Reg. No. : ☐☐☐☐☐☐☐☐☐☐☐☐☐

Question Paper Code : 40036

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2021.

Seventh Semester

Aeronautical Engineering

AE 8006 – UAV SYSTEMS

(Regulations 2017)

Time : Three hours   Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1.   Define UAV.

2.   What are the advantages of UAV?

3.   Differentiate UAV and MAV.

4.   What are the various UAV airframe configurations?

5.   Define autopilot.

6.   Define servo.

7.   Define Telemetry.

8.   What are the different memories in an UAV autopilot?

9.   Define waypoint.

10. What are the different In-flight tests carried out in an unmanned aerial vehicle?

PART B — (5 × 13 = 65 marks)

11. (a)   Sketch and explain in detail about various classification of an unmanned system.   (13)

Or

(b)   Explain in detail about the various subsystems of an unmanned system.   (13)

12. (a) Explain in detail about various design standard and regulations of an unmanned aerial vehicle. (13)

Or

(b) Explain in detail about design and selection criteria of an UAV airframe configuration. (13)

13. (a) Sketch the architecture and explain in detail about autopilot system. (13)

Or

(b) Sketch and explain in detail about various sensors system used in an unmanned aerial vehicle. List its various advantages and disadvantages. (13)

14. (a) Sketch and explain in detail about PID control system. (13)

Or

(b) Explain in detail about working principle of telemetry and tracking system. (13)

15. (a) Sketch and explain in detail about waypoint navigation for an unmanned aerial vehicle. (13)

Or

(b) Sketch and explain in detail about system ground test and in-flight test in an unmanned aerial vehicle. (13)

PART C — (1 × 15 = 15 marks)

16. (a) Explain in detail about any case study of any mini unmanned aerial vehicle with neat sketch. (15)

Or

(b) Explain in detail about future prospects and various challenges in an unmanned aerial vehicle. (15)

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