

R09

Code No: 56071

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B. Tech III Year II Semester Examinations, May - 2019

CONCEPTUAL DESIGN OF FLIGHT VEHICLES

(Aeronautical Engineering)

Time: 3 hours

Max. Marks: 75

**Answer any five questions
All questions carry equal marks**

1. What do you mean by Design? Explain about the different phases of aircraft design in detail. [15]
- 2.a) Write a short note on wing vertical location with respect to the fuselage.
b) What is arrested landing? Explain the method of selection of Thrust to Weight and Wing Loading. [7+8]
3. Explain in detail about fixed engine sizing and rubber engine sizing procedure. [15]
4. Does inlet location has any effect on engine performance as the inlet geometry? Explain about it in detail. Also draw the various inlet locations for a buried engine. [15]
- 5.a) How are aircraft loads categorized into? Explain about them in detail.
b) What is the use of V-n diagram? [11+4]
- 6.a) Write in detail about Cooper-Harper scale.
b) How do estimate static pitch stability? [8+7]
7. Briefly explain about the refined conceptual sizing methods. [15]
- 8.a) Write about the recirculation and hot-gas ingestion method for VTOL.
b) How a VTOL aircraft is controlled? [8+7]

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