

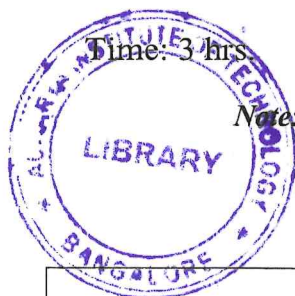
CBCS SCHEME

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BAE503

Fifth Semester B.E./B.Tech. Degree Examination, June/July 2026 Unmanned Aerial Vehicles – Basics and Applications



Time: 3 hrs

Max. Marks: 100

*Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.
2. M : Marks , L: Bloom's level , C: Course outcomes.*

Module – 1			M	L	C
Q.1	a.	Discuss in detail about the classification of UAV's based on their classes and mission.	10	L1	CO1
	b.	With respect to time line briefly explain the history of development of UAV.	10	L1	CO1
OR					
Q.2	a.	Define the following : i) Range ii) Endurance iii) Pay load iv) Reconnaissance v) Surveillance.	10	L1	CO1
	b.	Explain the UAV system in detail with relevant sketches.	10	L1	CO1
Module – 2					
Q.3	a.	Define Drag. Explain the Aircraft polar and total air-vehicle drag.	10	L1	CO2
	b.	Discuss the following : i) Boundary layer ii) Flapping wings.	10	L1	CO2
OR					
Q.4	a.	Derive the Range and Endurance equation for a jet-driven aircraft.	12	L2	CO2
	b.	Explain the following with relevant sketches : i) Climbing flight ii) Gliding flight	8	L2	CO2

Module – 3

Q.5	a.	What is Stability? Explain the longitudinal stability and lateral stability with relevant figures.	10	L2	CO2
	b.	With neat sketches, explain the flight control system and its importance for autopilot system.	10	L2	CO2

OR

Q.6	a.	Discuss the flight control classifications and overall modes of operation.	10	L2	CO2
	b.	Explain the sensors supporting the autopilot in detail with relevant applications.	10	L2	CO2

Module – 4

Q.7	a.	Derive the equations for thrust generation and powered lift for the UAV.	10	L2	CO3
	b.	Explain the sources of electrical power used in UAV.	10	L2	CO3

OR

Q.8	a.	Explain the sandwich construction technique for constructing the airframe of an UAV.	10	L2	CO3
	b.	Explain the loads acting on UAV. Draw the V – n diagram and discuss the same.	10	L2	CO3

Module – 5

Q.9	a.	With help of a block diagram, explain the MPCCS in detail.	10	L2	CO3
	b.	Discuss the OSI model and the levels of communication.	10	L2	CO3

OR

Q.10	a.	Explain the design issues related to carriage and delivery of weapons.	10	L2	CO3
	b.	With help of relevant sketch, explain the Data-Link functions and desirable data-link attributes.	10	L2	CO3
