



CBCS SCHEME

15AE82

Eighth Semester B.E. Degree Examination, Dec.2019/Jan.2020 Flight Vehicle Design

Time: 3 hrs.

Max. Marks: 80

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

- 1 a. Draw an aircraft design flow chart and explain. (10 Marks)
b. Define Range, Radius of Action, Normal cruise Altitude. (06 Marks)

OR

- 2 a. Explain the effect of wing loading an aircraft design. (10 Marks)
b. What is the effect of flap during landing? (06 Marks)

Module-2

- 3 a. Draw a sketch and determine the MAC of a using with swept back and taper. (10 Marks)
b. Explain, how to find the wetted area of the aircraft and explain why it is important. (06 Marks)

OR

- 4 a. Explain the horizontal tail arrangements of various aircraft and say why it is so located. (08 Marks)
b. Explain V-n diagram. (08 Marks)

Module-3

- 5 a. What are the different types of engines used in aircraft? Bring out the advantages and disadvantages of each. (08 Marks)
b. What is a flat rated engine? Explain. (08 Marks)

OR

- 6 a. What do you know about propeller propulsion system? (08 Marks)
b. What is active lift enhancement? Explain with neat sketches. (08 Marks)

Module-4

- 7 a. What is Longitudinal static stability and how do you enhance it? (08 Marks)
b. Define directional stability of an aircraft. How can it be increased? (08 Marks)

OR

- 8 a. Explain Cooper-Harper scale of pilot rating. (08 Marks)
b. What are environmental constraints faced by aircraft in its operation? (08 Marks)

Module-5

- 9 a. With the help of a neat sketch, explain the function of an Air Condition System of a passenger aircraft. (08 Marks)
b. What are the different types of landing gear used on an aircraft? (08 Marks)

OR

- 10 a. Draw a neat sketch of Aircraft Fuel System and explain the function of each component. (08 Marks)
b. How is aircraft pressurized? Explain. (08 Marks)

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and /or equations written eg. 42+8 = 50, will be treated as malpractice.