

Reg. No. :

Question Paper Code : 20055

B.E./B.Tech. DEGREE EXAMINATIONS, APRIL/MAY 2022.

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. What is UAV in aviation?
2. Differentiate UAV and Drone.
3. What are the components of UAV?
4. Describe UAV design.
5. What is the primary purpose of an autopilot?
6. Write a short note on avionics architecture.
7. How is the payload of a drone calculated.
8. What is PID UAV?
9. What does the waypoint mean in navigation?
10. Write a short note on ground control software.

PART B — (5 × 13 = 65 marks)

11. (a) (i) Explain in detail the applications of UAV. (8)
(ii) What are the two major types of unmanned aircraft system? (5)
Or
(b) (i) Differentiate between UAV and UAS. (8)
(ii) Write a note on control systems in UAV. (5)
12. (a) (i) Elaborate on aircraft characteristics. (8)
(ii) What is the first phase to design an unmanned aerial vehicle? (5)
Or
(b) (i) What are the modes of control available in UAV autopilot? Explain. (8)
(ii) How are unmanned aircraft controlled? Explain. (5)
13. (a) (i) What do you mean by actuator in UAV? Explain. (8)
(ii) What is UAV remote sensing? Explain. (5)
Or
(b) (i) What are the steps involved in design of avionics system? Explain. (8)
(ii) Write a short note on operational program configuration. Explain. (5)
14. (a) (i) With the help of a neat diagram, explain pressure feed fuel? Explain. (8)
(ii) What are the two types of aircraft fuel system? Explain. (5)
Or
(b) (i) What are self-driving cars? How do they work? Explain. (8)
(ii) What are the different memories in an UAV autopilot? Explain. (5)
15. (a) (i) Differentiate between UAV, UAS and RPA. (8)
(ii) How is flight testing done? Explain. (5)
Or
(b) (i) What is ground testing? Explain. (5)
(ii) Briefly explain the aircraft ground test plan. (8)
- PART C — (1 × 15 = 15 marks)
16. (a) With the help of a neat diagram, explain the design optimization of UAV. (15)
Or
(b) Briefly explain the design and development of micro aerial vehicle. (15)