

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

Term-End Examination

00404

June, 2017

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

Time : 3 hours

Maximum Marks : 70

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

1. Differentiate between geometric twist and aerodynamic twist in the wing of an aircraft with neat sketches. 10

2. Discuss the methodology involved in determination of drag of an airplane wing. Support it with sketches. 10

3. What are the working Mach number regimes of different engines used in aircrafts ? Also discuss the advantages of afterburning in an aircraft gas turbine engine. 10

4. What are the reasons behind low aspect ratio of military aircrafts ? What are the other techniques to make a military aircraft more manoeuvrable ? 10

 5. What are the different types of landing gear arrangements ? Explain any one in detail. 10

 6. Describe in brief the methodology and considerations for the selection of propulsion system for a fighter aircraft. 10

 7. What are the different types of wings ? Explain how any one particular type of wing suits a particular mission. 10

 8. Draw a neat sketch of the internal view of the cockpit of an aircraft and label the various instruments and components inside it. 10

 9. Compare the following :
 - (a) Dihedral and Anhedral Wings along with examples 5

 - (b) Propeller engine and Turboprop engine with neat sketches 5
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