PART A

1. Define skin friction drag and pressure drag
2. What is the significance of drag divergence mach number
3. Explain Range and endurance
4. What are the limitations of pull up and push up diagrams
5. What is Aerodynamic balancing
6. What are the stability criterion
7. Explain briefly about dutch roll
8. What is weather cocking effect
9. What is hinge moment coefficient
10. What are the basic forces acting on a Flight vehicle

PART B

MODULE -1

11. a) Derive the condition for minimum drag and power required in straight and level flight
    b) Explain briefly the different types of drag associated with an airplane

OR

12. Derive the forces and moments acting on a Flight vehicle
MODULE-2

13. a) Explain performance of aircraft in level flight (10)
    b) Explain turning performance (10)

OR

14. Explain with sketches pull up and push up manoeuvres of Flight (20)

MODULE-3

15. a) What is the criterion for static and longitudinal stability (10)
    b) Define Neutral point (10)

OR

16. a) Explain about inherently stable and marginal stable airplane (15)
    b) Explain hinge moment coefficient (5)

MODULE-4

17. Write a short note on
    a) Autorotation
    b) spin
    c) Dutch roll (20)

OR

18. a) Explain briefly lateral and directional stability (10)
b) Explain coupling between Rolling and Yawning moment (10)