INFRAESTRUCTURES DEL TRANSPORT AERI (ITA)
Final Exam - Spring semester 2018

Correct answer: +1 point – Incorrect answer: -1/3 points – Blank answer: 0 points
For each question **only one answer** is correct

CODE 1 - GROUP 00

1. Airspace Management (ASM) is NOT responsible for:

   (a) civil-military coordination.
   (b) designation of airspace types or classes.
   (c) air traffic flow management.
   (d) the design of the ATS route network.

2. An IFR aircraft is flying in RVSM airspace with heading 280^o. According to the ICAO flight level allocation scheme (*odd-even* rule), a possible flight level for this flight could be:

   (a) FL320
   (b) FL325
   (c) FL330
   (d) FL335

3. A pilot is reporting "our altitude is six thousand feet". This means:

   (a) The barometric altimeter of the aircraft indicates 6 000 ft and it is calibrated with respect to the standard pressure at sea level (1013.25 hPa).
   (b) The barometric altimeter of the aircraft indicates 6 000 ft and it is calibrated with respect to the local QNH.
   (c) The radio altimeter of the aircraft indicates 6 000 ft and it is calibrated with respect to the standard pressure at sea level (1013.25 hPa).
   (d) The radio altimeter of the aircraft indicates 6 000 ft and it is calibrated with respect to the local QNH.

4. Why standard terminal arrival routes contain typically **minimum altitude** restrictions for certain segments?

   (a) To allow visual self-separation procedures.
   (b) To allow continuous descent operations (CDO).
   (c) To strategically de-conflict them with departures crossing from below.
   (d) To strategically de-conflict them with departures crossing from above.

5. Which of the following airspace volumes is, in general, the smallest one?

   (a) TMA.
   (b) CTR.
   (c) ATC.
   (d) ATZ.

6. What is an airspace opening scheme?

   (a) It defines how the shape of the sector assigned to a specific air traffic controller will change along the day.
   (b) It defines the sequence of different sector configurations planned along the day.
   (c) It defines the number of open sectors at the begining of the day.
   (d) It defines the maximum number of open sectors along the day.

7. Which of the following statements is *correct*:

   (a) two or more existing airspace sectors could be merged into a single one if the air traffic demand decreases.
   (b) an airspace sector is continuously resized and shaped in real-time in order to adapt the air traffic demand to the workload of the air traffic controler.
   (c) at pre-tactical level (one day before operations for instance), the size and shape of sectors are defined to better accommodate their capacity to the forecast demand.
   (d) All the answers are correct.

8. Which of these operations can significantly improve the landing capacity of an airport with close parallel runways?

   (a) Parallel self-separation visual approaches.
   (b) Parallel ILS CAT-III approaches with radar control.
   (c) Parallel ILS CAT-III approaches with procedural control.
   (d) Parallel instrumental approaches only with aircraft equipped with TCAS.

9. Regarding the flexible use of airspace (FUA) concept, the second level (pre-tactical level) deals with:

   (a) The definition of national airspace policy and predetermined airspace structures.
   (b) The day-to-day allocation of airspace, according to users requirements.
   (c) The real-time use and management of available airspace.
   (d) The definition of the sectorisation and capacity of the military airways.

10. Wich of the following programs needs to be implemented in a wide area with multilateral agreements and involving (in the European case) several states?

    (a) Air Traffic Services.
    (b) Air Traffic Flow Management.
    (c) Airspace Management.
    (d) Flexible Use of Airspace.

11. Schedule (or IATA) slots...

    (a) are defined in European airpots twice a year.
    (b) are defined early in the morning in European airports.
    (c) are defined early in the morning in European airports, only if there is a demand/capacity imbalance.
    (d) are defined by the CFMU at any time when a demand/capacity imbalance exists.

12. An airspace sector has been regulated and its maximum capacity is set to 6 aircraft per hour. Table 1 below depicts the Estimated Time Over (ETO) the concerned sector for a given set of aircraft. Assume the first slot (slot #1) is given at 10h00. What is the ATFM delay that would be assigned to AFR022 according to the computed assisted slot allocation (CASA) algorithm?

Table 1

Flight	ETO	Flight	ETO
RYR66T	10:01	AZA333	10:24
BAW123	10:06	IBE77X	10:40
DAL077	10:07	ICC002	11:02
AFR022	10:11	SIA069	11:05

    (a) No delay.
    (b) 1 minute.
    (c) 4 minutes.
    (d) 19 minutes.

13. Considering the previous regulation, what would be the the ATFM delay for SIA069?

    (a) No delay.
    (b) 1 minute.
    (c) 5 minutes.
    (d) 10 minutes.

14. Considering the previous regulation, what would be the the ATFM delay for IBE77X?

(a) No delay.
(b) 1 minute.
(c) 5 minutes.
(d) 10 minutes.

15. Considering the previous regulation, which flight will take slot #7?

(a) This slot will not be used by any aircraft.
(b) ICC002
(c) AFR022
(d) AZA333

16. Strategic ATFM should:

(a) Balance flights next day with available ATC Capacity.
(b) Match long-term demand and needed ATC capacity.
(c) Manage current flights with existing ATC capacity.
(d) Define the national airspace policy and predetermined airspace structures.

17. What is the primary information sent by aircraft operators to the CFMU?

(a) sector and airport capacities.
(b) flight plans.
(c) accurate weather data.
(d) slots and rerouterings.

18. Mark the **wrong** statement:

(a) Alert Services are provided when Air Traffic Control is provided.
(b) Flight Information Services are provided when Alert Services are provided.
(c) Alert Services are provided when Flight Information Services are provided.
(d) Flight Information Services are provided when Air Traffic Control is provided.

19. Which of the following is a clear objective of the flight information service?

(a) To expedite and maintain an orderly flow if air traffic.
(b) To provide advice and information useful for the safe and efficient conduct of flights.
(c) To notify appropriate organisations regarding aircraft in need of search and rescue aid, and assist such organisations as required.
(d) All answers are correct.

20. Which of the following transponder codes indicates *distress*?

(a) 1215
(b) 7500
(c) 7600
(d) 7700

21. In airspace class C, separation services are provided...

(a) only between two conflicting VFR flights.
(b) only between two conflicting IFR flights.
(c) between two conflicting IFR flights, between an IFR conflicting with a VFR or SVFR, and between two SVFR flights.
(d) to all IFR and VFR flights in the airspace.

22. A VFR flight is flying inside an airspace of class E. The air traffic controller is responsible to separate it from:

(a) all other IFR flights.
(b) all other VFR flights.
(c) all other VFR and IFR flights.
(d) the controller has no separation responsibility with VFR flights in airspace class E.

23. North Atlantic tracks (NAT) are...

(a) the static airway network in the North Atlantic airspace.
(b) an organised track system that is updated every day as a function of the wind field forecast.
(c) the set of actual trajectory tracks flown by all aircraft crossing the North Atlantic in a given period of time.
(d) the name that is given to the oceanic clearances in the North Atlantic airspace.

24. Who is the responsible to detect and solve short term conflicts within an ATC sector?

(a) The strategic controller
(b) The tactical controller.
(c) The approach controller.
(d) The ATC supervisor.

25. Who is the responsible to receive and sort incoming ATC flight progress strips?

(a) The strategic controller
(b) The tactical controller.
(c) The controller in charge of the IFR clearance delivery dependency.
(d) The ATC supervisor.

26. The letters of agreement (LoA) define de conditions for:

(a) The coordination between IFR flights and the ATS.
(b) The coordination between adjacent sectors.
(c) The correlation between the transponder code and the flight plan.
(d) The coordination between the CFMU and the ATS centres to manage departure slots.

27. 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 delivery control.
(c) The ground control.
(d) The approach control.

28. The control dependency in charge of realising most of the the sequencing and merging operations of aircraft arriving at a busy airport is...

(a) the tower control.
(b) the en-route control.
(c) the ground control.
(d) the approach control.

29. How the letter T is spelled, according to the ICAO radio-telephony alphabet?

(a) Tango
(b) Turtle
(c) Tiger
(d) Tanger

30. Which is the radio-telephony callsign of a flight labelled as $AZA69$ in an ATC radar screen?

(a) Alpha Zulu Alpha Six Niner
(b) Air France Six Niner
(c) Alitalia Six Niner
(d) Europa Six Niner

31. At present, what is the principal communications method in continental Europe to link pilots with air traffic controllers?

(a) VHF voice communications.
(b) HF voice communications.
(c) Data-link communications.
(d) Satellite based communications.

32. Which of these statements is correct:

    (a) The SBAS geostationary satellites compute the position of the user receiver (like, for instance an aircraft) and send this information to this user with at least 4 satellites to ensure a certain level of redundancy.

    (b) The SBAS geostationary satellites send to the user receiver different kinds of information, which are then used by this receiver to improve integrity and accuracy in the positioning.

    (c) The SBAS geostationary satellites only mimic the GPS satellites in order to improve the availability of the system.

    (d) The SBAS geostationary satellites provide advanced features such as ADS-B in remote areas (like oceans).

33. Which of these statements is correct:

    (a) In order to compute a GPS position, the receiver needs to have at least 3 GPS satellites in sight.

    (b) In order to compute a GPS position, the receiver needs to have at least 3 GPS satellites in sight. Nevertheless, for civil aviation a minimum of 4 GPS satellites are needed in order to meet the required accuracy.

    (c) In order to compute a GPS position, the receiver needs to have at least 4 GPS satellites in sight.

    (d) None of the other answers are correct.

34. Who actually computes a GPS position?

    (a) The receiver, using the information sent by the GPS satellites.

    (b) One or more GPS satellites, using the information sent by the receiver.

    (c) The GPS ground station, using the information sent by the receiver via the GPS satellites.

    (d) The receiver and at least 4 GPS satellites: the receiver computes the 3D coordinates and the satellites compute the different time stamps.

35. Which of these statements is correct:

    (a) Since year 2000 GPS can be used stand-alone for civil aviation, because the Selective/Availability was turned off.

    (b) GPS stand-alone is precise but not accurate enough for civil aviation usage.

    (c) GPS stand-alone cannot be used for civil aviation because of its lack of integrity.

    (d) All other answers are correct.

36. Which of the following statements is **true**?

    (a) GPS integrity is related with the average time (latency) the receiver needs to compute the position.

    (b) GPS integrity is related with the average time the GPS ground-control segment needs to detect a satellite is not working properly.

    (c) GPS integrity is related with the probability that the positioning error exceeded a certain threshold.

    (d) GPS integrity is related with the probability to have the system unavailable.

37. Regarding the primary surveillance radar (PSR), which of the following statements is correct?

    (a) All of them are correct.

    (b) PSR provides azimuth and range.

    (c) PSR is independent of the aircraft equipment.

    (d) PSR uses "brute force technology": high power and low performance.

38. Which transponder mode transmits only the transponder code of the aircraft?

    (a) Mode A.

    (b) Mode B.

    (c) Mode C.

    (d) Mode S.

39. Regarding the Instrumental Approach Chart (IAC) **Amarillo Intl. (AMA) VOR/DME RWY 22** annexed to this exam, the minimum descent altitude for an aircraft of **Category C** in a straight-in approach is

    (a) 4080 ft.

    (b) 3960 ft

    (c) the approach depicted in this chart cannot be executed straight-in and therefore there is no minimum descent altitude for this case.

    (d) None of the other answers is correct.

40. Regarding the same chart, the decision altitude for an aircraft of Category C in a straight-in approach is

    (a) 4080 ft.

    (b) 3960 ft

    (c) the approach depicted in this chart cannot be executed straight-in and therefore there is no decision altitude for this case.

    (d) None of the other answers is correct.

41. Regarding the same chart, the landing minima for an aircraft of **Category C** in approach to **runway 31** (yes!, runway 31) are:

    (a) 4080 ft altitude and 1.5 statute miles of visibility.

    (b) 4080 ft altitude and 1 statute mile of visibility.

    (c) 3960 ft altitude and 1.5 statute miles of visibility.

    (d) 3960 ft altitude and 1 statute miles of visibility.

42. Regarding the same chart, the landing minima for an aircraft of **Category D** in approach to **runway 22** are:

    (a) 4080 ft altitude and 1.5 statute miles of visibility.

    (b) 4080 ft altitude and 1 statute mile of visibility.

    (c) 3960 ft altitude and 1.5 statute miles of visibility.

    (d) 3960 ft altitude and 1 statute miles of visibility.

43. Regarding the same chart, an aircraft starting an approach at the DEXBE IAF will execute, as initial approach segment:

    (a) a 45/180 reversal procedure.

    (b) a base turn reversal procedure.

    (c) a racetrack procedure.

    (d) a direct approach following the VOR PNH.

44. Regarding the same chart, an aircraft starting an approach at the JILPY IAF will execute, as initial approach segment:

    (a) a 45/180 reversal procedure folowed by a DME arc.

    (b) a DME arc.

    (c) a racetrack procedure folowed by a DME arc.

    (d) a direct approach following Radial 176 of PHN VOR.

45. Regarding the same chart...

    (a) it is a non precision and straight-in approach.

    (b) it is a non precision and circling to approach.

    (c) it is a precision and straight-in approach.

    (d) it is a precision and circling to approach.

46. Regarding the same chart, the holding fix of the holding procedure defined at the end of the missed approach procedure is defined by:

    (a) the intersection of two NDB courses.

    (b) the intersection of two VOR radials.

    (c) the intersection of a VOR radial and a DME arc.

    (d) the PNH VOR/DME facility.

47. Regarding the same chart, imagine an aircraft established in the final approach segment for runway 22 and in present strong wind conditions **from the south**. If we assume that the pilot is correctly using the final approach radionavigation guidance, the **heading** of the aircraft will be:

    (a) approximately 055

    (b) approximately 235

    (c) greater than 235

    (d) smaller than 235

48. Regarding the same chart, imagine an aircraft established in the final approach segment for runway 22 and in present strong wind conditions **from the south**. If we assume that the pilot is correctly using the final approach radionavigation guidance, the **track** of the aircraft will be:

    (a) approximately 055
    (b) approximately 235
    (c) greater than 235
    (d) smaller than 235

49. Regarding the same chart, imagine an aircraft is instructed to hold at JILPI after executing the missed approach procedure. The aircraft will enter the hold with...

    (a) a racetrack entry procedure.
    (b) a direct or offset entry procedures.
    (c) an offset or parallel entry procedures.
    (d) a parallel or direct entry procedures

50. Regarding the same chart, how is the MAPt defined?

    (a) in this procedure, there is no MAPt.
    (b) the MAPt is defined over the PNH VOR/DME facility at the MDA.
    (c) the MAPt is defined at the intersection 235^o/0.5NM of PNH VOR/DME and at the MDA.
    (d) the MAPt is defined by a timing of 0.5 minutes after overflying the FAF and at the MDA.

51. Regarding the same chart, how is the FAF defined?

    (a) in this procedure, there is no FAF.
    (b) the FAF is defined over PNH VOR/DME.
    (c) the FAF is defined at the intersection 235^o/0.5NM of PNH VOR/DME.
    (d) the FAF is defined at the intersection 235^o/5NM of PNH VOR/DME.

52. Regarding the same chart, the area P-47 that appears North of the IAF DEXBE is...

    (a) a Dangerous area.
    (b) a Parachuting area.
    (c) a Prohibited area.
    (d) a Restricted area.

53. Regarding the Instrumental Approach Chart (IAC) **Leon ILS RWY23** annexed to this exam, the aircraft operator will publish for their crew a...

    (a) decision altitude.
    (b) minimum descent altitude.
    (c) obstacle clearance altitude.
    (d) All answers are correct.

54. Regarding the same chart, the initial approach segment that starts at EON VOR/DME is...

    (a) a dead-reckoning segment that depends on the aircraft speed.
    (b) a localizer course.
    (c) a ILS course.
    (d) a tear-drop procedure.

55. Regarding the same chart, the initial approach segment that starts at JOCOL is...

    (a) mainly composed by a VOR radial followed by a DME arc and followed by another VOR radial.
    (b) mainly composed by a racetrack procedure followed by a tear-drop procedure.
    (c) mainly composed by a racetrack procedure followed by a DME arc.
    (d) None of the other answers is correct.

56. Regarding the same chart, the intermediate approach segment is...

    (a) a VOR radial.
    (b) a NDB course.
    (c) an ILS glide path segment.
    (d) All the other answers could be correct, since the pilot could choose different guidance systems.

57. Regarding the same chart, the missed approach segment is...

    (a) mainly composed by two VOR radials.
    (b) mainly composed by a VOR radial and a DME arc.
    (c) mainly composed by a dead-reckoning leg and a VOR radial.
    (d) a tear-drop procedure

58. Regarding the same chart...

    (a) It is a straight-in and a precision approach.
    (b) It is a straight-in and a non precision approach.
    (c) It is a circling and a precision approach.
    (d) It is a circling and a non precision approach.

59. Regarding the same chart, the radionavigation aid labeled as *ILE* is a:

    (a) Localizer.
    (b) VOR/DME.
    (c) DME.
    (d) Locator.

60. Regarding the same chart, imagine an aircraft is instructed to hold at EON after executing the missed approach procedure. The aircraft will most probably enter the hold with...

    (a) a tear-drop entry procedure.
    (b) a direct entry procedure.
    (c) an offset entry procedure.
    (d) a parallel entry procedure.

61. Regarding the same chart, what is the OCH for an aircraft of category C executing an approach to **runway 05**?

    (a) 3269 ft.
    (b) 273 ft.
    (c) 4000 ft.
    (d) 1000 ft.

62. Regarding the same chart, how is the MAPt defined?

    (a) in this procedure, there is no MAPt.
    (b) the MAPt is defined over the EON VOR/DME facility at the MDA.
    (c) the MAPt is defined at the intersection 228^o/6.1NM of EON VOR/DME and at the MDA.
    (d) the MAPt is defined over the runway threshold and at the DA.

63. Regarding the same chart, what is the DA for an aircraft of category C executing an approach to **runway 23**?

    (a) in this chart, there is no DA published.
    (b) None of the other answers is correct.
    (c) 4000 ft.
    (d) 1000 ft.

64. An APV is a:

    (a) a precision approach with vertical guidance.
    (b) an approach with vertical guidance but with navigation performances worse than precision approaches.
    (c) an approach procedure where only vertical guidance is provided (but not lateral).
    (d) an approach procedure where only lateral guidance is provided (but not vertical).

65. The MDA...

    (a) is the minimum altitude to start an IFR approach procedure.

(b) is used in VFR operations, while the DA is used in IFR operations.

(c) is the lowest altitude to which descent is authorized on the final approach segment if no sufficient visual references are met.

(d) None of the other answers are correct.

66. The MDA...

(a) is typically lower than the DA for the same runway.

(b) is typically lower than the OCA for the same runway.

(c) is typically lower in CAT-II approaches than in CAT-I approaches, for the same runway.

(d) None of the other answers are correct.

67. The OCA...

(a) is the minimum descent altitude for VFR flights.

(b) is the lowest altitude the pilot should have a clear view of the runway or airport, otherwise a missed approach procedure must be initiated.

(c) is the altitude from which a procedure becomes a Non Precision Approach.

(d) None of the other answers are correct.

68. Which of the following statements if correct?

(a) The DA is the lowest altitude to which descent is authorized on the final approach segment if no sufficient visual references are met.

(b) In the final approach segment, the pilot first descends to the MDA. Then, if no obstacles are found, it can further descend to the DA, where the decision to land or to go-around must be taken.

(c) In the final approach segment, the pilot first descends to the DA. Then, if no obstacles are found, it can further descend to the MDA and execute the landing in visual conditions. Otherwise, a missed approach procedure must be initiated.

(d) None of the other answers are correct.

69. One of the following 3 statements might be **false**. Which one? (otherwise answer "All statements are correct")

(a) Aircraft operators must compute the DA appearing in the charts used by their pilots.

(b) Aircraft operators must compute the MDA appearing in the charts used by their pilots.

(c) Aircraft operators must compute the MAPt appearing in the charts used by their pilots.

(d) All statements are correct.

70. Which of the following statements is correct?

(a) Aircraft operators publish their approach charts in the AIP.

(b) The appropriate national administration must compute a lower bound for the MDA and publish it in the AIP charts.

(c) The appropriate national administration must compute the DA and enforce the operator to publish that value in their charts.

(d) All the other answers are correct.

71. In a VOR approach procedure, the decision to land or to execute a missed approach must be taken, at the latest...

(a) when reaching the MDA.

(b) when reaching the DA.

(c) when reaching the OCA.

(d) when reaching the MAPt.

72. The missed approach segment...

(a) is an optional segment.

(b) must only be published in precision approaches.

(c) must always be published.

(d) must be designed by the aircraft operator and published in a contingency chart.

73. In which of the following procedures the final approach segment will start at a FIX and not at a POINT?

(a) In an ILS approach.

(b) In a VOR approach (*).

(c) In a Localizer approach (*).

(d) The answers labelled with (*) are correct.

74. The auto-land capability is required for:

(a) All ILS approaches.

(b) ILS CAT II and all CAT III approaches.

(c) All ILS CAT III approaches.

(d) Only ILS CAT III-C approaches.

75. Imagine an twin engine aircraft departing in IMC from a controlled airport. Few seconds after take-off, it hits birds, which cause a fire in one of the engines and loosing all of its power. In this situation, the **communicate** function of the aircraft crew would be:

(a) to send a distress message to the air traffic control.

(b) to revert to manual control and visual flight to safely land as soon as possible.

(c) to safely control the aircraft trajectory with the loss of power and to manage to extinguish the fire and shut down the engine.

(d) to check if there is a contingency departure published for that airport and execute it.

76. A pilot is executing an airfield traffic pattern. How does (s)he knows (s)he is in the downwind leg?

(a) by using a MLS.

(b) by using an ILS

(c) by using radar vectoring.

(d) by using visual references.

77. Which of the following answers regarding the airfield traffic pattern is correct?

(a) Airfield traffic patterns are only defined for IFR flights executing circling to approach procedures.

(b) Standard airfield traffic patterns are for IFR flights, while non-standard patterns are for VFR flights.

(c) Standard airfield traffic patterns are at 1000 ft above the aerodrome elevation and with left turns.

(d) All the other answers are correct.

78. According to Figure 2(a)...

(a) Turns in the airfield traffic pattern are always to the right.

(b) Turns in the airfield traffic pattern are always to the left.

(c) Turns in the airfield traffic pattern are to the right for runway 31 and to the left for runway 13.

(d) Turns in the airfield traffic pattern are to the left for runway 31 and to the right for runway 13.

79. Regarding Figure 2(a), what does the point *E*cho (E) in the chart indicate?

(a) a VOR.

(b) an NDB.

(c) a visual reference point for the arrival procedure.

(d) a visual reference point for the departure procedure.

80. Who decides if an IFR procedure is RNAV or conventional?

(a) The aircraft operator.

(b) The air traffic controller.

(c) The procedure designer.

(d) The aircraft manufacturer.

81. 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 FL250 and descending, cleared to FL190 and with a planned exit level at FL160.

(c) at FL190 and descending, cleared to FL250 and with a planned exit level at FL160.

(d) at FL190 and descending, cleared to FL160 and with a planned exit level at FL250.

82. 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 estimated position of the aircraft, after a given period of time, based on the filed flight plan.

(c) The minimum separation distance between two aircraft.

(d) The black line gives a visual information to the controller regarding the vertical speed of the aircraft.

83. Consider figure 1(b), where the aircraft label is displayed in **blue** colour and all the airspace shown in the picture belongs to our sector. If we assume we are controlling an **en-route sector of Barcelona UIR**, then we can say that...

(a) AEA979D is not yet in our sector but will enter in few minutes from below.

(b) AEA979D is not yet in our sector but will enter in few minutes from above.

(c) AEA979D is in our sector and climbing to FL260.

(d) AEA979D is in our sector and climbing to FL320.

84. Consider figure 1(b), where the aircraft label is displayed in **blue** colour and all the airspace shown in the picture belongs to our sector. If we assume we are controlling an **en-route sector of Barcelona UIR**. What does FL260 in the aircraft label means?

(a) The planned entry flight level to our sector.

(b) The exit flight level of our sector.

(c) The last cleared flight level.

(d) The desired cruise altitude of the aircraft.

85. In order to solve the conflict shown in Figure 1(c) in the **most efficient** way, the ATC could instruct the AFR161 to change the altitude to:

(a) FL270

(b) FL371

(c) FL375

(d) FL380

86. Figure 1(d) shows a radar screenshot taken at the North border of Barcelona UIR. EZY1713 is scheduled to land in Valencia, while EZY9JA is just transiting in the UIR. Which of the following statements is correct?

(a) There is no potential conflict between the two aircraft if the ATC clears EZY1713 immediately to FL220.

(b) There is no potential conflict between the two aircraft if the ATC clears EZY9JA immediately to FL330.

(c) There is a potential conflict between the two aircraft that can be solved by changing appropriately the exit flight level of EZY1713.

(d) There is a potential conflict between the two aircraft that can be solved by deviating laterally one of the two aircraft and instructing the EZY1713 to descend when ready.

87. Regarding the figure 1(d), the heading of the two aricraft is:

(a) approximately 190

(b) approximately 010

(c) approximately 100

(d) approximately 000

88. Air Navigation Services (ANS) are composed by:

(a) CNS, ATM, Search and Rescue, AIS, and Meteorology services.

(b) Alert services, flight information services and air traffic control.

(c) ASM, ATFM and ATS.

(d) AIP, NOTAM and CIRC.

89. Due to bad weather conditions, a given airport goes from 90 landings per hour to only 60 landings per hour. What has been lost?

(a) Capacity.

(b) Efficiency.

(c) Safety.

(d) Inter-operability.

90. How can we measure efficiency in an airport?

(a) Counting, for instance, the nubmer of take-off per unit of time.

(b) Counting, for instance, the fuel burnt in taxi operations.

(c) Counting, for instance, the number of runway incursions.

(d) All the other answers are correct.

91. Which of the following systems or techniques are within the self-separation category?

(a) visual separation (*).

(b) ASAS (airborne separation assurance system) (*)

(c) ACAS (airborne collision avoidance system)

(d) both answers marked with (*) are correct.

92. What it is the most important element to operate in RVSM (reduced vertical separation minima) space?

(a) An accurate 3D radar.

(b) A certified altimeter.

(c) Certified instrumental en-route charts.

(d) A certified radio-navigation system.

93. Typically, the minimum vertical separation between two aircraft in RVSM airspace is:

(a) 10000ft

(b) 1000ft

(c) 100ft

(d) 10ft

94. Figure 2(b) shows the radar tracks during a given period of time in Frankfurt airport. Which two trajectory synchronisation strategies (i.e. sequencing and merging strategies) can be seen in the image?

(a) Radar vectoring and odd-even flight level sequencing.

(b) Racetrack and 45/180 reversal procedures.

(c) Circling to approach and airfield traffic pattern.

(d) Tromboning and radar vectoring.

95. Which kind of collision avoidance manoeuvres can a TCAS II RA provide?

(a) vertical-only manoeuvres.

(b) horizontal-only manoeuvres.

(c) both horizontal and vertical manoeuvres.

(d) RA does not provide any kind of collision avoidance manoeuvre.

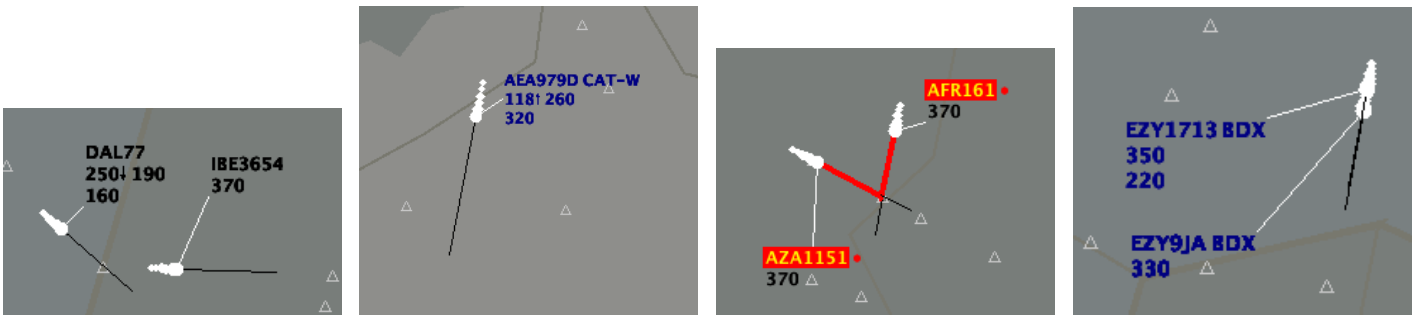
96. Which kind of collision avoidance manoeuvres can a TCAS II TA provide?

(a) vertical-only manoeuvres.

(b) horizontal-only manoeuvres.

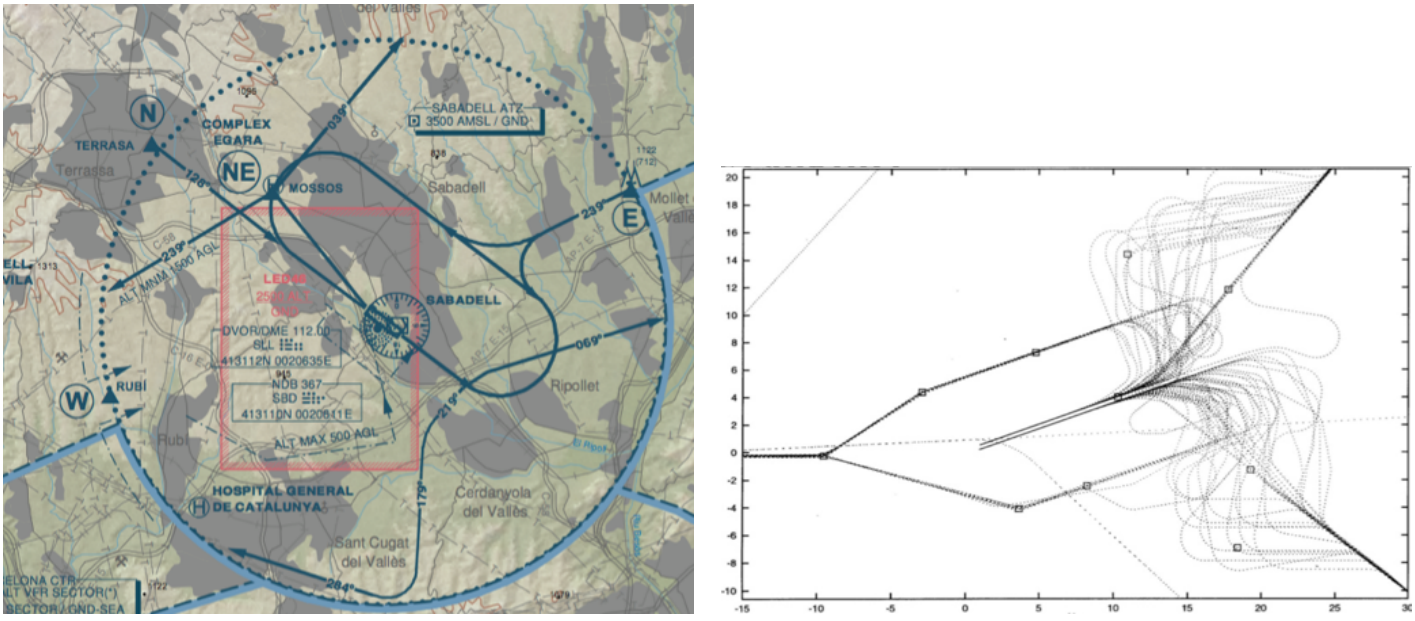
(c) both horizontal and vertical manoeuvres.

(d) TA does not provide any kind of collision avoidance manoeuvre.



(a) (b) (c) (d)

Figure 1: ATC radar screenshots



(a) (b)

Figure 2:

INFRAESTRUCTURES DEL TRANSPORT AERI (ITA)
Final Exam - Fall semester 2017

Correct answers

Question	CODE 01	CODE 02	CODE 03	CODE 04
P 01	c	c	c	a
P 02	a	a	b	d
P 03	b	b	c	b
P 04	c	d	d	d
P 05	d	c	b	c
P 06	b	a	d	d
P 07	a	c	b	c
P 08	a	d	d	c
P 09	b	c	c	a
P 10	b	b	d	a
P 11	a	b	c	c
P 12	d	c	b	a
P 13	c	c	a	a
P 14	d	c	d	d
P 15	b	c	d	c
P 16	b	a	d	c
P 17	b	a	b	b
P 18	b	d	b	d
P 19	b	b	b	d
P 20	d	d	b	d
P 21	c	c	c	c
P 22	d	b	a	a
P 23	b	d	a	d
P 24	b	d	d	a
P 25	a	a	a	a
P 26	b	c	d	c
P 27	a	d	c	d
P 28	d	c	b	b
P 29	a	c	c	c
P 30	c	d	c	a
P 31	a	b	b	d
P 32	b	a	d	b
P 33	c	a	c	c
P 34	a	a	c	a
P 35	c	c	a	b
P 36	b	a	c	a
P 37	a	c	b	a
P 38	a	d	d	b
P 39	b	a	b	b
P 40	d	c	a	c
P 41	a	b	b	b
P 42	d	a	d	a
P 43	a	a	c	d
P 44	b	b	a	c
P 45	a	b	c	a
P 46	c	c	c	a
P 47	d	d	a	a
P 48	b	b	c	b

P 49	c	b	d	d
P 50	c	d	b	b
P 51	d	d	d	a
P 52	c	d	c	b
P 53	a	d	a	d
P 54	d	c	d	a
P 55	a	b	d	c
P 56	a	d	a	c
P 57	c	d	b	c
P 58	a	c	b	c
P 59	a	a	c	b
P 60	b	d	b	b
P 61	d	b	c	a
P 62	a	c	c	d
P 63	a	a	d	b
P 64	b	a	c	a
P 65	c	d	c	a
P 66	d	d	c	a
P 67	d	d	c	b
P 68	a	d	d	a
P 69	c	a	a	a
P 70	b	a	d	c
P 71	d	a	c	c
P 72	c	b	a	a
P 73	d	b	d	d
P 74	c	a	b	d
P 75	a	d	d	c
P 76	d	b	c	b
P 77	c	a	d	b
P 78	c	c	d	b
P 79	c	a	c	a
P 80	c	c	d	c
P 81	b	b	b	c
P 82	a	b	a	b
P 83	a	d	a	a
P 84	c	d	c	a
P 85	d	b	b	b
P 86	d	b	b	c
P 87	a	b	b	b
P 88	a	a	c	a
P 89	a	a	d	b
P 90	b	c	d	b
P 91	d	c	d	d
P 92	b	a	c	b
P 93	b	d	b	a
P 94	d	c	d	b
P 95	a	c	d	b
P 96	d	c	d	b