

# Post Evaluation Flight Challenge 2005



**Directions For Numbers 101- 125 :** Read each of the following multiple-choice items and the possible answers carefully. Mark the letter of the correct answer on your answer sheet or as instructed by your teacher. **Remember: Make no marks on this test.**

**101** The aspect ratio (span / chord) shows the relationship between the span and chord of a wing. Which wing would create the **MOST** lift?

- A Span = 10, chord = 5
- B Span = 10, chord = 2
- C Span = 15, chord = 5
- D Span = 15, chord = 2

**102** The first step in the design process is:

- A Testing the prototype.
- B Brainstorming possible solutions.
- C Evaluating possible improvements.
- D Identifying and defining the problem.

**103** Primary control surfaces, which are used to control roll, pitch and yaw, include:

- A Ailerons, elevator and rudders.
- B Ailerons, fuselage and rudders.
- C Wings, fuselage, and empennage.
- D Wings, fuselage, and tail.

**104** Brainstorming is used to generate lots of ideas in the design process. Once a possible solution is selected, the next step in the process is to:

- A Test the solution.
- B Build a model of the solution.
- C Evaluate the solution.
- D Build the final product.

**105** Every transportation device, such as a glider, can be studied by looking at its subsystems. How many sub-systems are there for transportation devices?

- A Two
- B Six
- C Twelve
- D Twenty-four

**106** Lots of testing is done during the construction of models and prototypes in the design process. One test, to ensure that the glider flies straight, is called:

- A Trimming.
- B Straightening.
- C Controlling.
- D Catapulting.

**107** What force acting on a glider opposes lift?

- A Friction
- B Thrust
- C Gravity
- D Drag

**108** Items such as weight, size, cost and function, which define what the finished product of a design should include, are called:

- A Constraints.
- B Criteria.
- C Thumbnail sketches.
- D Details.

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**109** What force acting on a glider opposes thrust?

- A Friction
- B Thrust
- C Gravity
- D Drag

**110** The recording of information, sketches and data is what part of the design process?

- A Brainstorming
- B Documentation
- C Evaluation
- D Prototyping

**111** Devices that can be used to hold parts in place or make sure they line up perfectly the same each time, as in the attachment of wings to the glider fuselage, are called:

- A Prototypes.
- B Templates.
- C Fixtures.
- D Models.

**112** How long have people been flying in gliders?

- A 20 years
- B 50 years
- C Several centuries
- D Over 1000 years

**113** A launch catapult is used to propel each glider with the same amount of force. This force that acts on the glider, which is used to overcome drag, is called:

- A Thrust.
- B Lift.
- C Gravity.
- D Compression.

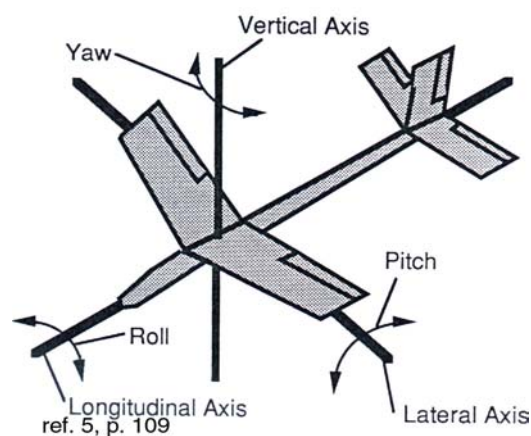


Fig.FC06.01

**114** What is the primary control surface that causes the glider to yaw left or right about the vertical axis? (Refer to Fig.FC06.01)

- A Stabilizer
- B Rudder
- C Elevator
- D Aileron

**115** What is the primary control surface located on the wings that control the roll of the glider clockwise or counter-clockwise? (Refer to Fig.FC06.01)

- A Stabilizer
- B Rudder
- C Elevator
- D Aileron

**116** What is the primary control surface that causes the glider to pitch up or down about the lateral axis? (Refer to Fig.FC06.01)

- A Stabilizer
- B Rudder
- C Elevator
- D Aileron

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- 117** An airfoil shows the cross section of a wing. The curved surface on the top of the airfoil shape that creates induced lift, is called the:
- A Span.
  - B Camber.
  - C Leading edge.
  - D Chord.
- 118** According to Bernoulli's Principle, what kind of pressure around a wing causes induced lift?
- A Strong pressure on the edge
  - B Equal pressure on the top and bottom
  - C No pressure on the top
  - D Different pressure on the top and bottom
- 119** Increasing the camber of an airfoil, will generally do what to induced lift?
- A Increase induced lift
  - B Decrease induced lift
  - C No affect on induced lift
  - D No relationship between the camber and induced lift
- 120** If you could balance your glider on a single point, such as your finger, where all the weight of the glider is centered, you would be identifying its:
- A Center of gravity.
  - B Center of lift.
  - C Center of mass.
  - D Static center.
- 121** A force that opposes the weight of an object (caused by gravity) is called:
- A Drag.
  - B Friction.
  - C Lift
  - D Thrust
- 122** A glider moves forward a distance of 39 feet while dropping 3 feet in altitude. The glide ratio for this glider is:
- A 3:1
  - B 13:1
  - C 17:1
  - D 39:1
- 123** The angle that the wing makes with the fuselage when viewed from the *front* of the aircraft, which helps with stability, is called the:
- A Dihedral angle.
  - B Angle of incidence.
  - C Sweepback angle.
  - D Angle of attack.
- 124** The angle that the wings make with the fuselage when viewed from the *side* of the aircraft is called the:
- A Dihedral angle.
  - B Angle of incidence.
  - C Sweepback angle.
  - D Angle of attack.

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**125** The length of an aircraft's wings, measured from tip to tip, is called:

- A Camber.
- B Chord.
- C Span.
- D Polyhedral.

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?	●	Answer/ Scale	Objective	?	●	Answer/ Scale	Objective
101	101	D	FC06.01 Math	114	114	B	FC06.03 Technology
102	102	D	FC06.03 Technology	115	115	D	FC06.03 Technology
103	103	A	FC06.03 Technology	116	116	C	FC06.03 Technology
104	104	B	FC06.03 Technology	117	117	B	FC06.02 Science
105	105	B	FC06.03 Technology	118	118	D	FC06.02 Science
106	106	A	FC06.03 Technology	119	119	A	FC06.02 Science
107	107	C	FC06.03 Technology	120	120	A	FC06.02 Science
108	108	B	FC06.03 Technology	121	121	C	FC06.02 Science
109	109	D	FC06.03 Technology	122	122	B	FC06.01 Math
110	110	B	FC06.03 Technology	123	123	A	FC06.01 Math
111	111	C	FC06.03 Technology	124	124	B	FC06.01 Math
112	112	C	FC06.03 Technology	125	125	C	FC06.01 Math
113	113	A	FC06.03 Technology				

Minimum points  
required to achieve  
mastery category

Total questions on test: 25

Objectives measured: 3	Items	Points	●	◐	Questions measuring this objective
FC06.01 Math	5	5	4	3	101 122 123 124 125
FC06.03 Technology	15	15	11	10	102 103 104 105 106 107 108 109 110 111 112
FC06.03 Technology					113 114 115 116
FC06.02 Science	5	5	4	3	117 118 119 120 121
<b>Totals</b>		25	19	16	

## FC06

? = Test Question Number ● = line on GP Form

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## Items used in test

?	Item name	?	Item name	?	Item name
101	FC06.01.00.04	110	FC06.03.00.14	118	FC06.02.00.01
102	FC06.03.00.05	111	FC06.03.00.12	119	FC06.02.00.05
103	FC06.03.00.15	112	FC06.03.00.13	120	FC06.02.00.04
104	FC06.03.00.07	113	FC06.03.00.08	121	FC06.02.00.02
105	FC06.03.00.04	114	FC06.03.00.03	122	FC06.01.00.03
106	FC06.03.00.10	115	FC06.03.00.01	123	FC06.01.00.02
107	FC06.03.00.09	116	FC06.03.00.02	124	FC06.01.00.01
108	FC06.03.00.06	117	FC06.02.00.03	125	FC06.01.00.05
109	FC06.03.00.11				

## FC06

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