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BAS-023

B.Tech. AEROSPACE ENGINEERING (BTAE)

00192

Term-End Examination

December, 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. What are the different types of Landing Gear Arrangements ? Explain any one in detail. *10*

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

3. What do you understand by the term Stealth Technology ? Name one such airplane and explain its stealth action. *10*

4. Describe with representative sketches/diagrams, various tail plane configurations deployed on airplanes for stability purposes. *10*

5. 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 deployment. *10*

6. What should be the design features of a low cost trainer airplane requiring minimum maintenance and operational cost ? *10*

7. How will you estimate the weight of an aircraft ? What do you understand by Inertial Loads ? While designing an aircraft structure, which components create inertial loads ? *10*

8. Propeller-driven aircrafts are not capable of cruising at higher altitudes. Explain. *10*

9. Explain the different types of drag experienced by an aircraft. Also draw the drag divergence curve. *10*

10. Give a few applications of the following aircraft parts : *5×2=10*

(a) Flaps

(b) Ailerons

(c) Spoilers

(d) Tabs

(e) Tail