

# Simulazione di Esame

Mass and Balance - ATPL - Airline Transport Pilot license, 70 domande in 70 minuti!



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NOME ALLIEVO:

DATA & ORA:

## 01. The VHF direction finder uses the following wavelengths:

- a) Decimetric.
- b) Hectometric.
- c) Centimetric.
- d) Metric.

**02. Given that:- Maximum structural take-off mass: 146 000 kg- Maximum structural landing mass: 93 900 kg- Maximum zero fuel mass: 86 300 kg- Trip fuel: 27 000 kg- Taxi fuel: 1 000 kg- Contingency fuel: 1350 kg- Alternate fuel: 2650 kg- Final reserve fuel: 3000 kg**The actual TOM can never be higher than:

- a) 120 900 kg.
- b) 146 000 kg.
- c) 121 300 kg.
- d) 120 300 kg.

## 03. In an auto-pilot slaved powered control circuit, the system which ensures synchronisation:

- a) Can itself, when it fails, prevent the automatic pilot from being engaged.
- b) Is inhibited when the automatic pilot is engaged.
- c) Prevents uncommanded surface deflection when the automatic pilot is disengaged.
- d) Intervenes only when the automatic pilot has been engaged.

## 04. The conditions which can cause knocking are:

- a) High Manifold Pressure And High Revolutions Per Minute.
- b) High manifold pressure and low revolutions per minute.
- c) Low manifold pressure and high fuel flow.
- d) Low Manifold Pressure And High Revolutions Per Minute.

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## 05. The reason for the trim switch on a control column to consist of two separate switches is

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- a) To reduce the probability of a trim-runaway
- b) To Be Able To Use Two Different Trim Speeds, Slow Trim Rate At High Speed And High Trim Rate At Low Speed
- c) Because There Are Two Trim Motors.
- d) To Prevent That Both Pilots Perform Opposite Trim Inputs.

## 06. Compass deviation is defined as the angle between:

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- a) True North and Magnetic North
- b) Magnetic North and Compass North
- c) The horizontal and the total intensity of the earth's magnetic field
- d) True North and Compass North

## 07. Wind shear is:

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- a) A variation in vertical wind velocity variation over a short distance
- b) A horizontal wind velocity variation over a short distance
- c) A vertical or horizontal wind velocity and / or wind direction over a large distance
- d) A large variation in vertical or horizontal wind velocity and / or wind direction over a short distance

## 08. Comparing the lift coefficient and drag coefficient at normal angle of attack:

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- a) CL is much greater than CD
- b) CL is much lower than CD
- c) CL is lower than CD
- d) CL has approximately the same value as CD

## 09. Which of the following statements about a constant speed propeller is correct?

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- a) The RPM decreases with increasing aeroplane speed
- b) The propeller system keeps the aeroplane speed constant
- c) The selected RPM is kept constant by the manifold pressure
- d) The blade angle increases with increasing aeroplane speed

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**10. The maximum pulse repetition frequency (PRF) that can be used by a primary radar facility in order to detect targets unambiguously at a range of 50 NM is:(pps = pulses per second)**

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- a) 610 pps
- b) 3240 pps
- c) 713 pps
- d) 330 NM

**11. A fire occurs in a wheel and immediate action is required to extinguish it. The safest extinguishant to use is:**

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- a) Water
- b) CO2 (carbon dioxide)
- c) Dry powder
- d) Foam

**12. Which of the following abbreviated call signs of aircraft XY-ABC is correct:**

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- a) XY-BC
- b) X-BC
- c) BC
- d) ABC

**13. Approach procedures - Instrument Approach Area**The primary area of an instrument approach segment is:

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- a) The most critical part of the segment where the minimum altitude should be kept very carefully.
- b) A defined area symmetrically disposed about the nominal flight track in which the Minimum Obstacle Clearance is provided.
- c) The outside part of the segment where the obstacle clearance increases from zero ft to the appropriate minimum.
- d) The first part of the segment.

**14. An airplane is in steady cruise at flight level 290. The auto-throttle maintains a constant Mach number. If the total temperature increases, the calibrated airspeed:**

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- a) Increases.
- b) Remains constant.
- c) Increases if the static temperature is higher than the standard temperature, decreases if lower.
- d) Decreases.

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**15. The maximum differential pressure of a transonic transport category airplane is approximately:**

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- a) 13.5 Psi
- b) 3.5 psi
- c) 15.5 psi
- d) 9.0 psi

**16. Which of the following responses is an example of 'habit reversion' (negative habit transfer):**

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- a) A pilot who has flown many hours in an aircraft in which the fuel lever points forward for the ON position, may unintentionally turn the fuel lever into the false position, when flying a different aircraft, where the fuel lever has to point aft to be in the ON position
- b) Habitually missing an item on the checklist or missing the second item when two items are on the same line
- c) Incorrect anticipation of an air traffic controller's instructions
- d) Turning the aircraft to the left when intending to turn it to the right

**17. In a hydraulic system, the reservoir is pressurized in order to:**

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- a) Seal The System
- b) Keep the hydraulic fluid at optimum temperature
- c) Prevent pump cavitation
- d) Reduce Fluid Combustibility

**18. If smoke appears in the air conditioning, the first action to take is to:**

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- a) Put on the mask and goggles.
- b) Cut off all air conditioning units.
- c) Determine which system is causing the smoke.
- d) Begin an emergency descent.

**19. The Trip Fuel for a jet aeroplane to fly from the departure aerodrome to the destination aerodrome is 5 350 kg. Fuel consumption in holding mode is 6 000 kg/h. The quantity of fuel which is needed to carry out one go-around and land on the alternate airfield is 4 380 kg. The destination aerodrome has a single runway. What is the minimum quantity of fuel which should be on board at take-off?**

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- a) 13 000 kg
- b) 13 230 kg
- c) 11 730 kg
- d) 14 730 kg

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**20. An aeroplane performs a steady horizontal turn with a TAS of 200 KT. The turn radius is 2000m. The load factor (n) is approximately:**

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- a) 1.4
- b) 1.1
- c) 1.8
- d) 2.0

**21. Standard time is:**

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- a) The time enforced by the legal authority to be used in a country or an area.
- b) The time used at a particular meridian.
- c) The time most frequently used for air navigation.
- d) The time which is accepted and used as a standard for the whole world.

**22. The choice of the moment you select flaps depending on situation and conditions of the landing is:**

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- a) Knowledge based behaviour
- b) Skill and/or rule based behaviour
- c) Automated behaviour
- d) Pressure based behaviour

**23. Erratic indications may be experienced when flying towards a basic VOR/DME-based Area Navigation System 'Phantom Station':**

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- a) When in the cone of silence overhead the Phantom Station
- b) Because, under adverse conditions (relative bearing to the Phantom Station other than 180°/360°) it takes the computer more time to calculate the necessary information
- c) When the Phantom Station is out of range
- d) Coastal refraction.

**24. Which phrase shall be used if you want to say: 'Yes':**

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- a) Yes
- b) Affirm
- c) Affirmative
- d) Roger

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**25. For an operation in MNPS airspace along notified special routes, unless otherwise specified, an aircraft must be equipped with at least:**

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- a) Two Inertial Navigation Systems (INS)
- b) Three Inertial Navigation System (INS)
- c) Two independent Long Range Navigation Systems (LRNS)
- d) One Long Range Navigation System (LNRS)

**26. The FMS Overfly function consists in:**

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- a) Manually selecting a flight plan waypoint to fly over when sequencing it instead of flying by at the transition.
- b) Manually selecting a flight plan waypoint to hold over for a selected time.
- c) Selecting the secondary flight plan making it active to fly over the legs.
- d) Manually selecting a flight plan to fly over each of the waypoints at the transitions along the route.

**27. How can wing flutter be prevented?**

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- a) By increasing the aspect ratio of the wing
- b) By mounting the engines on the fuselage
- c) By locating mass in front of the torsion axis of the wing
- d) By installing the fuel tanks in the fuselage

**28. Increasing the number of propeller blades will:**

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- a) Increase the propeller efficiency
- b) Increase the noise level at maximum power
- c) Increase the maximum absorption of power
- d) Decrease the torque in the propeller shaft at maximum power

**29. Which types of clouds are typical evidence of stable air conditions?**

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- a) ST, AS
- b) CB, CC
- c) NS, CU
- d) CU, CB

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## 30. During poor weather conditions a pilot should fly with reference to instruments because:

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- a) His attention will be distracted automatically under these conditions
- b) Perception of distance and speed is difficult in an environment of low contrast
- c) Pressure differences can cause the altimeter to give wrong information
- d) The danger of a 'greying out' will make it impossible to determine the height above the terrain

## 31. Departure procedure - DesignThe main factor/s that dictate/s in general the design of an instrument departure procedure is/are:

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- a) ATC availability and requirements.
- b) Availability of navigation aids.
- c) The terrain surrounding the aerodrome.
- d) Airspace restrictions applicable and in force.

## 32. The Maximum Zero Fuel Mass is the mass of the aeroplane with no usable fuel on board. It is a limitation which is:

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- a) Governed by the requirements of the centre of gravity limits and the structural limits of the aeroplane.
- b) Tabulated in the Flight Manual against arguments of airfield elevation and temperature.
- c) Listed in the Flight Manual as a fixed value. It is a structural limit.
- d) Governed by the traffic load to be carried. It also provides protection from excessive 'wing bending'.

## 33. The Flight Management System (FMS) is organised in such a way that:

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- a) The pilot is able to modify the navigation database in the FMC between two updates.
- b) The navigation database of the FMC is valid for one year.
- c) The navigation database is read only to the pilot.
- d) Timing the period that is taken for a transmission from the aircraft's transmitter/receiver to reach and return from a satellite in a known position

## 34. Medical examination is normally limited to those people arriving from an area infected with which of the following quarantinable diseases?

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- a) Typhoid, cholera, yellow fever.
- b) Plague, cholera, yellow fever.
- c) Plague, cholera, malaria.
- d) Plague, cholera, typhoid.

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**35. During a flight to Europe, planned in MNPS (Minimum Navigation Performance Specification) airspace, you expect to cross the 30°W meridian at 00H30 UTC**

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- a) You will then normally be
- c) Within the organised daytime track system
- d) Within the organised night-time track system

**36. A flight control surface actuator is said to be "reversible" when:**

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- a) The Pilot Does Not Feel Any Force When Moving That Flight Control Surface In Flight.
- b) There is feedback to the pilot's controls of the aerodynamic forces acting on the control surface.
- c) The Flight Control System Has An Alternate Means Of Control In Case Of A Control Jam.
- d) There Is A Need To Have An Artificial Feel System.

**37. For an aeroplane with a tyre pressure of 14 bars, there is a risk of dynamic hydroplaning as soon as the:**

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- a) Water depth is equal to the half of the depth of the tyre grooves.
- b) Tail wind is greater than 10 kt.
- c) Speed is greater than 95 kt.
- d) Speed is greater than 129 kt.

**38. The optimum long-range cruise altitude for a turbojet aeroplane:**

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- a) Is always equal to the powerplant ceiling
- b) Is independent of the aeroplane mass
- c) Increases when the aeroplane mass decreases
- d) Is only dependent on the outside air temperature

**39. A controlled airspace extending upwards from the surface of the Earth to a specified upper limit is:**

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- a) Control zone.
- b) Advisory airspace.
- c) Control area.
- d) Air traffic zone.



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**40. When determining the maximum landing mass of an turbojet powered aeroplane during the planning phase what factor must be used on the landing distance available (dry runway)**

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- a) 115/100
- b) 1.67
- c) 0.60
- d) 60/115

**41. A jet aeroplane equipped with old engines has a specific fuel consumption of 0.06 kg per Newton of thrust and per hour and, in a given flying condition, a fuel consumption of 14 kg per NM. In the same flying conditions, the same aeroplane equipped with modern engines with a specific fuel consumption of 0.035 kg per Newton of thrust and per hour, has a fuel consumption per NM of:**

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- a) 11.7 kg / NM
- b) 14 kg / NM
- c) 10.7 kg / NM
- d) 8.17 kg / NM

**42. You have been calling a station without getting an answer. How long time it is recommended to wait at least before making a second call?**

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- a) Wait until the station calls you.
- b) 10 sec.
- c) 3 sec.
- d) 30 sec.

**43. What is the effect of a head wind component, compared to still air, on the maximum range speed (IAS) and the speed for maximum climb angle respectively?**

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- a) Maximum range speed decreases and maximum climb angle speed increases
- b) Maximum range speed decreases and maximum climb angle speed decreases
- c) Maximum range speed increases and maximum climb angle speed stays constant
- d) Maximum range speed increases and maximum climb angle speed increases

**44. The function of the Eustachian tube is to equalise the pressure between the:**

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- a) Middle ear and the external atmosphere
- b) Sinuses
- c) Nose, throat and the external atmosphere
- d) Sinuses of the nose and the external atmosphere

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**45. What is the radiotelephony call sign for the aeronautical station indicating approach control radar arrivals?**

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- a) ...ARRIVAL
- b) ...DIRECTOR
- c) ...RADAR
- d) ...APPROACH

**46. The aspect ratio of the wing:**

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- a) Is the ratio between the wing span and the mean geometric chord
- b) Is the ratio between chord and root chord
- c) Is the ratio between the tip chord and the wing span
- d) Is the ratio between the wing span and the root chord

**47. In order to avoid CB a pilot wants to turn right to a magnetic heading of 100 degrees. The correct way to ask the ATC unit for permission is:**

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- a) Request right turn to heading one-double-0
- b) Request right turn to heading one-hundred degrees
- c) Request right turn to heading one-point-zero-zero
- d) Request right turn, heading one-zero-zero

**48. A descent is planned from 7500 ft AMSL so as to arrive at 1000 ft AMSL 6 NM from a VORTAC. With a GS of 156 kts and a rate of descent of 800 ft/min. The distance from the VORTAC when descent is started is:**

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- a) 15,0 NM
- b) 27,1 NM
- c) With a GS of 156 kts and a rate of descent of 800 ft/min. The distance from the VORTAC when descent is started is: 15,0 NM 27,1 NM 30,2 NM
- d) 11,7 NM

**49. What does the word 'check' mean?**

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- a) Confirm your last transmission
- b) Read back my last instruction
- c) Examine a system or procedure
- d) I understand your message

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## 50. Pneumatic mechanical devices that provide ice protection:

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- a) Are usually used as de-icing devices.
- b) Are usually used on aeroplanes equipped with turbo-fan engines.
- c) Require large quantities of bleed air.
- d) Can Only Be Used As Anti-icing Devices.

## 51. The ASHTAM provides information on the status of activity of a volcano when a change in its activity is, or is expected to be of operational significance. This information is provided using the volcano level of colour code. When volcanic eruption in progress or volcano dangerous, eruption likely, with ash plume/cloud is reported above FL 250 or is expected to rise above FL 250, the level of alert colour code is

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- a) YELLOW
- b) RED
- c) ORANGE
- d) GREEN

## 52. The Zero Fuel Mass and the Dry Operating Mass

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- a) Differ by the sum of the mass of usable fuel plus traffic load mass.
- b) Are the same value.
- c) Differ by the mass of usable fuel.
- d) Differ by the value of the traffic load mass.

## 53. Given: Distance from departure to destination 1950 NM GS Out 400 ktGS Home 300 kt What is the time of the PET from the departure point?

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- a) 223 min
- b) 167 min
- c) 125 min
- d) 29 min

## 54. 'Standard Mass' as used in the computation of passenger load establish the mass of a child as

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- a) 35 kg only if they are over 2 years old and occupy a seat.
- b) 35 kg irrespective of age provided they occupy a seat.
- c) 35 kg for children over 2 years occupying a seat and 10 kg for infants (less than 2 years) occupying a seat.
- d) 35 kg for children over 2 years occupying a seat and 10 kg for infants (less than 2 years) not occupying a seat.

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**55. On which of the following radar displays is it possible to get an indication of the shape, and to some extent the type, of the aircraft generating the return?**

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- a) Aerodrome Surveillance (approach) Radar
- b) Secondary Surveillance Radar (SSR)
- c) Airborne Weather Radar (AWR)
- d) The installation does not require to have a separate method (marker beacons or DME) to determine range

**56. Extension of FOWLER type trailing edge lift augmentation devices, will produce:**

---

- a) A nose-up pitching moment
- b) No pitching moment
- c) A force which reduces drag
- d) A nose-down pitching moment

**57. Cabin pressure is controlled by:**

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- a) The Cabin Air Mass Flow Control Inlet Valve(s).
- b) Delivering a substantially constant flow of air into the cabin and controlling the outflow.
- c) The cabin air re-circulation system.
- d) Controlling The Flow Of Air Into The Cabin With Constant Outflow.

**58. When completing an ATC flight plan, an elapsed time (Item 1 6) of 1 hour 55 minutes should be entered as:**

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- a) 0155
- b) 0115
- c) 115M
- d) 1H55

**59. If one of the 12 cells of a Lead-acid battery has a broken connection rendering it inoperable, the battery:**

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- a) Has 1/12 Less Voltage, But Can Still Be Used.
- b) Has 1/12 less capacity, but can still be used.
- c) Has 1/12 less voltage and less capacity, but can still be used.
- d) Is unserviceable.

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**60. An aeroplane is in a level turn, at a constant TAS of 300 kt, and a bank angle of 45°. Its turning radius is:(given:  $g = 10 \text{ m/s}^2$ )**

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- a) 4743 metres.
- b) 9000 metres.
- c) 2381 metres.
- d) 3354 metres.

**61. Aircraft wishing to conduct IFR flight within advisory airspace, but not electing to use the air traffic advisory service:**

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- a) Shall nevertheless submit a flight plan and notify changes made thereto to the ATS unit providing that service
- b) May file a flight plan under pilot's discretion
- c) Need to file a flight plan
- d) Shall nevertheless submit a flight plan but changes made thereto are not necessary to be notified

**62. In accordance with OPS 1 430 (Aerodrome Operating Minima - General), it is established, among other considerations, that an Operator must take full account of Aeroplane Categories. The criteria taken into consideration for classification of Aeroplanes by Categories is the indicated airspeed at threshold ( $V_{at}$ ), which is equal to the stalling speed at the maximum landing mass ( $V_{so}$ ) multiplied by 1,3. Corresponding Aeroplane Category when  $V_{at}$  is from 141 kt to 165 kt is:**

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- a) B
- b) D
- c) E
- d) C

**63. How many hours in advance of EOBT should a ATC flight plan be filed in the case of flights into areas subject to air traffic flow management (ATFM)?**

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- a) 1:00 hour.
- b) 3:00 hours.
- c) 2 hours.
- d) 0:30 hours.

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**64. Lights on and in the vicinity of aerodromes may be turned off, provided that they can be again brought into operation:**

- a) At least 15 minutes before the expected arrival of an aircraft
- b) At least 30 minutes before the expected arrival of an aircraft
- c) At least 5 minutes before the expected arrival of an aircraft
- d) At least one hour before the expected arrival of an aircraft

**65. Which of the following lists all the stages of flight when is it possible to change the route in the active flight plan on an FMS equipped aircraft?**

- a) Only before the flight plan is activated
- b) Only before take-off
- c) Only once the aircraft is airborne.
- d) At any time before take-off and throughout the flight

**66. While approaching a mountainous airfield, the captain of a transport aircraft notices a fast and high increase in the indicated airspeed without any change in the pre-selected engine and attitude parameters. The preceding crews had reported the occurrence of windshears in final phase. you must:**

- a) Take a level flight attitude to reduce speed, then come back to glide path from above.
- b) Reduce rapidly the selected thrust, maintain on the glide path.
- c) Reduce rapidly the selected thrust in order to reach 1.2 Vs and try a precision landing.
- d) Maintain the aircraft on the glide path, accept a positive speed deviation, monitor the speed evolution.

**67. A boundary layer fence on a swept wing will:**

- a) Improve the high speed characteristics
- b) Improve the low speed characteristics
- c) Improve the lift coefficient of the trailing edge flap
- d) Increase the critical Mach Number

**68. During take-off you notice that, for a given elevator input, the aeroplane rotates much more rapidly than expected. This is an indication that :**

- a) The centre of gravity may be towards the aft limit.
- b) The centre of pressure is aft of the centre of gravity.
- c) The centre of gravity is too far forward.
- d) The aeroplane is overloaded.

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## 69. Longitudinal CG location can be expressed:

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- a) As a percentage of the MAC from its trailing edge.
- b) As a percentage of the MAC from its leading edge.
- c) With respect to the centre of pressure.
- d) With respect to the neutral point.

## 70. The still air distance in the climb is 189 Nautical Air Miles (NAM) and time 30 minutes. What ground distance would be covered in a 30 kt head wind?

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- a) 203 NM
- b) 174 NM
- c) 193 NM
- d) 188 NM

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## Schema Risposte

Confronta le risposte fornite con il seguente schema e segna il tuo punteggio!

|       |       |       |       |
|-------|-------|-------|-------|
| 01: D | 02: D | 03: A | 04: B |
| 05: A | 06: B | 07: D | 08: A |
| 09: D | 10: D | 11: C | 12: B |
| 13: B | 14: B | 15: D | 16: A |
| 17: C | 18: A | 19: B | 20: B |
| 21: A | 22: B | 23: D | 24: B |
| 25: D | 26: A | 27: C | 28: C |
| 29: A | 30: B | 31: C | 32: C |
| 33: C | 34: B | 35: D | 36: B |
| 37: D | 38: C | 39: A | 40: C |
| 41: D | 42: B | 43: C | 44: A |
| 45: A | 46: A | 47: D | 48: B |
| 49: C | 50: A | 51: B | 52: D |
| 53: C | 54: B | 55: D | 56: D |
| 57: B | 58: A | 59: D | 60: C |
| 61: A | 62: B | 63: B | 64: D |
| 65: D | 66: D | 67: B | 68: A |
| 69: B | 70: B |       |       |