000471

PRN:		Course Code :	PAS301

Second Year **M. Tech** End Semester Examination Winter 2024

Missile Guidance and control

Day and Date: Fri 22 Nov 2024 Max Marks: **100**

Time : 02:00PM To 05:00PM Duration: **03** hrs

Instructions: All questions are compulsory.

		Marks	Bloom's Level	CO
Q.1	**Attempt the following**			
a)	Explain Air-to-Surface Missiles, Air-to-Air Missiles,	08	2	1
b)	Explain the following (i) Flight Control System (ii) Guidance Subsystem (iii) Proximity Fuze	08	2	1
	OR			
b)	Explain the following (i) Applications of Guidance (ii) Major Components of Tactical Missiles (iii) Airframe	08	3	1
Q.2	**Attempt the following**			
a)	Explain Guidance Phases During Missile Flight.	08	2	1
b)	Explain Different Categories of Homing Guidance.	08	3	2
	OR			
b)	Write about The Collision Geometry.	08	3	2
Q.3	**Attempt any two from the following**			
a)	Explain the following (i) The collision condition (ii) collision triangle (iii) Miss-distance (iv) Effect of lethal radius	08	1	2
b)	Explain Asymptotic behavior of Vθ and VR, Avoidance.	08	3	3
c)	Derive the Equations of motion, (Vθ, VR)-trajectory.	08	3	3

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Q.4	**Attempt any two from the following**			
a)	Explain Conceptual Classical Guidance Laws and Implementable Classical Guidance Laws.	08	3	3
b)	Explain the following (i) Modern Guidance Laws (ii) Pure Pursuit Guidance Law (iii) Deviated Pursuit Guidance Law	08	3	4
c)	Explain LOS Guidance, Implementation of LOS Guidance	08	2	4
Q.5	**Attempt any Two of the following**			
a)	Explain Pure Proportional Navigation (PPN), True Proportional Navigation (TPN)	09	3	4
b)	Explain the following (i) Generalized TPN (GTPN) (ii) Ideal Proportional Navigation (IPN) (iii) Original TPN with Non-Maneuvering Target	09	2	4
c)	Explain the following (i) Miss-Distance Analysis (ii) Pure Proportional Navigation (iii) Non-Maneuvering Target (iv) Maneuvering Target.	09	3	5
Q.6	**Attempt any Two of the following**			
a)	Explain the following (i) Orientation Guidance (ii) Composite Guidance law	09	2	5
b)	Explain Impact Angles Against a Moving Target with Proportional Navigation	09	3	5
c)	Explain the following (i) PN Based Impact Angle Constrained Guidance (ii) Impact Angles Against a Stationary Target with PN	09	3	5

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