

Pearson BTEC Level 2 Diploma in Aerospace and Aviation Engineering (Foundation Knowledge)

Principles of Aerodynamics and the Theory of Flight

Sample mark scheme

November 2015

Version 1.0

The mark scheme shows the question number, the answer, the associated assessment criteria covered in the unit specification (*Unit 3 Principles of Aerodynamics and the Theory of Flight*) and the total mark for each item.

A screen may contain one or more items. Each item is worth 1 mark.

Question Number	Answer	Assessment Criteria	Total Mark
1	Shaped to reduce the amount of drag	1.1	(1)
2	Boundary layer	1.1	(1)
3	The line drawn joining points halfway between the upper and lower curved surfaces	1.2	(1)
4	Towards the nose cone	1.2	(1)
5	Surface roughness of the aerofoils	1.3	(1)
6	Polishing	1.3	(1)
7	High aerofoil thickness to chord	2.1	(1)
8	Swept	2.1	(1)
9	25 : 1	2.1	(1)
10	Weight increases	2.1	(1)
11	lift = weight; thrust = drag	3.1	(1)
12	Decreases compression shockwave	3.1	(1)
13	It decreases	3.2	(1)
14	Loss of control	3.2	(1)
15	They support longitudinal control	4.1	(1)
16	Rudder	4.1	(1)
17	It increases	4.2	(1)
18	lift ÷ weight	4.3	(1)
19	The operational capabilities of an aircraft	4.3	(1)
20	thrust/drag	5.1	(1)
21	D	5.1	(1)

Question Number	Answer	Assessment Criteria	Total Mark
22	When disturbed from equilibrium, it does eventually return to equilibrium	5.1	(1)
23	Centripetal	5.1	(1)
24	Phugoid	5.1	(1)
25	Centre of pressure moves forward	5.2	(1)
26	Pitching	5.2	(1)
27	Control about the normal axis	5.2	(1)
28	Centre of gravity	5.2	(1)
29	To control flutter	5.3	(1)
30	Reduce take-off distance	5.4	(1)
31	Reduce the aircraft stall speed	5.4	(1)
32	Increase lift, increase drag	6.1	(1)
33	Induced drag	6.1	(1)
34	Prevents rudder deflection at high air speeds	6.2	(1)
35	Ailerons	6.2	(1)
36	Controls the roll or bank	6.3	(1)
37	Produces more lift	6.3	(1)
38	Stalling angle is increased	6.3	(1)
39	One flap extends and the other does not	6.4	(1)
40	A stall at high angles of attack	6.5	(1)

Total = 40 Marks

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