

Department of Aeronautical Engineering
Elements of Aeronautics
QUESTION BANK

PART-A

1. Difference between air breathing and rocket propulsion?
2. What is the role of a rudder?
3. What is the purpose of elevator?
4. Difference between anhedral and dihedral?
5. Define aspect ratio?
6. Define aerofoil?
7. Difference between symmetrical and unsymmetrical aerofoil?
8. Difference between biplane and monoplane?
9. Explain NACA 23012 aerofoil?
10. Explain NACA six series aerofoil?
11. Differentiate solid propellant rocket and liquid propellant rocket?
12. Differentiate flap and spoiler?
13. Define wing loading?
14. What is specific impulse is? Give examples.
15. What is the difference between turbojet and turbofan engine?
16. What is the difference between turbojet and turboprop engine?
17. List different types of flaps?
18. Differentiate slot and slat?
19. What is sweep back and how it is useful?
20. Define camber in a airfoil?
21. Define stalling in an aircraft?
22. What is profile drag?
23. What is lapse rate?
24. What is relationship between TAS and EAS/
25. Differentiate longeron and stringer?
26. What is service ceiling?
27. What is absolute ceiling?
28. What is a geometric, absolute, geopotential altitude?
29. List different layers in atmosphere?
30. Define Mach no. and what is it spectrum?
31. What is the application or use of titanium in aircraft manufacturing?
32. Define propeller efficiency?
33. Define bypass ratio?
34. What is hypergolic propellant?
35. What is cryogenic propellant?
36. What is geodesic construction?
37. What is alclad?
38. What is aerodynamic center?
39. Define mean aerodynamic chord?
40. What is scramjet?

41. What are the requirements of aircraft engine?
42. What is parasite drag?
43. Define lift and drag?
44. Define ISA?
45. Define center of pressure?

PART-B

1. Draw three view of an aircraft and show all the major parts? Explain the major components and parts.
2. Enumerate the six factors of an ideal aerofoil?
3. Calculate the temperature and pressure at 6km and 14km. Assume standard sea level condition.
4. Explain the forces acting on an aircraft?
5. Derive an expression for pressure and density in troposphere and stratosphere?
6. Discuss the pressure distribution on an aerofoil? Sketch the pressure distribution on an aerofoil at various angle of attack
7. Explain structure of atmosphere with different layers?
8. Derive thrust equation for air breathing engine?
9. Explain different types of flaps used in aircraft?
10. Explain operation of turbojet, turboprop, turbofan engines with neat sketch?
11. Explain operation of solid propellant and liquid propellant engine with neat sketch?
12. Differentiate jet engine and rocket engine?
13. Differentiate piston engine and jet engine?
14. Explain with suitable diagram the structure of wing?
15. Explain with suitable diagram the structure of fuselage?
16. Explain usage and application of Titanium, Aluminium, stainless steel and Composite materials in aircraft construction?
17. Explain geometry of an airfoil?
18. Explain different types of drag on aircraft?
19. Explain classification of different types of aircraft?
20. Draw diagram of an aircraft and explain different parts?
21. Differentiate monocoque and semi monocoque construction?
22. Explain propeller thrust equation?
23. Explain non-metallic materials?
24. Describe different type of flying instruments?
25. Explain induced drag in aircraft?