

CBCS SCHEME

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15AE63

Sixth Semester B.E. Degree Examination, Dec.2018/Jan.2019 Aircraft Performance

Time: 3 hrs.

Max. Marks: 80

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

Module-1

- 1 a. With a neat sketch, explain basic forces of flight. (08 Marks)
b. Explain the conditions for minimum power required by using analytical method. (08 Marks)

OR

- 2 a. With a graphical approach method, explain:
i) Power available and power required. (12 Marks)
ii) Thrust available and thrust required. (04 Marks)
b. Explain basic parameters of flight in steady unaccelerated flight. (04 Marks)

Module-2

- 3 Derive and explain the equation of motion for rate of climb by using analytical approach method. (16 Marks)

OR

- 4 a. Explain the followings: i) Absolute ceiling ii) Service ceiling. (08 Marks)
b. Derive and explain minimum rate of sink and shallowest angle of glide. (08 Marks)

Module-3

- 5 a. Explain the thrust to weight ratio and its important for aeroplane. (08 Marks)
b. Explain minimum velocity and drag polar. (08 Marks)

OR

- 6 a. Derive the equation of maximum range and endurance for propeller driven airplane. (12 Marks)
b. What is range and endurance? (04 Marks)

Module-4

- 7 Derive and explain calculation of ground roll equation for accelerated flight for takeoff condition [performance]. (16 Marks)

OR

- 8 a. Derive the equation of approach distance for accelerated flight for landing flight. (12 Marks)
b. Explain flare distance in general. (04 Marks)

Module-5

- 9 Explain the basic parameter of turning performance in terms of
i) Level turn ii) Turning rate and iii) Turn radius. (16 Marks)

OR

- 10 a. Explain V-n diagrams for flight. (06 Marks)
b. Explain pull up and pull down Maneuvers and its limitations. (10 Marks)

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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.