Sixth Semester B. Tech Degree Examination

Branch: Aeronautical Engineering

(Model Question Paper)

(2013 Scheme)

13.601 AIRCRAFT DESIGN(S)

Time: 3 hours Max. Marks:100

PART A

Answer all questions. Each question carries 4 marks

1. What are the different phases of aircraft design?
2. What are the advantages and disadvantages of high wing loading?
3. What is conic lofting?
4. What are the different types of landing gear arrangements? Explain anyone in detail.
5. What is the difference between fail-safe and safe-fail design methodologies?

(5x4=20 Marks)

PART B

Answer any one question from each module. Each question carries 20 marks

MODULE I

6. What are the different steps in the conceptual design of a commercialpassenger aircraft? Discuss the reasoning behind the order of steps.

OR

7. Discuss how the takeoff weight of an aircraft can be estimated.

MODULE II

8. What are the different types of wings? Explain how any one particulartype of wing suits a particular mission.

OR

9. What are the different considerations for selection of airfoil for a wing?

MODULE III

10. What is wrap fuselage lofting? Describe a method for verifying thesame.

OR

11. Explain how the volume of the fuselage of a commercial passenger aircraft can be computed.

MODULE IV

12. Discuss in brief the methodology and considerations for the selection of propulsion system for a fighter aircraft.

OR

13. Describe a methodology each for the tire sizing and design of retraction system with respect to landing gear of an aircraft.

(20x4=80 Marks)