PAPER ID-410197

Subject Code: KOE080

Roll No: | | | | | | | | | | | | | |

BTECH
(SEM VIII) THEORY EXAMINATION 2023-24
FUNDAMENTALS OF DRONE TECHNOLOGY

TIME: 3 HRS **M.MARKS: 100**

Note: 1. Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

1. Attempt *all* questions in brief. **2 x 10 = 20**

Q no.	Question	Marks	CO
a.	What factors influence drone design?	02	1
b.	How drones are classified?	02	1
c.	Discuss some applications of drones.	02	2
d.	Discuss about airframe configurations.	02	2
e.	What is the role of an autopilot in drones?	02	3
f.	How power is supplied to drone avionics?	02	3
g.	How do PID controllers work in drones?	02	4
h.	Discuss about different types of payloads.	02	4
i.	Explain waypoint navigation.	02	5
j.	Why is ground testing important for drones?	02	5

SECTION B

2. Attempt any *three* of the following: **3 x 10 = 30**

a.	Discuss the history of UAV drones, highlighting key milestones and technological advancements that have shaped the industry.	10	1
b.	Explain the different airframe configurations used in UAV drones and their impact on flight performance.	10	2
c.	Discuss the power supply requirements of UAV drones and the challenges associated with providing power to avionics systems.	10	3
d.	Describe the different types of payloads used in UAV drones, such as cameras, sensors, and communication equipment.	10	4
e.	Explain how simulation and analysis are used to evaluate the performance of drones in different scenarios.	10	5

SECTION C

3. Attempt any *one* part of the following: **1 x 10 = 10**

a.	Classify drones based on their size, range, and capabilities. Provide examples of each classification and explain their typical applications.	10	1
b.	Describe the various applications of drones in different industries, such as agriculture, surveillance, and logistics.	10	1

4. Attempt any *one* part of the following: **1 x 10 = 10**

a.	Discuss the design standards and regulatory aspects specific to UAV drones in India.	10	2
b.	Discuss the factors that influence design decisions, such as aerodynamics, weight distribution, and mission requirements.	10	2

PAPER ID-410197

Roll No: | | | | | | | | | | | | |

BTECH
(SEM VIII) THEORY EXAMINATION 2023-24
FUNDAMENTALS OF DRONE TECHNOLOGY

TIME: 3 HRS **M.MARKS: 100**

5. Attempt any *one* part of the following: 1 x 10 = 10

a.	Discuss the components of an autopilot system and their functions in controlling the aircraft.	10	3
b.	Describe the various sensors used in UAV drones, such as AGL-pressure sensors, servos, accelerometers, and gyros.	10	3

6. Attempt any *one* part of the following: 1 x 10 = 10

a.	Explain the concept of telemetry in UAV drones and its role in transmitting data between the aircraft and the ground station.	10	4
b.	Discuss the importance of PID feedback control in stabilizing and controlling UAV drones.	10	4

7. Attempt any *one* part of the following: 1 x 10 = 10

a.	Discuss the challenges associated with autonomous navigation. How to overcome these challenges?	10	5
b.	Discuss the features of ground control software and how it is used in mission planning and execution.	10	5