Aircraft Engineering – Pre-entry Assessment Guide

The pre-entry assessment will consist of theory examinations and an interview. The duration of the assessment is two and a half hours and candidates should arrive half an hour beforehand to allow for parking and registration. Candidates will need a pen and basic or simple scientific calculator. Please note cell phones and translators will not be permitted during the examination.

Part 1 – Theory Assessment (Multiple-Choice Computer Based Exam)

Section One

This section will test your understanding of year 11 & 12 maths, physics and some basic engineering knowledge. Candidates should revise and be familiar with the following subject areas:

- Linear conversions between metric and imperial measurements
- Understanding of whole numbers and decimal places
- Square area and use of square root equations
- Forces of flight, including production of lift
- Adding and Subtraction of fractions
- Establishing averages from data
- Basic Algebra
- Interpreting worded problems into mathematical equations and solving the equation.
    - For example, speed, time, and distance.
- Transposition of formula
- Levers, moments, and torque
- Pressure including an understanding of the General Gas Laws
- Practical effects of gravity
- Basic Electrical Theory, series and parallel circuits, battery theory
- Understanding of rotating gears and mechanisms
- Interpretation of orthographic drawings
- Hand and measuring tool recognition

Section Two

This section will test your understanding of Year 11 & 12 English. Candidates should revise and be familiar with the following:

- Reading, understanding & comprehension

Part 2 – Interview

There will be a short interview, candidates can prepare for this by thinking about examples or ideas for the following:

- Why does working on aircraft interest me?
- What do aircraft engineers do?
- What skills or experience do I have that would be useful for aircraft engineering?
- What are my expectations of this course?

It would be a good idea to bring along a CV, and pictures/documents covering any hands-on projects or work you have done. This could be mechanical, electrical, woodworking, metalworking, construction, arts and crafts or anything 'hands-on' that demonstrates your interests or hobbies.
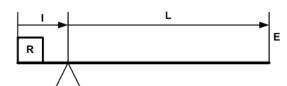
If you have work experience on anything practical, it will help your application.

The interview stage is also your opportunity to find out more about the training, please feel free to ask your interviewer any questions.

Practice Questions

The following questions are intended to guide you in your revision for the pre-entry maths and physics assessment. (Answers on next page)

1. 532 x 24

2. Simplify $416/8$

3. 216 - 48

4. 1568 - 23.5

5. $3/8 \times 3/3$

6. 25.78 + 5.4 + 0.237

7. 26.575 x 0.32

8. 37.26 ÷ 2.7

9. An engine is developing 85hp out of a possible 125hp. What percentage of the total power available is being developed?

10. If 4,180rpm is 38% of the max rpm speed, what is the max rpm speed?

11. Determine the number of revolutions a gear completes in 30 seconds when the gear turns at 100 revolutions per min (RPM).

12. If a circle has a diameter of 10cm, what is its circumference and area?

13. What is the volume of a box 24 cm high, 18 cm long and 12 cm wide?

14.

If R =100kg
L= 3.5mtr
I = .5 metre
What will the weight of E be to balance the beam?

15. If the air inside a rigid, sealed container is heated, will the volume:

- Increase
- Decrease
- Stay the Same

What will happen to the pressure? Will it:

- Increase
- Decrease
- Stay the Same

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Answers

1. *12,768*

2. *52*

3. *-264*

4. *1544.5*

5. *9/24 or .375*

6. *31.417*

7. *8.504*

8. *13.8*

9. *68%*

10. *11,000*

11. *50 revolutions*

12. *Circumference = 31.416 cm. Area = 78. 54 sq. cm*

13. *5,184 cubic cm*

14. *14.28kg*

15. *Volume remains the same, pressure will increase*