

## **Infraestructures del Transport Aeri**

### **Final exam - Fall semester 2013**

Short questions: answer them with one word or sentence in the space provided.

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

**Give the name of at least three legs of the visual aerodrome traffic pattern?**

**Regarding the Instrumental Approach Chart (IAC) Lanzarote ILS Z RWY03 annexed to this exam, imagine an aircraft proceeding directly to LTE with heading 270°. If this aircraft is instructed to hold, what would be the holding entry procedure to be executed?**

**Regarding the Instrumental Approach Chart (IAC) Lanzarote ILS Z RWY03 annexed to this exam and assuming that the MDA=OCA for this approach, what would be the minimum descent altitude above mean sea level for an aircraft of category A executing a circling to approach manoeuvre to runway 21?**

**Cite three different objectives or main tasks of Airspace Management.**

**Cite at least three simplifications or assumptions that were applied to the ITA ATC laboratory simulations if compared with respect to the real world operations performed at Barcelona air control centre.**

**Imagine an airport with SIDs and STARs going/coming to/from all directions (such as in Barcelona airport). Give *one* Airspace Management measure you could take in order to reduce the workload of the approach air traffic controllers.**

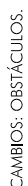
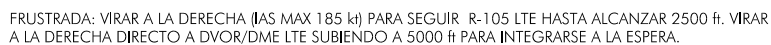
**Write at least one reason motivating the development of ASAS.**

**Write down two expected benefits of the future surveillance systems.**

**Which system provides more navigation accuracy: SBAS or GBAS?**

**Which system provides more geographical coverage: SBAS or GBAS?**

LANZAROTE  
ILS Z  
RWY 03



OCA/H		A	B	C	D
STA	CAT I	430 (412)	440 (422)	450 (432)	460 (442)
<b>En círculo (H) sobre 47</b>		1120 (1080)	2350 (2310)	2450 (2410)	2470 (2430)

GS		kt	80	100	120	140	160	180				
FAP-THR: 6.9 NM		min:s	5:09	4:07	3:26	2:57	2:35	2:17				
FAF-MAPT:		min:s										
ROD: 5.2 %		ft/min	425	531	637	743	849	955				
ALT/HGT DME (ILS) 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
							2020 (1010)	1690 (1680)	1360 (1350)	1040 (1030)	720 (710)	

# INFRAESTRUCTURES DEL TRANSPORT AERI (ITA)

## Mid Term Exam - Fall semester 2013

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

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

### Permutacio A

1. Which is the radiotelephony callsign of a flight labeled as *BAW142* in an ATC radar screen?
  - (a) British Airways One Four Two
  - (b) Bravo Alpha Whiskey One Four Two
  - (c) Brussels One Four Two
  - (d) Speedbird One Four Two
2. The main objective of air traffic flow management (ATFM) is:
  - (a) all the answers are correct.
  - (b) keep the forecasted demand below estimated capacity in airports and airspace sectors by issuing different flow management initiatives
  - (c) provide flight information services to civil aircraft according to the class of airspace
  - (d) develop a network of ATS routes and airspace structures to try to accomodate the forecasted air traffic volumes
3. Which statement is true?
  - (a) If a runway-use configuration is used less than 2% of the time, that time may be credited to another runway-use configuration when computing the ASV.
  - (b) If we want to observe how aircraft behave and move in a given RAMS scenario, we must perform the simulation in non-graphic mode.
  - (c) None of the other options is correct.
  - (d) Widebody aircraft have only one corridor in the passenger cabin.
4. Regarding the Instrumental Approach Chart (IAC) **Lanzarote ILS Z RWY03**, annexed to this exam, the radionavigation aid labeled as *IRR* is a:
  - (a) Locator.
  - (b) DME.
  - (c) VOR/DME.
  - (d) Localizer.
5. Regarding the Instrumental Approach Chart (IAC) **Lanzarote ILS Z RWY03**, annexed to this exam, the missed approach segment is...
  - (a) mainly composed by a dead-reckoning leg and a VOR radial.
  - (b) mainly composed by two NDB courses.
  - (c) mainly composed by two VOR radials.
  - (d) a tear-drop procedure
6. Imagine you are providing Air Traffic Control services within a sector in the middle of the ocean, with NO radar coverage and no ADS information. How could you provide such services in these conditions?
  - (a) Without radar coverage or ADS information, Air Traffic Control services cannot be provided.
  - (b) By means of position reports, flight plan information and transponder codes.
  - (c) By means of position reports, flight plan information and visual acquisition of the aircraft.
  - (d) By means of position reports and flight plan information.
7. The ground-based augmentation system (GBAS) working principle is based on:
  - (a) an additional satellite that broadcasts the GPS errors.
  - (b) the receiver autonomous integrity monitoring (RAIM) principle.
  - (c) None of the other answers are correct.
  - (d) the similarity of the errors for users located "not far" from each other.
8. Air Traffic Control (ATC) services shall be provided to:
  - (a) All IFR flights.
  - (b) Any aircraft known by the ATS.
  - (c) None of the previous answers are correct.
  - (d) All VFR flights in airspace classes B, C, D and E.
9. The main advantage of the slot allocation algorithm, based on the ration by schedule principle is that:
  - (a) it minimises the maximum assigned delay.
  - (b) it minimises the total delay.
  - (c) it minimises the airborne delay at the origin airport.
  - (d) it minimises the airborne delay at the destination airport.
10. What is the gate mix (GM)?
  - (a) The GM is the percentage of category A aircraft accommodated by a gate group.
  - (b) The GM is the percentage of widebody aircraft accommodated by a gate group.

- (c) None of the other options is correct.
  - (d) The GM is the percentage of non-widebody aircraft accommodated by a gate group.
11. Which of the following systems can provide a RNAV functionality?
- (a) VOR/DME.
  - (b) GNSS.
  - (c) DME/DME.
  - (d) all the answers are correct.
12. Regarding the Satellite Based Augmentation System (SBAS)...
- (a) Such systems are commonly composed of multiple ground stations, located at accurately-surveyed points.
  - (b) The ground stations take measurements of one or more GNSS satellite signals and other environmental factors which may impact the signal received by the users.
  - (c) It is a system that supports a wide-area or regional augmentation by using several additional satellite broadcasted messages.
  - (d) All the answers are correct.
13. Which of the following is NOT a standard report in the ATM Analyzer?
- (a) Mean Delay by ADEP-ADES.
  - (b) Instantaneous Sector Threshold Violations.
  - (c) Sliding Sector Entries.
  - (d) Departure Occupancy.
14. In which case may taxiways limit the hourly capacity of an airport?
- (a) When an arriving stream of aircraft must cross a runway.
  - (b) When an arriving or departing stream of aircraft must cross an active runway.
  - (c) When an arriving or departing stream of aircraft must cross a runway.
  - (d) None of the other options is correct.
15. What is a TRA (temporary reserved area)?
- (a) a volume of airspace temporary reserved for IFR terminal manoeuvres where VFR traffic might transit under an ATC clearance
  - (b) a volume of airspace temporary reserved for IFR terminal manoeuvres where VFR traffic cannot transit under any circumstance
  - (c) a volume of airspace temporary reserved and allocated for specific use where civil traffic cannot transit under any circumstance.
  - (d) a volume of airspace temporary reserved and allocated for specific use where civil traffic might transit under an ATC clearance.
16. Regarding the mix index (MI), which of these statements is correct?
- (a) The MI gives you an idea about the amount of widebody aircraft to be considered.
  - (b) The hourly capacity of a runway is not related to the MI.
  - (c) The MI gives you an idea about the heterogeneity of the traffic.
  - (d) None of the other options is correct.
17. When designing IFR procedures, the wind spirals are used for:
- (a) estimating the bank angle in turns (\*).
  - (b) computing the TAS given the IAS.
  - (c) drawing the protection areas in turns (\*).
  - (d) The answers marked with (\*) are correct.
18. Which of the following statements is true?
- (a) CPDL is based in long text messages with attached images.
  - (b) CPDL may make worse the current shortage of available frequencies.
  - (c) None of the other options is correct.
  - (d) CPDL may allow reducing the use of voice communication between ATC and pilots.
19. The ASV is a measure of:
- (a) an airport's annual capacity.
  - (b) None of the other options is correct.
  - (c) the number of aircraft operations to be accommodated in an airport in a specified time period.
  - (d) the maximum number of aircraft operations which can be accommodated on the airport in an hour.
20. Mark the **correct** statement:
- (a) All the answers are correct.
  - (b) Flight information Services are provided when Air Traffic Control is provided.
  - (c) Flight Information Services are provided when Alert Services are provided.
  - (d) Air Traffic Control is provided when Alert Services are provided.
21. In Europe, when a CTOT (Calculated take-off time) is given, the aircraft should take-off within the period:
- (a) [CTOT - 5min, CTOT +5 min]
  - (b) [CTOT, CTOT +10 min]
  - (c) [CTOT - 10min, CTOT +10 min]
  - (d) [CTOT - 5min, CTOT +10 min]
22. European airports are...
- (a) are only regulated if the demand exceeds the capacity.
  - (b) typically regulated by *schedule* (or IATA) slots that suppose a rather worst case IMC scenario.
  - (c) are only regulated in certain countries.

- (d) are not regulated at all.
23. Regarding the airborne separation assurance systems (ASAS) and airborne collision avoidance systems (ACAS), which of the following statements is correct?
- ASAS serves as a last-resort safety net irrespective of any separation standards.
  - All the answers are correct.
  - Traffic collision avoidance system (TCAS) is a commercially available ACAS system.
  - ACAS could be an enabler of the Free Flight concept.
24. Which is NOT correct, according to the ICAO radiotelephony alphabet?
- S: Sierra
  - I: India
  - L: Lima
  - R: Roger
25. Which of the following controlled airspace zones is sized to accommodate, approximately, all the aircraft flying standard instrumental arrivals or departures?
- The CTA.
  - The TMA.
  - The CTR.
  - The ATZ.
26. Which statement is true about RAMS and the ATM Analyser?
- The gate to be occupied by an aircraft in the destination airport is chosen by the crew and stated in the flight plan.
  - None of the other options is correct.
  - Given a RAMS scenario, the results if we execute the non-graphic simulation are different to those obtained if we execute the graphic simulation.
  - Selecting the *En-route Delay* field in the *Metric* tab makes the corresponding standard report compute only the delay in the airport holding patterns when executed.
27. Which parameters are needed for obtaining the TAS from the IAS?
- Temperature.
  - Altitude and temperature.
  - Altitude, temperature and wind speed.
  - Altitude.
28. In general, in which of the following ATC dependencies radar vectoring (heading instructions) is mostly provided?
- In approach control (APP).
  - In area control (en-route control).
  - In aerodrome control Tower (TWR).
  - In ground control (GND).
29. Which of the following statements is true?
- None of the other options is correct.
  - RAMS cannot simulate aircraft ground movement.
  - RAMS can simulate movement of aircraft through time, and their interaction with other aircraft and controllers.
  - RAMS cannot compute aircraft delays and ATC workload simultaneously in a simulation.
30. The minimum distance between two RNAV waypoints in an approach procedure...
- shall be always greater than 5 NM for category A and B aircraft.
  - all the answers are correct.
  - does not depend on the waypoint type (*fly-by or fly-over*).
  - shall take into account the minimum stabilization distances in case a turn is executed in one (or both) waypoint(s).
31. Which of the following transponder codes indicates a lost of radio communications?
- 7600
  - 7500
  - 1215
  - 7700
32. An IFR aircraft is flying in RVSM airspace with heading 189°, following the *odd-even* rule to assign a flight level, a possible flight level for the flight could be:
- FL330
  - FL320
  - FL335
  - FL325
33. Which is the minimum vertical accuracy required by a GNSS system if we want to execute non-precision approaches with it?
- 8 meters.
  - there are no vertical requirements in that case.
  - 20 meters.
  - 6 to 4 meters.
34. Which of the following statements is NOT a new concept/system regarding the communications in the future CNS systems for ATM?
- Reduced VHF frequency spacing (8.33 kHz).
  - Controller-Pilot DataLink Communications (CPDLC).
  - Aircraft Communications Addressing and Reporting System (ACARS).
  - Transponder Mode-S.

35. Air Traffic Management (ATM) is composed by:
- (a) AS, FIS and ATC.
  - (b) ASM, ATFM and ATS.
  - (c) CNS, ASM, ATFM, ATS, S&R, AIS and MET
  - (d) ASM, ATFM, AIP, NOTAM and CIRC.
36. Which is the correct order of these types of airspace/areas if we sort them from non segregated to fully segregated? (TSA: temporary segregated area; RCA: reduced coordination airspace; TRA: temporary reserved area; PCA: prior coordination airspace)
- (a) TRA, TSA, RCA, PCA.
  - (b) RCA, PCA, TRA, TSA.
  - (c) TSA, RCA, TRA, PCA.
  - (d) PCA, RCA, TSA, TRA.
37. Regarding the figure 1(b), AEA979D is **not yet in our sector** (the label of the aircraft is of colour blue). In this case, what does FL320 represent?
- (a) The exit flight level of our sector.
  - (b) The last cleared flight level.
  - (c) The desired cruise altitude of the aircraft.
  - (d) The planned entry flight level to our sector.
38. The letters of agreement (LoA) define de conditions for:
- (a) The coordination the CFMU and the ATS centres to manage 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.
39. Which of these statements is **correct**?
- (a) Precision approaches provide vertical guidance in the final approach segment, while APV and non precision approaches do not provide any vertical guidance.
  - (b) APV approaches are those where the final approach segment is executed visually.
  - (c) Precision and APV approaches provide vertical guidance in the final approach segment, while non precision approaches do not provide any vertical guidance.
  - (d) Precision approaches provide vertical guidance in the initial, intermediate and final approach segments, while APV and non precision approaches do not provide any vertical guidance.
40. Airspace management (ASM) initiatives or strategies are usually:
- (a) implemented in real time by the initiative of the supervisor of an ATC center
  - (b) tested by several fast-time simulations and studies
  - (c) proof mathematically and solved analytically
  - (d) implemented in real time by the initiative of an air traffic controller
41. Indicate which of the following statements about the MOC is true.
- (a) The MOC is the **Maximum** Obstacle Clearance height with respect to the airport elevation.
  - (b) None of the other options is correct.
  - (c) The MOC is the **Minimum** Obstacle Clearance height with respect to the airport elevation.
  - (d) The MOC is the **Maximum** Obstacle Clearance altitude with respect to the mean sea level.
42. The length of a CDA, given a typical cruise altitude used by the majority of comercial airlines, is of the order of:
- (a) 40 NM.
  - (b) 160 NM.
  - (c) 80 NM.
  - (d) 320 NM.
43. Which of the following methods ara not valid to define a radionavigation FIX:
- (a) An important landmark.
  - (b) The intersection of a VOR radial and a NDB course.
  - (c) Some timing after overflying a facility.
  - (d) Overflying a facility.
44. When procedural control is given to an approach procedure, then:
- (a) the pilots must not consider any ACAS advisory.
  - (b) the air traffic controller can clear only one aircraft per approach.
  - (c) the pilots ensure separation by their own means (visual, ASAS, etc.).
  - (d) the air traffic controller can give vectors to the aircraft to ensure separation.
45. What is the main drawback of the very high frequency (VHF) spectrum when used for air navigation purposes?
- (a) The VHF spectrum is not used in air navigation due to its bad spectral behaviour.
  - (b) In order to avoid mutual interference, two close transmitters must use different frequencies.
  - (c) VHF radio waves refract in the atmosphere and, therefore, the interference of the overall system is increased.
  - (d) In order to avoid mutual interference, two distant transmitters must use different frequencies.

46. One of the advantages of performing CDAs is that:
- (a) the environmental impact of the operations is reduced.
  - (b) the conflicts with other traffic are reduced.
  - (c) the capacity of arrivals at the airport is increased.
  - (d) all the answers are correct.
47. Which of the following types of controller tasks can RAMS take into account?
- (a) Last message when leaving a sector.
  - (b) Instructions to keep separation.
  - (c) First call of a new aircraft in a sector of the same ACC.
  - (d) All the other options are correct.
48. In the frame of ATS, who is responsible for executing transfers of aircraft between two ATC sectors?
- (a) The planner controller.
  - (b) The tactical controller.
  - (c) None of the other answers is correct.
  - (d) The supervisor controller.
49. What can we do in the *Aggregations* tab in ATM Analyser?
- (a) We can define how we want the results to be sorted and presented when executing the corresponding standard report.
  - (b) We can define the metric that we want to compute when executing the corresponding standard report.
  - (c) We can add runways, SIDs, STARs, etc. to the scenario.
  - (d) None of the other options is correct.
50. What ATIS stands for? (when talking about the provision of ATS)
- (a) Aircraft Transmission Incertitude System (awareness system).
  - (b) Automatic Terminal Information Service.
  - (c) Autonomous Test for Integrity System.
  - (d) Aircraft Transponder Information Service (transponder mode S).
51. Regarding the figure 1(a), what does the tip of the black line appearing next to each aircraft symbol indicate?
- (a) The estimated position of the aircraft, after a given period of time, based on the current aircraft heading and speed.
  - (b) The minimum separation distance between two aircraft.
  - (c) The estimated position of the aircraft, after a given period of time, based on the filed flight plan.
  - (d) The black line gives a visual information to the controller regarding the vertical speed of the aircraft.
52. In a conventional IFR holding, which leg is typically a dead reckoning leg?
- (a) The inbound leg.
  - (b) The inbound and the outbound legs.
  - (c) The outbound leg.
  - (d) Only the two turns are executed in dead reckoning.
53. Given the figure 2(a), what would be the OCA/H assuming a non-precision approach procedure, with no significant obstacles in the missed approach segment, a MOC of 250 ft for the final approach segment, a runway threshold elevation of 300 ft and an elevation of 500 ft for the most significant obstacle (as depicted in the figure)?
- (a) OCA=1050ft and OCH=250ft.
  - (b) OCA=1050ft and OCH=750ft.
  - (c) OCA=750ft and OCH=450ft.
  - (d) OCA=550ft and OCH=300ft.
54. The vertical dispersion between difernt aircraft performing the CDAs, as observed in your project (WP1):
- (a) increases or decreases as the aircraft fly the CDA depending on the initial aircraft weights.
  - (b) is constant during the CDA.
  - (c) decreases as the aircraft fly the CDA.
  - (d) increases as the aircraft fly the CDA.
55. Figure 1(c) shows a radar screenshot taken at the North border of Barcelona FIR. EYZ1713 is scheduled to land in Valencia, while EYZ9JA is just transiting in the FIR. Which of the following statements is correct?
- (a) There is no potential conflict between the two aircraft if the ATC clears EYZ9JA immediately to FL360.
  - (b) There is no potential conflict between the two aircraft if the ATC clears EYZ1713 immediately to FL220.
  - (c) There is a potential conflict between the two aircraft that can be solved by changing appropriately the exit flight level of EYZ1713.
  - (d) There is a potential conflict between the two aircraft that can be solved by laterally deviating one of the two aircraft and instructing the EYZ1713 to descend when ready.
56. How can we increase the hourly capacity of the runway component?
- (a) By building a rapid-exit taxiway at the appropriate distance from the runway threshold and from other exit taxiway.
  - (b) None of the other options is correct.
  - (c) By building an extra gate group suited for allocating general aviation aircraft.

- (d) By changing from a configuration with two active runways for arrival and one active runway for departure, to a configuration with one active runway for arrival and one active runway for departure.
57. What system is the precursor of the secondary surveillance radar (SSR)?
- Identification friend or foe (IFF).
  - SSR is a novel system, without any precursors.
  - The automatic dependence surveillance (ADS)
  - None of them are correct
58. Which of the following navigation specification you have used for designing the procedure at LELL in the WP4?
- RNAV 2
  - RNP APCH
  - RNP 1
  - RNAV 1
59. Regarding the Instrumental Approach Chart (IAC) **Lanzarote ILS Z RWY03**, annexed to this exam:
- It is a straight-in and a precision approach.
  - It is a circling and a precision approach.
  - It is a straight-in and a non precision approach.
  - It is a circling and a non precision approach.
60. In ATM, several processes or functionalities have strategic, pre-tactical and tactical phases. Which of the following statements is correct?
- None of them are correct.
  - strategic* refers to a plan, procedure, or expedient for promoting a desired short-term end.
  - tactical* can be defined as a plan of action designed to achieve a long-term or overall aim.
  - strategic* can be defined as a plan of action designed to achieve a long-term or overall aim.
61. Which of the following statements is correct with respect to the exit flight level (XFL) of an aircraft inside an ATC sector?
- The strategic controller defines and ensures the XFL by clearing the aircraft to it.
  - The ATC supervisor defines the XFL and the strategic controller ensures it by clearing the aircraft to it.
  - The strategic controller defines the XFL and the tactical controller ensures it by clearing the aircraft to it.
  - The strategic controller of the following sector defines the XFL and the strategic controller of the current sector ensures it by clearing the aircraft to it.
62. RNAV allows:
- all the answers are correct.
  - the procedure designer to design guided segments joining two points without the need for overflying specific ground facilities.
  - the pilot to freely plan a route joining two points without the need for overflying specific ground facilities and submit the route in the flight plan.
  - the pilot to freely chose a route joining two points without the need for overflying specific ground facilities at tactical level assuring self-separation with other aircraft.
63. In a ILS approach procedure, the decision to land or to execute a missed approach must be taken, at the latest, when...
- reaching the OCA.
  - reaching the MDA.
  - reaching the MAPt.
  - reaching the DA.
64. 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 NDB.
  - All three radionavigation aids are valid.
  - A Locator.
  - A VOR/DME.
65. Regarding the Instrumental Approach Chart (IAC) **Lanzarote ILS Z RWY03**, annexed to this exam, the initial approach segment is...
- a ILS course.
  - a tear-drop procedure.
  - a dead-reckoning segment that depends on the aircraft speed.
  - a localizer course.
66. Regarding the flexible use of airspace (FUA) concept, the first level (strategic level) deals with:
- The day-to-day allocation of airspace, according to users requirements.
  - The definition of the sectorisation and capacity of the military airways.
  - The real-time use and management of available airspace.
  - The definition of national airspace policy and predetermined airspace structures.
67. Given the figure 2(b), which is the minimum flight altitude between the two waypoints assuming a MOC of 1000 ft, a runway threshold elevation of 500 ft and an elevation of 3000 ft of the most significant obstacle (as depicted in the figure)?
- 3500 ft
  - 4000 ft



- (c) 3000 ft
  - (d) 4500 ft
68. Which of the following statements is true according to how we have used RAMS in ITA?
- (a) RAMS simulations are deterministic.
  - (b) None of the other options is correct.
  - (c) RAMS does not allow stochastic air traffic generation.
  - (d) RAMS does not allow accelerated time simulations.
69. Regarding the Instrumental Approach Chart (IAC) **Lanzarote ILS Z RWY03**, annexed to this exam, the aircraft operator will publish for their crew a...
- (a) decision altitude.
  - (b) ILS minimum altitude.
  - (c) obstacle clearance altitude.
  - (d) minimum descent altitude.
70. Two aircraft of the same type and model have their cruise at the same altitude. Their only difference is the weight. Aircraft A is heavier than aircraft B. Regarding your project on CDAs (WP1) you can affirm that:
- (a) both CDAs will be equally long.
  - (b) the CDA of A will be longer than the CDA of B.
  - (c) we do not have enough information to assess which of the two CDAs will be longer.
  - (d) the CDA of B will be longer than the CDA of A.
71. Which of the following statements, regarding the Terminal Arrival Altitudes (TAA), is true?
- (a) The TAA indicate the minimum safe altitude to be considered by the pilots before arriving at the IAF in case of executing an omnidirectional arrival.
  - (b) The TAA are computed by adding a certain MOC to the highest(s) obstacle(s) lying inside a certain circular region around the IAF(s).
  - (c) All the answers are correct.
  - (d) The TAA allow the pilot to proceed directly from en-route to the approach without flying a prescribed STAR procedure.
72. Regarding the figure 1(a), the Delta aircraft is:
- (a) at FL250 and descending, cleared to FL160 and with a planned exit level at FL190.
  - (b) at FL190 and descending, cleared to FL250 and with a planned exit level at FL160.
  - (c) at FL250 and descending, cleared to FL190 and with a planned exit level at FL160.
  - (d) at FL190 and descending, cleared to FL160 and with a planned exit level at FL250.
73. When computing the protection areas of a turn (during the design of an instrumental approach procedure) how are the uncertainties of the **positioning system** taken into account?
- (a) By considering the RNAV turn stabilisation distances when computing the earliest and latest points of the turn.
  - (b) All the answers are correct.
  - (c) By considering the XTT and ATT values when computing the earliest and latest points of the turn.
  - (d) By considering the pilot reaction time when computing the earliest and latest points of the turn.
74. FIR/UIR stands for:
- (a) Flight Intercontrol Region/Upper Intercontrol Region.
  - (b) Flight Information Region/Upper Information Region.
  - (c) Former Information Region/Ultime Information Region.
  - (d) Former Intercontrol Region/Ultime Intercontrol Region.
75. Which of the following institutions is NOT an aircraft operator?
- (a) Emirates.
  - (b) Vueling.
  - (c) Institut Cartogràfic de Catalunya.
  - (d) Boeing.
76. A functional airspace block (FAB) is:
- (a) a portion of flexible used airspace (FUA)
  - (b) a synonym of airspace sector
  - (c) an initiative of the single european sky that establishes airspace blocks regardless of the different state boundaries
  - (d) a restricted or prohibited volume of airspace
77. If a significant amount of aircraft in a given airspace operate with CPDL, the ATC workload not related with communications may presumably:
- (a) Remain approximately the same.
  - (b) Decrease.
  - (c) None of the other options is correct.
  - (d) Increase.
78. In which of the following phases, the capacity of a sector is modelled and analysed?
- (a) In the provision of Air Traffic Services (ATS).
  - (b) In the provision of Air Information Services (AIS).
  - (c) In the Air Traffic Flow and Capacity Management (ATFCM).
  - (d) In the AirSpace Management (ASM).

79. When executing an approach procedure, in which case the pilot can proceed below the published MDA?

- (a) only when the MAPt has been overflown.
- (b) only when the FAF has been overflown.
- (c) only in the case of executing a precision approach procedure.
- (d) only when the pilot has visual contact with the runway and decides to land.

80. Regarding the Instrumental Approach Chart (IAC) **Lanzarote ILS Z RWY03**, annexed to this exam, the intermediate approach segment is...

- (a) an ILS glide path segment.
- (b) a VOR radial.
- (c) there is no intermediate segment in this procedure.
- (d) a NDB course.

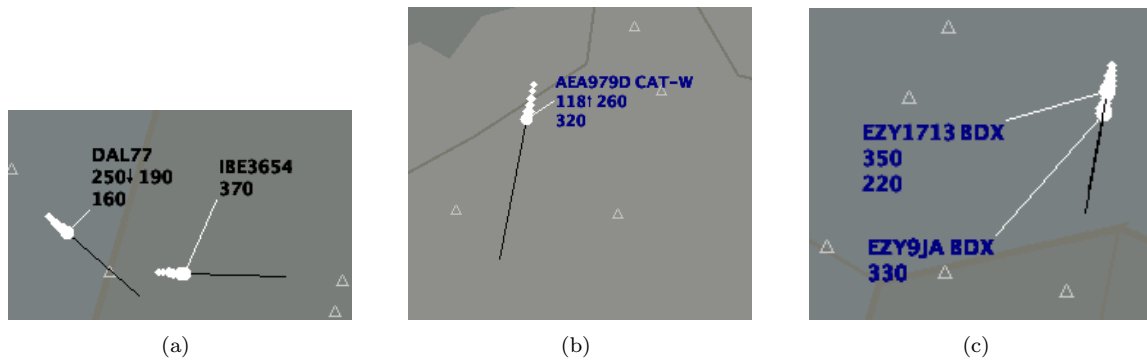


Figure 1: ATC radar screenshots



Figure 2: Procedure design schemas

# INFRAESTRUCTURES DEL TRANSPORT AERI (ITA)

## Final Exam - Fall semester 2013

Correct answers

Pregunta	PERM. A	PERM. B	PERM. C	PERM. D
P 01	d	c	a	d
P 02	b	b	d	d
P 03	a	d	d	a
P 04	d	a	b	a
P 05	c	d	b	a
P 06	d	d	d	b
P 07	d	<del>a</del> d	a	a
P 08	c	c	b	b
P 09	b	b	b	c
P 10	d	b	d	b
P 11	d	a	a	c
P 12	d	b	b	d
P 13	d	d	a	c
P 14	b	a	a	a
P 15	d	c	a	d
P 16	c	c	c	a
P 17	c	c	b	c
P 18	d	a	d	a
P 19	a	a	b	a
P 20	b	d	d	c
P 21	d	b	a	d
P 22	b	c	b	c
P 23	c	c	d	a
P 24	d	d	b	b
P 25	b	b	d	b
P 26	b	d	d	d
P 27	b	a	d	b
P 28	a	c	c	d
P 29	c	c	c	d
P 30	d	b	c	d
P 31	a	b	a	c
P 32	b	a	b	c
P 33	b	d	c	a
P 34	d	c	<del>e</del> d	d
P 35	b	c	c	b
P 36	b	c	c	c
P 37	<del>d</del> a	a	a	c
P 38	b	d	d	b
P 39	c	d	c	a
P 40	b	b	d	b
P 41	b	b	c	b
P 42	b	d	c	c
P 43	a	a	c	b
P 44	b	b	a	b
P 45	b	d	b	a
P 46	a	d	a	a

P 47	d	d	a	b
P 48	b	b	d	c
P 49	a	b	b	a
P 50	b	d	a	d
P 51	a	b	b	a
P 52	c	c	b	d
P 53	c	b	c	<del>d</del> c
P 54	c	d	<del>a</del> c	a
P 55	d	d	a	a
P 56	a	d	b	d
P 57	a	a	b	a
P 58	b	c	d	a
P 59	a	a	a	b
P 60	d	d	d	c
P 61	c	b	c	b
P 62	b	c	b	c
P 63	d	d	b	b
P 64	b	c	b	c
P 65	b	a	b	c
P 66	d	d	c	d
P 67	a	c	c	a
P 68	a	a	d	c
P 69	a	b	c	a
P 70	d	a	c	c
P 71	c	b	b	d
P 72	c	c	d	a
P 73	c	a	d	c
P 74	b	a	d	c
P 75	d	<del>a</del> b	b	a
P 76	c	a	c	b
P 77	<del>b</del> a	b	b	c
P 78	d	a	c	c
P 79	d	a	a	<del>b</del> c
P 80	b	c	a	c