

## **LPUNEST – Ph.D. Aerospace Engineering (Sample Questions)**

- QUESTION 1**     An Aerospace vehicle wing is designed to produce lift resulting from a difference in the
- Option A             produce drag
- Option B             negative air pressure below & a vacuum above the wing's surface
- Option C             higher air pressure below the wing's surface & lower air pressure above the wing 'surface
- Option D             vacuum below the wing's surface & greater air pressure above the wing's surface
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- QUESTION 2**     The boundary conditions for a rod with circular cross-section, under torsional vibration, are changed from fixed-free to fixed fixed. The fundamental natural frequency of the fixed-fixed rod is  $k$  times that of fixed free rod. The value of  $k$  is
- Option A             2
- Option B             0.5
- Option C             2.5
- Option D             3
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- QUESTION 3**     In most airplanes, the Dutch roll mode can be excited by applying
- Option A             A step input to the elevators
- Option B             A sinusoidal input to aileron
- Option C             An impulse input the elevators
- Option D             A step Input to the rudder
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- QUESTION 4**     The thrust produced by a turbojet engine
- Option A             Increases with increasing compressor pressure ratio
- Option B             Decreases with increasing compressor pressure ratio
- Option C             Remains constant with increasing compressor pressure ratio
- Option D             First increases and then decreases with increasing compressor pressure ratio
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- QUESTION 5**     Which one of the following is favorable for an airplane operation?
- Option A             Tail wind in cruise and head wind in landing
- Option B             Tail wind both in cruise and landing
- Option C             Head wind both in cruise and landing
- Option D             Head wind in cruise and tail wind in landing

