Information on Ryanair interview & simulator assessment

Interview
The total interview lasted about 40 minutes, personal and technical combined

Personal Questions-

- Tell us about yourself
- What are you main interests/hobbies?
- How did you get into flying?

When did you get into flying?

- What motivates you about flying?
- Why not earlier?
- Why did you want to become a pilot?
- Do you enjoy instrument flying?
-
- Tell me about your current job

What is a typical day like there?

- Why a career change, what did you not like about your last job?
- Why did you want to become a pilot?
- Why do you want to work for Ryanair?
- Why should we hire you?
- What did you do before starting at Oxford Aviation?
- What does your girlfriend think about moving to somewhere else?
- Was Gestair your first choice of school?
- How much did you pay to go to Oxford?
- Why did you choose OAT, how did you pay them for the course?
- What did you think about Oxford Aviation?
- Would you change anything about your flight training?
- How do you feel about paying for your own type rating?
- How much will your type rating cost you?
- How will you pay for it?
- You planned and researched going to OAT so thoroughly why did you not plan to pay for your own type rating?
- What languages do you speak?

- If offered this position, when can you start?
- Why did you get a partial on your IR?
- What was your proudest moment?
- When have you done something you're not proud of?
- What was your hardest decision?

This is your first day in Ryanair. How do you see your career progressing with us?

- Where do you see yourself in 10 years?
- What was the most difficult decision you ever made?

- Tell us about an event that happened to you that told you a great deal about yourself

- What do you know about Ryanair and why do you want to fly for us?
- What do you think you would bring to Ryanair as a first officer?

What would **YOU** do to make the company even better?

How do other companies such as British Airways see Ryanair?

- What does Ryanair think of its competitors?
- What would be your top 3 choices of bases if you worked for Ryanair?
- What would you say if the only base we had for you was Stockholm?
- I would say that it´s perfect for me
- How many planes, routes, bases, pilots do we have
- Who is Ryanair's CEO, tell me a little about him?
- What do I think about Michael O'Leary and his aggressive business nature
- Why is Ryanair making profit?
    - Why are Ryanair so successful?
- Where do you see Ryanair going in the future?
- What are the advantages of operating a one aircraft fleet, and why don't we use an A320 / B737 mixed fleet?
- Imagine us being in charge of making a decision of whether to increase the fleet with either A320, which
- Please list which all other airlines and regional airlines you applied to?
- Have you applied to BA
- Have you applied to BMI
- Why aren't you working for them?
- Would you like too?
- Who else have you applied to?
- If you where offered both jobs which would you take
-
- What have you been doing over the past 6 weeks since you left flight school?
- When can you start?
- What does your father do?
- Do you keep current with aviation related issues?

Yes,

- Tell me about a recent media issue which Ryanair has been involved in.
- What was the response of management?
- Do you agree with the response?
- How important are SOPs to you?

- How hard do you think you will have to work, if you are employed with Ryanair?
    - How many hours do you expect to fly a day?

    - How many crew members do you think it takes to crew 1 aircraft?
    - How many sectors a day do you expect to fly?

I think that the usual is from 4 to 6 sectors a day in Ryanair.

- What is the turn around time for Ryanair aircraft? 25 minutes
- Run me through your logbook
- Which is the most important, safety or profit?
- Where do I think the industry is going
- Do I know anybody who has recently travelled with Ryanair, what did they Think
- What do other students at Oxford think about Ryanair

Technical Questions-

- Know Jeppeson Plates.
- Explain the performance categories on the plate

A grouping of aircraft based on Vat (1.3 Vso)

A - <91

B - 91 – 120

C - 121 – 140

D - 141 – 165

E - 166 – 210

- What is a METAR?

Meteorological Aerodrome Report.; compiled every 30 mins
Wind speed and direction, visibility, significant weather, cloud, temperature, dew point and pressure

- Can you tell me what this METAR means? (time of the observation) long haul flights= largo recorrido
- Como muy tarde(xa el metar)= by+ time. Lowest temp and highest temp
- Can you explain to me these symbols on an upper air chart?

FL100-FL630; significant weather, upper wind and temperature
6 hr intervals from 0000 UTC
Forecasts from 3 hour before to 3 hour after the valid time in the chart, except (in SWL) fronts, pressure centers, altitude of the isozero and state of the sea that are valid for the time indicated in the chart

Double bark marks jet stream change of 20kts or 3000ft
SLOW = less than 5kts
XXX = extensive above or below chart coverage

- Decode this TAF and explain it to us as non aviators (time of the forecast)
- Was shown an upper level air chart and shown a route I was flying and asked what weather I would experience en route

- Tell me about occluded fronts

Formed during process of cyclogenesis when cold front overtakes a warm front

Cold occlusion – air mass overtaking warm front is colder than cold air ahead of warm front and lifts both air masses.

Warm occlusion – air mass overtaking warm front is not as cold as cold air ahead of warm front and therefore rides over it whilst lifting the warm air.

Variety of weather found with thunderstorms possible

- Tell me what you know about radiation fog

Most common type of fog which forms in inland areas during winter, when nights are longer than days i.e. maximum radiation cooling. Depth can be 200-300m.

Clear sky and no low clouds – maximum cooling
Light wind of 2-10kts
High relative humidity – little cooling needed for condensation
Large amount of moisture in the air – significant drop in visibility

- What is the height of the tropapause?

The height varies depending on the average temperature of the underlying air.

Equator - 55,000ft

Poles - 25,000ft

The changes of height occur in steps where significant changes of temperature occur (PFJ and STJ) and therefore strong upper winds known as Jet Streams are found.

- What is wind sheer?

A significant change in wind speed or direction over a short distance.

Can be divided into Horizontal sheer (change of horizontal wind vector with horizontal distance – kt/100ft) and Vertical shear (change of horizontal wind vector with height– kt/2,000ft)

- Why should you avoid thunderstorms?

Turbulence – wind shear during takeoff and landing
Hail – Found up to 45,000ft (below the anvil) causing severe airframe and engine damage
Icing – Found between 0°c and -40°c causing severe airframe (C of G, reduce performance, blocked instruments, radio interference, undercarriage doors and flaps blocked) and engine icing (blade damage)
Lightning – Flash-blindness, instruments unreliable and airframe damage (occurs mostly: -10°c and 10°c)
Water ingestion – Strong up-draughts with large water droplets causing flame out

- What are the effects on the human body in case of depressurisation?

Reduction in ppO2 at altitude, therefore insufficient oxygen into the loans causes Hypoxia.

Effects are fatigue, headache, dizziness, euphoria, blurred vision, hyperventilation, poor judgment and lack of muscle co-ordination.

- What is the Environmental lapse rate?

Actual vertical lapse rate of temperature in the atmosphere determined by a radiosonde balloon, varying from place to place.

ELR can be compared to the fixed values of Dew Point lapse rate, to determine the stability of air.

- Tell me about adiabatic lapse rates?

DALR (RH below 100%) lapse rate = 3°c/1000ft

Saturated=SALR (RH 100%) lapse rate = 1.5°c/1000ft. Increases towards DALR as temperature falls due to less vapour to condense and less latent heat to release.

- The 'Foehn Wind'…Explain it?

Air is cooled as it is forced over high ground, first at DALR and then at SALR. Clouds form and moisture is lost as precipitation. Due to the lower water content, the air now descends for a longer period at DALR on the leeward side and is warmer and drier than it was on the upwind side.

- What is the LSS at sea level in ISA conditions?

661 kts

- Explain what coffin corner is and what happens at it

Point on the flight envelope where stall speed and Mcrit are equal at a given weight. Therefore, if the aircraft loses speed at coffin corner it will stall and lose altitude. If the aircraft gains speed, it loses lift to flow separation and shock waves and 'mach tuck' can occur.

- Explain Mach tuck

Aerodynamic effect, whereby the nose of an aircraft tends to pitch downwards as the airflow around the wing reaches supersonic speeds, because the center of pressure moves gradually rearwards as lift over the wing increases. If allowed to progress, the center of pressure could move so far rearward, there is no elevator authority left to counteract it.

- You mentioned a Mach Trimmer, what is that for?

Restores positive stick force gradient at high mach numbers so you have to push to maintain attitude. Therefore mach trimmer guards against mach tuck.

- How does a wing produce lift?

Pressure differential between the upper and lower surface. The upper surface of the wing produces negative pressure due to its increased speed and therefore creates an upward aerodynamic force. The lower surface produces positive pressure and the greater the differential between the two regions, the greater the amount of lift.

- What is the difference between angle of attack and angle of incidence?

AOA – Angle between the effective relative airflow and the chord line
AOI – Angle at which the wing is fixed to fuselage relative to the longitudinal axis

- What is so special about modern Jet Airliners? (Swept Wings)

- What do airlines have to guard against reaching Mcrit?

Mach trimmer

- How do high lift devices work?

They increase the camber and surface area of the wing, raising its maximum coefficient of lift and lowering its stall speed during low speed phases of flight. Powered by main hydraulic system and their position is determined by a lever in the flight deck.

- Why do aircraft have leading edge devices?

Designed to delay separation of the boundary layer over the upper surface of the wing to a higher AOA. A slot is formed when the device is extended allowing a venturi effect to occur because airflow travels from the high pressure area to the low pressure area and accelerates the airflow.

- What are the lift qualities of a swept wing?

Only the airflow normal to the leading edge contributes to the lift availability and therefore at any angle of sweep, less lift than a straight wing is always produced. Therefore the lift qualities are poor.

- Why do we use swept wings on jet aircraft?

The purpose is to increase Mcrit by allowing the aircraft to fly at an increased speed before the effective chordwise airflow becomes sonic.

- Is it an effective wing?

There are by-products associated with a swept wing, most of them disadvantages. However, the benefits from a higher Mcrit outweigh these associated disadvantages.

- What are the advantages and disadvantages of a swept wing?

Advantages: High mach cruise speeds and stability in turbulence (poor lift quality = less responsive)

Disadvantages: Low aspect ratio = poor lift qualities and therefore high lift devices needed

Tip stall due to spanwise airflow and high loading = superstall (CP moves inboard/forward)

Above Mcrit, Mach Tuck occurs – Mach Trimmer required

- Give one disadvantage of swept wing aircraft and what we can do to overcome it

Poor lift qualities therefore high lift devices are required to make the aircraft efficient at slow speeds e.g. leading and trailing edge flaps to increase the wing camber and area, increasing the coefficient of lift and CLmax to a greater AOA.

- Why does it increase the Mcrit?

The purpose is to increase Mcrit by allowing the aircraft to fly at an increased speed before the effective chordwise airflow becomes sonic.

- What are the advantages of an all moving tailplane?

Provide balancing force for large C of G range and speed range. It can cope with large trim changes due to configurations of high lift devices and reduces elevator trim drag to a minimum.

- C of P movement during stall

Once the critical AOA has been reached, the C of P moves towards the unstalled part of the wing and on a swept wing, this effectively would be rearward, resulting in a stable nose down pitch at the stall.

- What effect does a wet runway have on V1 and V2?

A wet runway decreases V1 because you'll need more distance to stop and therefore this decision has to be made at an earlier speed to maximise distance. V2 is not affected.

- What is V1, V2, Vr, Vmca, Vmcg and where do they stand to each other

<u>V1</u>

The decision speed during the takeoff roll at which if the **critical engine** has failed up until this speed, it is possible to **reject** the takeoff and bring the aircraft to a full stop within the **ASDA**. It is also the speed at which after the critical engine has failed, it is possible to **continue** the takeoff and reach a speed of **V2 by the screen height** within the **TODA**. V1 must be less than or equal to VR, but equal to or greater than VMCG.minimum control speed on ground

<u>V2</u>

Take-off safety speed. Target speed at the 35ft screen height/15ft screen height in wet runways. Must be 1.13 Vsr and 1.1 Vmca. 1.2 times stall speed

Vr

This is the rotation speed during the takeoff roll at which the pilot begins to raise the nose from the 3 point attitude to the initial climb attitude to reach **V2 by the screen height**. VR must be equal to or greater than V1 and equal to or greater than 1.05 VMCA

Vmca

The minimum control speed in the air, at which after the failure of the **critical engine**, it is possible to maintain directional control of the aircraft by use of the **rudder**, without loss of **height**, no more than **5° bank** towards the live engine and **take-off power** on the live engine.

VMCA is affected only by **density** – high temperatures = low density and therefore less thrust, so the asymmetric thrust is reduced which increases VMCA.

Vmcg

The minimum control speed on the ground, at which after the failure of the **critical engine**, it is possible to maintain directional control by use of the **rudder only**, without deviating more than **30ft** from the centreline. VMCG must be less than or equal to **V1**, ensuring directional control of the aircraft after the critical engine has failed, after the decision speed is reached.

Order?

Vmcg V1 Vmca Vr V2

- Can Vmcg be lower than V1, explain?

Vmcg must be less than or equal to V1, ensuring directional control of the aircraft after the critical engine has failed, once we´ve reached V1

- What is Vmu?

The minimum demonstrated unstick speed, at and above which the aircraft can safely lift of the ground, to continue the takeoff and climb to the screen height without hazard.

- Tell me about the last aircraft you flew in, Seneca

Voltage

2x voltage regulators maintaining the electrical busbar to **14 volts**. Over voltage >17 volts.

Amperage

12 volt, **35 amp hour battery** and **2x 65 amp alternators** (at 2000 rpm)

Landing gear

Fully retractable hydraulically operated and electrically powered, landing gear.It´s a trycicle landing gear. Warning horn below 14" MAP and gear up. Vlo = 107/129kts. Freefall must be lower than 85kts. Nose (31psi), main (55psi). Hold in the retracted position hydraulically and in the extended by springs. If the hydraulic system fails it can be extended by gravity (relieving the hydraulic pressure with a knob=

Controls

Cable operated, all movable stabilator with anti-servo tab acting as a trim. Two channel autopilot in pitch and roll.

Engine (advantages of turbo charged to carburettor)

2x air cooled, fuel injected, 6 cylinder, and turbo charged engines. 200 hp at SL at 2575rpm. Engine rpm = propeller rpm.

Turbocharger provides sea level engine performance at altitude by compressing the intake air with a compressor moved by a turbine that uses the exhaust gases to work.

Fuel system/capacity

Two independent systems, two rigid fuel tanks in each wing. Each engine takes fuel from the inboard tank. The EDP forms part of the continuous flow injection system. Total fuel 128 (5 US Gallons unusable)

Type of flaps, ailerons

Frise type ailerons with differential movement eliminating adverse yaw. Manually operated plain flaps, with a lever in the cockpit that is spring loaded, for the flaps to return to its initial position

Cessna- Single slot type flaps and modified frise-type ailerons

Heating system

Heated air from Janitrol combustion heater located in the aft fuselage, it´s feeded from the left tank and it burns 1½ gallon per hour.

Ice protection

Approved for light and moderate icing: wing ice detection light, leading edge boots on the empennage and the wings, electothermal prop deice pads, electric windshield panel, pitot and lift detectors heated (controlled both by the pitot heat switch)

- What was used AC or DC?

14 volt DC system

- **What is the difference between Volts and Amps?**

Volt is a measure of electrical potential and amps is a measure of the rate of flow of electricity.

- **How can you tell the battery is charging?**

By operating the push buttons on the ammeter, individual readings of each alternator output can be read. As the battery becomes fully charged, the amount of current will reduce to 2 amps. It´s required a minimum of 2000 RPM to obtain full alternator output at 65 amperes

- Tell me about the recovery procedure for spin in the warrior?

Retard both throttle levers to idle, apply full rudder in the opposite direction to the spin direction, ailerons in neutral, and release the back pressure on the joke and if the nose doesn´t drop by itself apply full forward pressure. Once it has recovered the spin neutralize the rudder and then apply smoothly back pressure to recover the dive.

- How would you navigate if all VOR's and NDB's en route fail?

With the IRS (INS not FMC, IRS FMC- in the NG´s it´s updated by GPS too)

- What is the range of an NDB, on average?

25-30 nm. Max of 300nm (land) and 600 (sea).

- What is the range of a VOR?

Depends on height: 1.25 x square root of H1+H2

5000ft - 60nm

10,000ft - 90nm

- Tell me the range of a VOR at 32000ft roughly?

Approx. 200nm

- What is Convergency?

Angle of inclination between two meridians at the same latitude.

Convergency = 0 @ equator and 90 @ poles.

- What is a Great Circle?

A circle on the earth's surface with the same centre and radius as the earth itself. The shortest distance between two points is the smaller arc of the great circle joining them.

- What is a Rhumb Line?

Is a track with a constant track direction between two points on a sphere

- Why would someone fly a Rhumb Line Track?

It has a constant bearing thus it is possible to steer a heading between two points assuming no wind.

- What is the speed of sound?

The distance sound would travel in a given time period e.g. at sea level 661 kts.

- **Explain to me how a jet engine works**

Air enters the intake before being compressed to a higher pressure. Once compressed it´s passed on to a combustion chamber where it is ignited with fuel. The heated gases now expand across a turbine and are extracted to drive the compressor. The gases are expanded through a propelling nozzle to atmosphere to produce thrust.

- How much thrust comes from the N1 fan?

N1 = low pressure compressor fan
Approximately 75% on a high-bypass engine

- Where is thrust produced in a gas turbine engine?

The hot exhaust gases after combustion are propelled through a nozzle at high speed to atmosphere.

- What is = N1, N2, EGT, EPR

N1 - Low pressure compressor fan speed

N2 - High pressure compressor speed

EGT - Exhaust Gas Temperature (monitored to prevent engine damage i.e. blades)

EPR - Engine Pressure Ratio (ratio of compressor inlet pressure to turbine outlet pressure)

- **What is a turbo fan?**

Large fan with a smaller diameter jet engine behind. Most of the air by-passes the core of the engine and is propelled out backwards producing more thrust, whilst reducing noise levels (75% of thrust). Less noise due to an extra turbine stage to drive the fan which results in reduced exhaust gas velocity.

- What is a high bypass ratio engine?

Most of the air intake is ducted around the engine instead of passing through the engine core and then exhausted into the atmosphere. This produces 75% of the total thrust and reduced noise levels.

- How does a 2-stroke engine work?

In a 2-stroke engine the induction and compression occur at the same stroke and the expansion and exhaust occur both at another stroke.

- What sort of things would they be used for ?

For light aircraft to produce the same power than a bigger and heavier engine with less size and weight

- What is the difference between a 2 stroke and a 4 stroke engine?

That a 2-stroke engine produces a power stroke for every 2 strokes of the cylinder and in a 4-stroke engine it needs 4 stokes of the cylinder to produce a power stroke

- **Explain the otto cycle**

An Otto cycle is an idealized thermodynamic cycle which describes the functioning of a typical reciprocating piston engine. This is an adiabatic cycle

- Which is faster, London to New York or New York to London? Why?

New York – London: Due to the westerly jet streams in the northern hemisphere of up to 215 kts.

- Explain the term 'critical engine'

A critical engine on a multiengine aircraft is one whose failure would result in the greatest yawing moment due to asymmetric thrust. This is because the down-going blade of the propeller creates more thrust than the upgoing one and therefore, with propellers that rotate in the same directions, the thrust arm on the right engine is greater than the left thrust arm. Therefore, the left engine is critical because should it fail, the right one will cause the greatest yawing moment.

- Does a jet have a critical engine?

No, but it will have according to performance considerations e.g. a left crosswind means the left engine is critical because a greater amount of rudder will be needed to overcome both the crosswind and asymmetric thrust.

- Does the Seneca have a critical engine?

No, because the propellers are counter-rotating. Therefore, both thrust lines are brought closest to the fuselage.

- How do the pneumatic de-icing devices on the Seneca work?

Held to the leading edges by suction pressure from the engine driven vacuum pump. The deflation side of the inflation/deflation valve closes and the inflations side opens, discharging the air to inflate the boots for 6 seconds, exhausting this air and it starts again.

- **What are the errors in an ADF?**

NDB interference
Static – thunderstorms
Night effect
Coastal refraction
Mountain effect
Quadrantal error

- What are the problems with using an NDB?

The above effects and dip is the major error. (loop antenna senses the direction of the NDB and the sense antenna senses if the bearing is to or from

- You are on a flight from Stansted to Amsterdam and just after T/O are at your cleared level of 2000ft when you have complete radio failure. What are your actions?
- Radio failure checklist
- continue to fly in VMC; land at the nearest suitable aerodrome in
- accordance with –
- (i) the standard RCF arrival procedures prescribed in Appendix 1 to this

- TS; or
- (ii) if other procedures have been published by the Commissioner for a
- specific aerodrome, in accordance with such procedures, and
- (b) report its arrival by the most expeditious means to the appropriate ATSU;
- or
- (c) if unable to ensure VMC conditions exist to a suitable aerodrome,
- complete an IFR flight in accordance with paragraph (2).
- (2) If the communications failure occurs while operating in accordance with
- IFR while in IMC or, if in VMC but unable to maintain VMC, the aircraft shall
- –
- (a) in airspace where an ATS surveillance system is not used in the
- provision of air traffic control, maintain the last assigned speed and level,
- or minimum flight altitude if higher, for a period of 20 minutes following
- the aircraft's failure to report its position over a compulsory reporting point
- and thereafter adjust level and speed in accordance with the filed flight
- plan;
- (b) in airspace where an ATS surveillance system is used in the provision
- of air traffic control, maintain the last assigned speed and level, or
- minimum flight altitude if higher, for a period of 7 minutes following –
- (i) the time the last assigned level or minimum flight altitude was
- reached;
- (ii) the time the transponder was set to Code 7600; or
- (iii) the aircraft's failure to report its position over a compulsory
- reporting point;
- whichever is later, and thereafter adjust level and speed in accordance
- with the filed flight plan;
- (c) when being radar vectored or having been directed by ATC to proceed
- offset using area navigation (RNAV) without a specified limit, rejoin the
- current flight plan route no later than the next significant point, taking
- into consideration the applicable minimum flight altitude;
- (d) proceed according to the current flight plan route to the appropriate
- designated navigation aid or fix serving the destination aerodrome and

when required to ensure compliance with subparagraph (e), hold over
this aid or fix until commencement of descent;
(e) commence descent from the navigation aid or fix specified in
subparagraph (d) at, or as close as possible to, the expected approach
time last received and acknowledged or, if no expected approach time
has been received and acknowledged, at, or as close as possible to, the
estimated time of arrival resulting from the current flight plan;
(f) complete a normal instrument approach procedure as specified for the
designated navigation aid or fix; and
(g) land, if possible, within 30 minutes after the estimated time of arrival
specified in (e) or the last acknowledged expected approach time,
whichever is later.

- Take me through the V speeds on a Seneca?

Vso - 61

Vs1 - 63

Vmca - 66

Vr - 79

Vyse - 89

Vlo - 107/129

Vle - 129

Vno - 163

Vne - 195

- What would happen if your primer kept operating while climbing with a SEP

The air/fuel mixture would become too rich and could flood the cylinders. if it´s an auxiliary fuel pump and if it´s a conventional primer you should lean the mixture and set full power before closing the primer for not to flood the cylinders

- What's the temperature range of carburetor icing?

Between -10° and +30°c with a high humidity.

- What's the benefit of turbo charged engines?

Sea level performance at altitude, maximising power output.

- What's the benefit of fuel injected engines?

Provides a more uniform fuel/air mixture to the cylinders and overcomes the distribution difficulties of a float carburetor, avoiding too the icing given by the fuel evaporation

- What do you know about carburetor icing?

The heat absorbed by the evaporation of the fuel and the acceleration of the air through the venturi cool the air and the walls of the duct causing serious icing even when there is no visible moisture, when the throttles are almost closed it´s possible to encounter ice in the throttle valve, because it creates its own venture effect.

- How does a carburetor heat system work?

The carb heat system delivers hot air from the engine compartment into the carburetor that prevents or melts up the buildup of ice. The hot air reduces density, which reduces power and therefore richens the mixture.

- When would you use carburetor heat in a small aircraft?

With low values of RPM, mainly below its green arc, for example when we start a descend or for the approach to land. Between -10°c and +30°c with high humidity, carburettor icing can occur.

- Is it an electrical system?

No, it's simply an air suplly that passes around the exhaust pipe to get heated

- Does the Seneca have a carburetor heat system?

No because it has no carburetor

- What is the difference between a turbocharger and super charger?

They both compress the air to increase the power of the engine, the difference is how they compress the air. The supercharger is powered by a belt connected to the shaft of the engine and the turbocharger is powered by a turbine that uses the exhaust gases to be moved.

- What is the sequence of actions to do following an engine failure?

It depends on the type of aircraft you are flying at, if it´s a SE one you have to fly at the max glide speed,reducing the drag, look for a suitable field to land and try to restart it or shut it down if for example you are at the circuit pattern of an aerodrome or if it doesn´t restart, call a mayday and ensure the cabin, landing with full flap.If it´s a ME aircraft ,Control the aircraft, try to restart the engine or shut it down (fuel)depending on the situation/feather the propeller, reduce any drag (gear/flap) and cross-feed,ensure the cabin, call a mayday or pan-pan depending on the situation and LAND ASAP.

- What's the purpose of the mirror looking at the nose-wheel on a Seneca?

Allows you to check visually whether the nose gear is down. May be useful if one green doesn't illuminate.

- If you had an engine loss on a twin, which way would you prefer the wind coming from, the live side or dead side? Why, explain?

I prefer the wind coming from the live side because this would help to balance the yawing moment created by the assimetric thrust, this wind would help due to the weathervane effect.

- When you feather the engine, do you have to feather the engine before a certain RPM?

Yes, the propeller must be feathered before a certain RPM e.g.above 800 on the Seneca, because otherwise the loss of centrifugal force due to slowing RPM will actuate a stop pin that keeps the prop from feathering each time the engine is stopped on the ground.

- What is that RPM?

800 rpm on the Seneca

- Why can't you feather the engine below that RPM?
- the loss of centrifugal force due to slowing RPM will actuate a stop pin that keeps the prop from feathering each time the engine is stopped on the ground.

- What is tyre creep and why should I be concerned about it?

The tendency of the tire to rotate slowly around the wheel hub as a result of a millisecond landing friction on the tire before wheel spin occurs. It usually occurs due to a low tire pressure. If it occurs during a long period of time, it will cause the tire to tear out the inflation valve and cause the tire to burst on touchdown.

- What is the maximum operating ceiling of a typical jet?

737-800 maximum ceiling is 41,000ft

- Why will a jet not fly this altitude?

This is a limiting altitude given by the max dif pressure having a comfortable ambient in the cabin for the pax, max alt for the engines, etc..

- When will a jet be able to fly this altitude?

When the aircraft weight and configuration and atmospehere state is the same as when the maximum operating ceiling was determined during flight testing.

- Why do jet a/c fly as high as possible

Best SFC and increased range. Airframe drag is proportional to EAS and therefore this decreases at higher altitudes as well. Also, this is where the engine operates most efficiently at high rpms.

- If turboprops are more efficient a/c why do they not climb that high

The propellers are limited in altitude because the blade tips suffer from the compressibility effects and therefore its rpm is limited. This is because the blade tips become sonic and therefore this limits the thrust force produced and therefore speed. So, propellers become less efficient as speed increases and therefore are flown at lower altitudes at slower speeds.

- What do you know about B737-800

189 seats, 2x CFM56-7 engines, MTOW 74990, range 3000nm, cruise speed 0.785, operating ceiling 41,000ft, winglets allow for 6% less fuel burn and 130nm further.

- What angle of Sweep do our planes have? Why not 27 degrees instead?

25° angle of sweep. Because it has to be designed to fly at high speed but also to create certain high values of lift at some phases of the flight

- What engine model do our planes have?

CFM56-7 rated at 27,300 lbs

- What is optimum ISA cruise altitude for 737?

It depends on the weight of the aircraft, as the weight decreases the opt alt increases, but I think that at its max tow it´s about 32000

- What is the fuel capacity of the 737 – 800?

26,000 L

- How many seats has the 737 – 800 got?

189

- Tell me about the 737-800 wings?

Swept at 25° with blended winglets to improve fuel efficiency and range, reducing costs.

- Why does the 737 have a variable incidence tail plane?

It maintains its streamlined shape unlike an elevator with trim tab arrangement, therefore allowing you to trim the attitude of the aircraft whilst producing less drag. The surface area is greater than just an elevator and therefore, little movement is required. And it gives a higher CG and speeds range. Being able to respond to high trim requirements

- What would you do if you had a radio failure on take off?
- What do MDA and DA mean?

Decision altitude on a precision approach at which a go around must be initiated if the satisfactory visual references have not been identified to safely land.

Minimum Descent Altitude at which the aircraft cannot descend below on a non-precision approach until the satisfactory visual references have been identified in order to land. The MDA can be maintained until the Missed Approach Point, at which stage the aircraft must immediately go around.

- What does PAPI stand for?

Precision Approach Path Indicator

- MSA figures on the chart refer to a radial distance of how many miles?

25nm, unless detailed otherwise.

- What's the reference point for these MSA figures?

The navigation aid specified.

- What's an NDB?

A non-directional beacon that sends out a signal in all directions for aircraft to home to. They can be used for en-route tracking, holds and approach procedures.

- What's the radio frequency for an NDB?

200-1750 kHz medium and low frequency bands.

Questions on Basic Empty Mass (BEM) = *The weight of the empty aircraft with all its basic equipment plus a*

declared quantity of unsuable fuel and oil.

The Operating Mass (OM); note, the word 'basic' does not precede it, is the Basic Empty Mass + the mass of the crew, crew baggage and role equipment + the take of fuel mass (TOF).
The Basic Empty Mass plus the crew, crew baggage and basic equipment = Dry Operating Mass (DOM)
Therefore, the OM = DOM + TOF

In mass and balance terms the JAR use mass, not weight. Weight of course = mass x g

- Tell me about the last aircraft you flew in, Cessna

Voltage
Electrical equipment of 28V DC
Amperage
60 amp alternator connected with a belt to the engine shaft drivng the propeller.
Landing gear
Fixed tricycle landing gear, which use an oleo-pneumatic shock absorber in the nose gear and spring steel tubular struts in the main gear. The nose wheel is steerable, via linkages connected to the rudder pedals.
Controls
Cable operated, all moving stabilator with anti-servo tab acting as a trim.
Engine (advantages of turbo charged to carburettor)
Air cooled,horizontally opposed 4 cylinder engine.IO-360L2A 160HP at 2400rpm. Direct drive.
Fuel system/capacity
Two vented fuel integrated tanks into wings, a tank into each wing, 56 pounds total fuel, 53 usable. Injection system.
Type of flaps, ailerons

Single slot type flaps with balance weights to avoid flutter. Differential ailerons to avoid the adverse yaw.
Ice protection
Not approved for flight in icing conditions.

T-Tail
Benefits

- Out of the wing airflow, giving smoother flow and better pitch control
- Effective distance between the tailplane and wing increases, giving more leverage in pitch
- Allows rear mounted engines to be fitted with the extra space
- Reduced proximity to the ground during takeoff and landing, meaning less chance of damage

Drawbacks

- Prone to deep stall due to blanking of the airflow by a stalled wing, causing loss of pitch control
- Difficult to recover from a spin
- The control runs to the elevators are more complex
- More difficult to inspect the elevator surfaces from the ground

1. Why the fuel gauges read in KG, yet the fuel is delivered in Litres?

The pilot needs to know the mass of the fuel and not just the volume for mass and balance calculations. It is also required to calculate fuel burn i.e. kg/hr

2. When does the speed change from IAS to MACH?

Up until a 'changeover altitude' i.e. 26,000ft, the aircraft will fly a constant IAS against an increasing mach number until it reaches a certain value of Mach. The aircraft will then fly a constant mach number against a decreasing IAS as its altitude increases.

3. Why was the PA38 tomahawk designed with a T-Tail?(I had no clue on the advantages but knew the disadvantages so explained them)

4. What is a moment arm?

The distance between the aircraft's datum and the centre of gravity of a mass.

5. How are contrails formed

The water vapour product of combustion from an aircraft's exhaust emerges into a cold environment and the local increase in water vapour can push it past its saturation point, causing it to condense out into tiny water droplets as contrails. They usually occur above 26,000ft where the temperature is below -40°c.

6. You are flying at FL350 and the temperature gauge reads -30 is the aircraft at its optimum level? (I explained 2degrees lapse rate per 1,000ft so it should be -70. But forgot ISA so he reminded me it was a performance calc. Then clicked I had to take 70 away from 15). If it´s the optimum level for its current weight it is going to be at its opt alt regardless of the outside temperature, if it´s being maintained their optimum EPR and Mach