

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VI EXAMINATION – SUMMER 2025

Subject Code: 3160114

Date: 28-05-2025

Subject Name: Introduction to UAV

Time: 10:30 AM TO 01:00 PM

Total Marks:70

Instructions:

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Simple and non-programmable scientific calculators are allowed.

		Marks
Q.1	(a) How does a UAV differ from a traditional manned aircraft?	03
	(b) What are the main components of a UAV system?	04
	(c) How UAVs are classified based on size and weight?	07
Q.2	(a) What is the role of the ground control station (GCS) in a UAV system?	03
	(b) What are VTOL (Vertical Take-Off and Landing) UAVs, and how do they function?	04
	(c) 1. What is FPV (First-Person View) in UAVs, and how is it used? 2. What are the key differences between military and civilian UAVs?	07
	OR	
	(c) How do LiDAR systems function as UAV payloads?	07
Q.3	(a) What is beyond visual line of sight (BVLOS) operation in UAVs?	03
	(b) How are UAVs tested for reliability and durability ?	04
	(c) How is radar systems used as payloads in UAV applications?	07
	OR	
Q.3	(a) What is the importance of data link systems in UAV communication?	03
	(b) How are agricultural sensors utilized as UAV payloads for precision farming?	04
	(c) What are the key flight stability tests performed during UAV testing? Explain	07
Q.4	(a) How do collision avoidance systems work in UAVs?	03
	(b) What is the purpose of carrying chemical and biological sensors on UAVs?	04
	(c) Explain Communication systems in UAV	07
	OR	
Q.4	(a) How is collision avoidance systems tested in UAVs?	03
	(b) How is the GPS navigation accuracy tested in UAVs?	04
	(c) Write a note on Very small UAVs with appropriate sketch.	07
Q.5	(a) What is the common ground tests conducted on UAV systems?	03
	(b) What are the key performance parameters tested in UAV systems?	04
	(c) What are the emerging trends in advanced UAV payload technologies ?	07
	OR	
Q.5	(a) What is UAV system testing , and why is it important?	03
	(b) How do search and rescue UAV payloads assist in disaster and emergency situations?	04
	(c) Explain Catapult Launch System Tests.	07
