

**B.Tech. AEROSPACE ENGINEERING  
(BTAE)**

**Term-End Examination**

00373

**December, 2018**

**BAS-023 : AIRCRAFT DESIGN / LAUNCH  
VEHICLE / ROCKET DESIGN**

*Time : 3 hours*

*Maximum Marks : 70*

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*Note : Attempt any **seven** questions. All questions carry equal marks. Use of scientific calculator is permitted.*

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1. (a) What is understood by the term 'Stealth Technology' ? Name one such airplane and explain its stealth action. 5
- (b) Explain the statement "Propeller driven aircrafts are not capable of cruising at higher altitudes." 5
2. What are the possible locations of jet engines on an airplane (both civil and military) ? Illustrate each of these with sketches/diagrams of existing/past airplanes. Describe their merits. 10
3. Derive the expression for radius of turn and critical velocity of an aircraft. 10

4. Compare the following :
- (a) High wing and Low wing airplane configuration 5
  - (b) Dihedral and Anhedral wings along with examples 5
5. What are the different arrangements/layouts of landing gears for airplanes ? Illustrate with sketches and plots. 10
6. (a) Differentiate between Tricycle and Tail wheel configurations. 5
- (b) What are the advantages of lower taper ratio ? Explain with a neat sketch. 5
7. Explain the role of aircraft mock-up in the design and development of a new airplane. Illustrate with emphasis on structural arrangement, layout and systems development. 10
8. (a) What is semi-monocoque construction ? 5
- (b) Explain different classifications of flight vehicles. 5
9. Explain how load is uniformly distributed in the fuselage in detail. 10
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