

SECTION-C

Note: Long answer type questions. Attempt any three questions. 3x10=30

- Q.3 Describe the pre wright brother's history of aviation from the desire of man to fly.
- Q.4 Draw the pressure profile for a symmetrical and cambered airfoil. Discuss the various types of wing plan-forms with their characteristics?
- Q.5 Explain the forces on the airplane in different attitude of flight? Discuss the effect of wing and tail in longitudinal and lateral stability.
- Q.6 Explain the working of rate of climb indicator. Discuss the basic steps in aircraft design.
- Q.7 Explain the properties of aircraft materials. How the different material are selected for different parts based on the properties?

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3rd Sem. / AME

Subject : Introduction to Aeronautics

Time : 3 Hrs.

M.M. : 100

SECTION-A

Note: Very Short Answer type questions. Attempt any 15 parts. (15x2=30)

- Q.1 a) Name the different part of aircraft gas turbine engines.
- b) Name various lighter than air aircrafts.
- c) What is the purpose of tail rotor in helicopter?
- d) Explain digits in NACA4 airfoil digit series.
- e) List the primary and secondary control surfaces in aircrafts.
- f) What is the condition for minimum drag?
- g) What is a drag polar?
- h) What are the different types of stabilities defined in aircrafts?
- i) Describe the working of a turbojet engine.

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- j) Draw the thermodynamic cycle for a turbo jet engine.
- k) Why the engines are hanging under wings?
- l) What are the different materials used in aircraft construction?
- m) What are various types of fuselage-wing joint?
- n) Name the instruments used in aircrafts.
- o) What are the different performance measuring instruments used in aircrafts?
- p) What is the function of a fuel system?
- q) What do you mean by airworthiness?
- r) Why the cabin is pressurized?

SECTION-B

Note: Short answer type questions. Attempt any ten parts
10x4=40

- Q.2
- i) What is the importance of lift drag ratio? What is range and endurance of an aircraft?
 - ii) Describe the pitot based instruments in aircrafts.
 - iii) Describe briefly the major milestone in the aviation field.

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- iv) Draw and explain drag polar.
- v) What is stability? What are its types? Name the stabilizing surfaces in an air plane?
- vi) Explain the application of different types of engines used in aircrafts.
- vii) Explain the working of prop fan engine.
- viii) What are the different methods to control boundary layer?
- ix) Explain the working of turn and bank indicator.
- x) What is wing loading? Name the various load acting on air crafts?
- xi) What is the different hydraulic, pneumatic, electrical systems in an aircraft?
- xii) What do you mean by airworthiness?
- xiii) Define dynamic stability. How can it be achieved in an airplane?
- xiv) What are the safety requirements for airplanes?
- xv) What are the places where power plant can be fixed? What is the benefit of engines under the wing in an airplane?

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