pilot to contact the ATC (albeit it is recommended).
  - The pilot must receive a clearance to enter the CTR of Perpignan.
  - The pilot must always be in radio-contact with the ATC during the whole flight.
34. Using GPS, own-ship position can be determined...
- by measuring the distance to the satellites, whose positions are known.
  - None of the other answers are correct.
  - by measuring the relative velocity to the satellites, whose velocity vectors are known.
  - by means of the Doppler effect.
35. What does *broadcast* mean, in the context of ADS-B?
- that all ADS-B messages are automatically stored in a database.
  - that the ADS-B messages are continuously requested by ground ATC facilities.
  - that the ADS-B messages are continuously transmitted.
  - that the ADS-B messages are automatically computed without the active action of the pilot.
36. Inside a CTR, the following ATS services are provided for an IFR flight:
- Alert Services.
  - Flight Information Services.
  - All the answers are correct.
  - Air Traffic Control Services.
37. Which is the main problem of current version of GPS if used for civil aviation?
- Its lack of availability.
  - Not enough accuracy for terminal procedures.
  - Not enough vertical accuracy for en-route procedures.
  - Its lack of integrity.
38. The MAPt can be defined...
- above a VOR.
  - all answers are correct.
  - at the intersection of an NDB course and a DME arc.
  - at a given time after overflying the FAF.
39. In a VOR approach, the approach minima are given by:

- (a) A minimum descent altitude.
  - (b) A minimum descent altitude and a minimum visibility.
  - (c) A decision altitude and a minimum visibility.
  - (d) A minimum descent altitude and a minimum obstacle clearance altitude.
40. A circling to approach with prescribed tracks...
- (a) consists of a sequence of instrumental tracks that must be avoided by the pilot when performing the circling procedure.
  - (b) consists of a sequence of visual tracks that guide the pilot when performing the circling procedure.
  - (c) consists of a sequence of instrumental tracks that guide the pilot when performing the circling procedure.
  - (d) consists of a sequence of visual tracks that must be avoided by the pilot when performing the circling procedure.
41. Aeronautical Information Services (AIS) are composed by:
- (a) AIP, NOTAM and CIRC.
  - (b) Alert services, flight information services and air traffic control.
  - (c) ASM, ATFM and ATS.
  - (d) CNS, ATM, Search and Rescue, AIS, and Meteorology services.
42. Which of the following statements is true regarding TCAS?
- (a) TCAS is a cooperative collision avoidance system.
  - (b) TCAS provides separation provision between aircraft.
  - (c) None of other answers is correct.
  - (d) TCAS is a non-cooperative collision avoidance systems.
43. Which physical transmission layer is used by the ACARS?
- (a) Very high frequency (VHF) subnetwork.
  - (b) Satellite communication.
  - (c) High Frequency (HF) subnetwork.
  - (d) All answers are correct.
44. An IFR aircraft is flying in RVSM airspace with heading 280°, following the *odd-even* rule to assign a flight level, a possible flight level for the flight could be:
- (a) FL325
  - (b) FL320
  - (c) FL335
  - (d) FL330
45. The letters of agreement (LoA) define de conditions for:
- (a) The coordination between the CFMU and the ATS centres to manage departure slots.
  - (b) The coordination between adjacent sectors.
  - (c) The coordination between IFR flights and the ATS.
  - (d) The correlation between the transponder code and the flight plan.
46. In a conventional IFR holding, which leg is typically a guided leg?
- (a) Both inbound and the outbound legs are always guided.
  - (b) The outbound leg.
  - (c) The inbound leg.
  - (d) In a IFR holding there are no guided legs.
47. Regarding the Instrumental Approach Chart (IAC) **La Palma NDB**, annexed to this exam, the radionavigation aid labeled as *BV* is a:
- (a) DME.
  - (b) VOR/DME.
  - (c) NDB.
  - (d) ILS/DME.
48. Air Navigation Services (ANS) are composed by:
- (a) ASM, ATFM and ATS.
  - (b) AIP, NOTAM and CIRC.
  - (c) Alert services, flight information services and air traffic control.
  - (d) CNS, ATM, Search and Rescue, AIS, and Meteorology services.
49. North Atlantic oceanic control typically require the aircraft crew to:
- (a) Report periodically their position every 2h.
  - (b) Transmit their position only when requested by the ATC.
  - (c) Switch-off the transponder.
  - (d) Report periodically their position every 10° of longitude.
50. Who is the responsible to issue air traffic control clearances?
- (a) The ATC supervisor.
  - (b) The planner controller.
  - (c) The tactical controller.
  - (d) The strategic controller
51. Which of the following statements is NOT a new concept/system regarding the **communications** in the future CNS systems for ATM?
- (a) Automatic Dependent Surveillance (ADS).
  - (b) Reduced VHF frequency spacing (8.33 kHz).
  - (c) Aircraft Communications Addressing and Reporting System (ACARS).
  - (d) Controller-Pilot DataLink Communications (CPDLC).
52. Consider the VFR chart of the area around Perpignan, provided in annex to this exam. The lower limit of the Dangerous area D142, located over the mediterranean sea is:
- (a) 3000 ft above the 1013.25 hPa isobar.
  - (b) 3000 ft above the sea level.
  - (c) 3000 ft above the elevation of Perpignan airport.
  - (d) the sea level.
53. Which of the following radionavigation aids **cannot** be used as the main aid providing guidance in the final approach segment of a non-precision approach procedure?
- (a) All three radionavigation aids are valid.
  - (b) An ILS localizer.
  - (c) A Locator.
  - (d) A DME.
54. Regarding the Instrumental Approach Chart (IAC) **La Palma NDB**, annexed to this exam, the aircraft operator will publish for their crew...
- (a) a minimum descent altitude.
  - (b) a NDB altitude.
  - (c) a decision altitude.

- (d) an obstacle clearance altitude.
55. ICAO regulations classify the aircraft according to their wake turbulence as:
- Heavy, Medium and Light.
  - APV-I and APV-II.
  - CAT-I, CAT-II, CAT-IIIa, CAT-IIIb and CAT IIIc.
  - A, B, C, D, E and H.
56. Regarding the Instrumental Approach Chart (IAC) **La Palma NDB**, annexed to this exam...
- it is a circling to approach.
  - it is a precision approach.
  - it is an APV approach.
  - it is a CAT-I approach.
57. Which of the following information items is not typically given by a flight information service?
- Volcanic activity in a certain area.
  - Traffic information assisting the pilot to avoid collision conflicts.
  - Minimum descent altitudes for a specific approach.
  - The frequency of a specific radionavigation aid.
58. A VFR flight is crossing the Limoges airspace at 2500ft QNH following a straight line from **south to north** that overflies Limoges airport. According to the VFR chart provided in annex to this exam, at which point this aircraft will need a clearance before entering controlled airspace?
- Before entering the TMA Limoges 2 (approximately over St. Yrieix-la-Perche).
  - Before entering the CTR Limoges 2.
  - Before entering the TMA Limoges 1 (approximately over Nexoh).
  - Before entering the CTR Limoges 1.
59. In which of the following procedures the final approach segment will start at the FAP?
- In any approach that the intermediate segment ends at the *end of turn*.
  - In an ILS approach.
  - In a VOR approach.
  - In a Localizer approach.
60. Which transponder mode transmits only the transponder code of the aircraft?
- Mode A.
  - Mode C.
  - Mode S.
  - Mode B.
61. The goal of the Air Navigation Services (ANS) is to improve one or more of the following indicators at the same time none of the remaining ones are degraded:
- Safety, capacity and efficiency.
  - Safety and traffic.
  - Safety, security and predictability.
  - Safety and security.
62. What is a VOLMET?
- A special message issued by the International Volcanic Meteorology Office, regarding volcanic activity.
  - A radio station broadcasting meteorological information of a specific airport, indicating as well, the runway in service, the preferred IFR approach, the transition level and any other relevant information regarding airport operations.
  - A radio station broadcasting meteorological information of a certain area, including some relevant airports.
  - A radio station broadcasting volcanic activity information in a certain area.



Figure 1: Airfield traffic pattern

KAHULUI, HAWAII

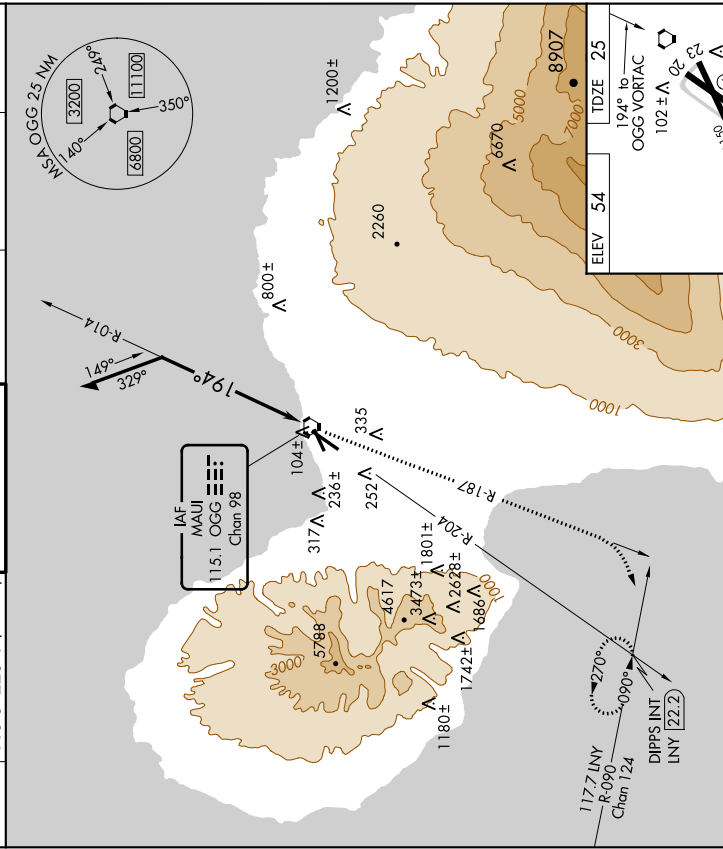
AL-762 (FAA)

VORTAC OGG	115.1	APP CRS	194°	Rwy Idg	6995
Chan 98		TDZE	25	Apt Elev	54

## VOR RWY 20

KAHULUI (OGG)(PHOG)

ATIS	128.6	HCF APPROACH	120.2 322.4 (NORTH)	MAUI TOWER*	118.7 (CTAF) 279.6	GND CON	121.9 279.6	CINC DEL	120.6 290.5	UNICOM	122.95
MISSED APPROACH: Climb to 6000 via OGG R-187 to intercept LNY R-090, then climbing right turn direct DIPS Int and hold.											



CATEGORY	A	B	C	D
S-20	420-1 395 (400-1)	420-1 395 (400-1)	420-1 395 (400-1)	420-1 395 (400-1)
CIRCLING	520-1 466 (500-1)	560-1 506 (600-1)	620-1 566 (600-1)	640-2 586 (700-2)

KAHULUI, HAWAII

20°54'N-156°26'W

Orig-B 1.3234

## VOR RWY 20

KAHULUI (OGG)(PHOG)

20°54'N-156°26'W

Orig-B 1.3234

PAC, 06 FEB 2014 to 03 APR 2014

PAC, 06 FEB 2014 to 03 APR 2014

LA PALMA

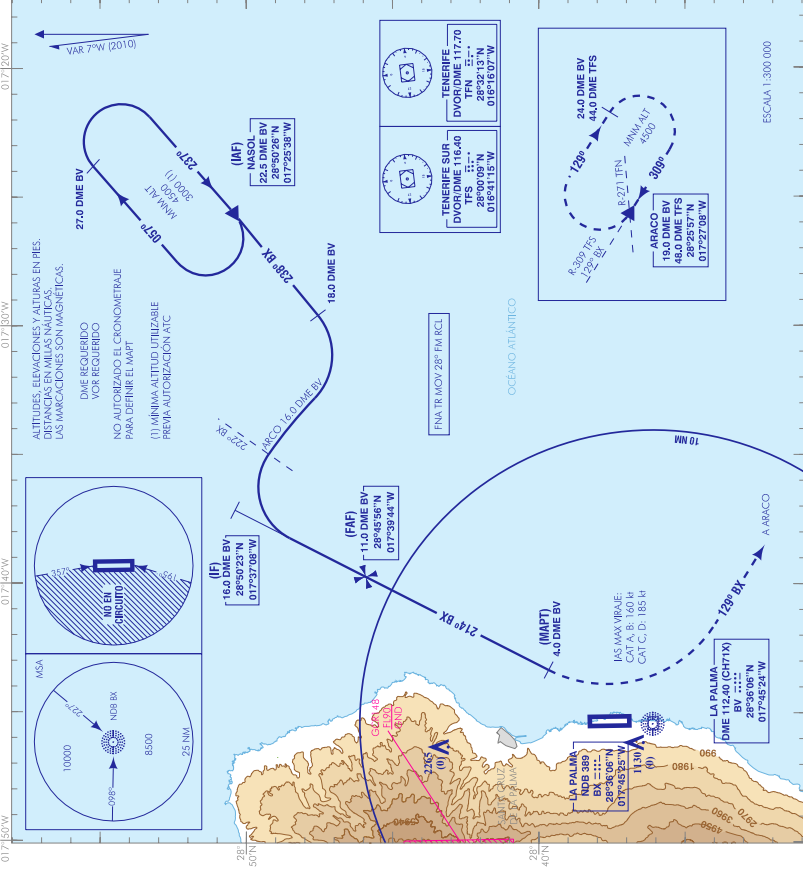
ELEV AD

CARTA DE APROXIMACIÓN  
POR INSTRUMENTOS-OACI

APP

TWR

GMC



LA PALMA

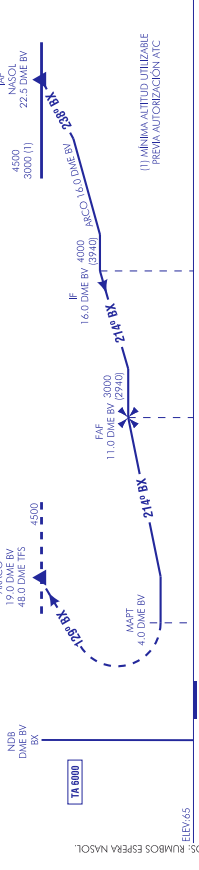
ELEV AD

CARTA DE APROXIMACIÓN  
POR INSTRUMENTOS-OACI

APP

TWR

GMC



LA PALMA

ELEV AD

CARTA DE APROXIMACIÓN  
POR INSTRUMENTOS-OACI

APP

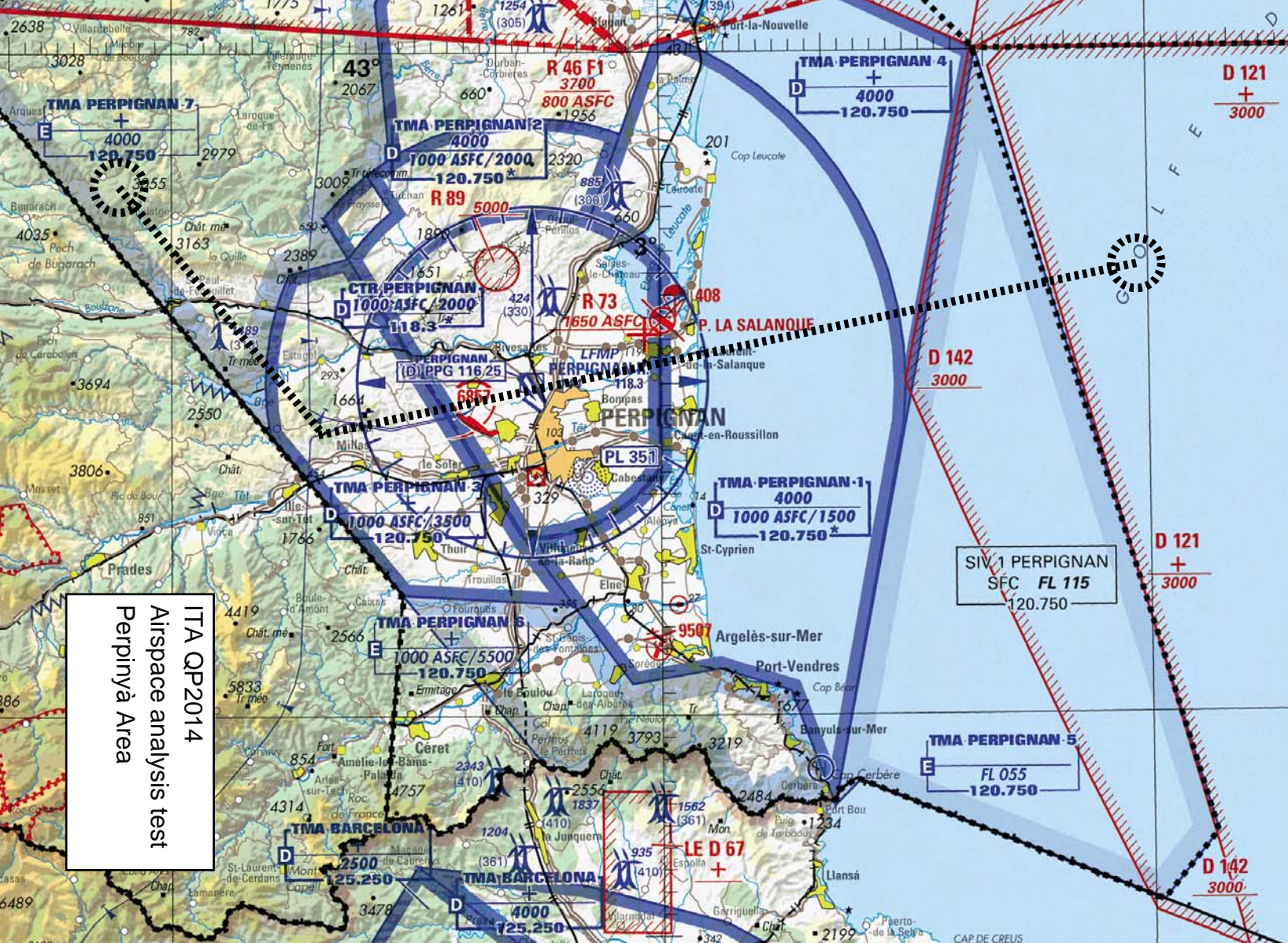
TWR

GMC

GS	KT	80	100	120	140	160	180
FAP-THR:	mp/s						
FAP-MAPT:	mp/s						
ROD:	ft/min						
ALTHGT DME ( ) FNA							
13 DME 12 DME 11 DME 10 DME 9 DME 8 DME 7 DME 6 DME 5 DME 4 DME 3 DME 2 DME 1 DME							

AD 2-GCIA IAC/2

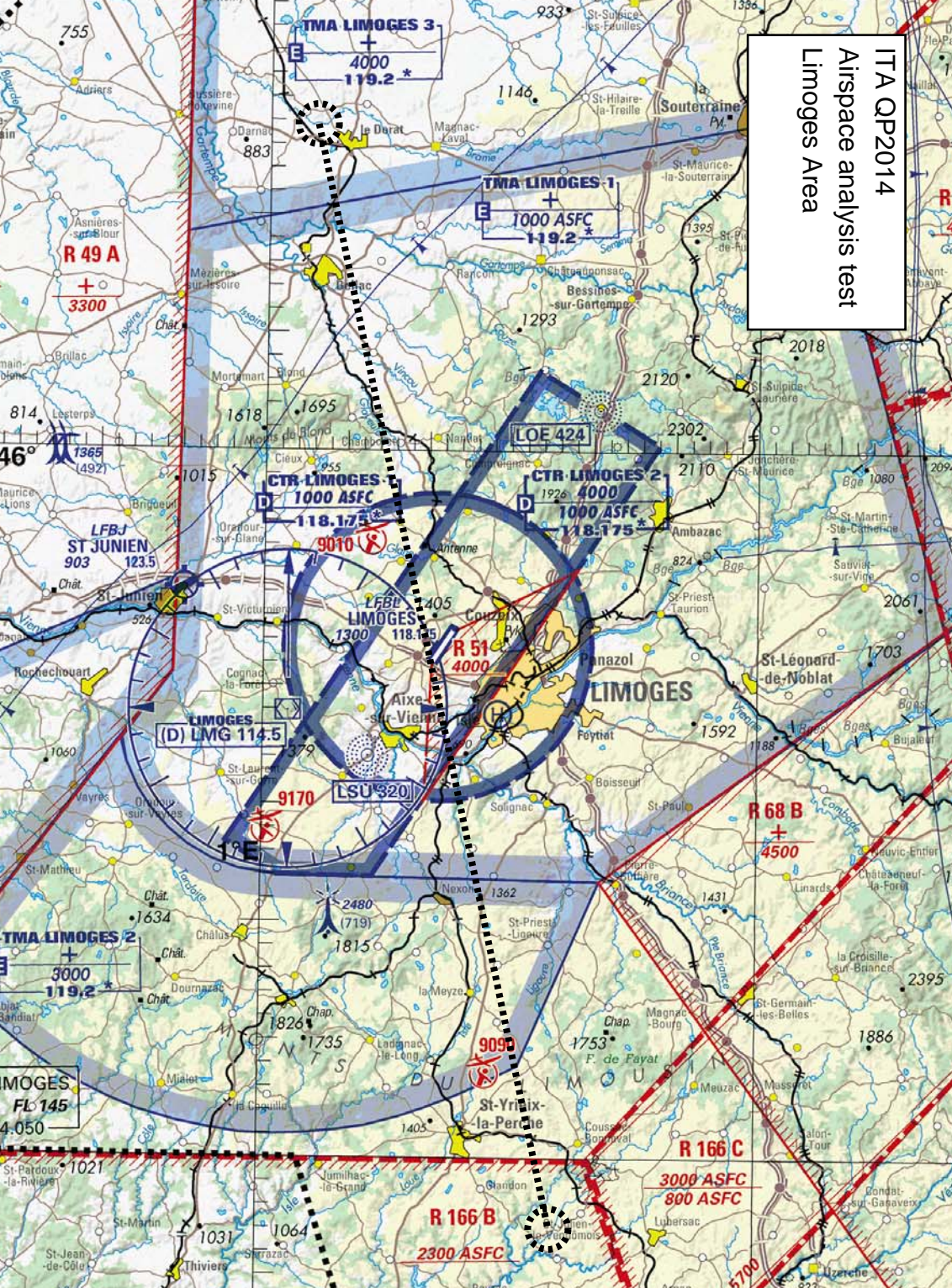




ITA QP2014  
Airspace analysis test  
Perpinyà Area



ITA QP2014  
Airspace analysis test  
Limoges Area



# INFRAESTRUCTURES DEL TRANSPORT AERI (ITA)

## Mid Term Exam - Fall semester 2014

Correct answers

Pregunta	PERM. A	PERM. B	PERM. C	PERM. D
P 01	b	a	c	c
P 02	c	a	c	b
P 03	c	b	a	a
P 04	b	d	c	a
P 05	a	a	a	c
P 06	b	b	b	a
P 07	b	a	b	a
P 08	c	d	b	b
P 09	a	d	a	d
P 10	d	b	c	d
P 11	a	d	b	b
P 12	a	a	a	c
P 13	c	b	b	d
P 14	d	b	b	c
P 15	c	b	b	c
P 16	c	b	b	d
P 17	c	b	a	b
P 18	b	b	d	b
P 19	b	d	a	b
P 20	c	a	b	b
P 21	a	d	c	b
P 22	d	a	c	b
P 23	c	a	c	b
P 24	b	b	a	b
P 25	c	c	d	d
P 26	b	d	d	c
P 27	d	d	d	d
P 28	c	c	a	c
P 29	c	a	a	a
P 30	d	d	a	c
P 31	c	c	d	c
P 32	b	a	c	c
P 33	c	d	d	d
P 34	a	c	a	a
P 35	c	a	d	c
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P 38	b	d	d	a
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P 43	d	b	b	d
P 44	b	c	c	d
P 45	b	b	d	a
P 46	c	a	c	c
P 47	a	b	d	b
P 48	d	a	b	d

P 49	d	b	d	b
P 50	c	c	d	b
P 51	a	c	a	d
P 52	d	a	b	b
P 53	d	d	d	b
P 54	a	d	b	b
P 55	a	c	c	c
P 56	a	d	c	d
P 57	c	d	d	a
P 58	b	b	c	a
P 59	b	a	c	d
P 60	a	c	d	d
P 61	a	c	c	c
P 62	c	a	b	a