PRN:		Course Code :	UAE 402

Second Year **B. Tech** End Semester Examination Summer 2024

Propulsion

Day and Date: 24 MAY 2024 Friday Max Marks: **100**

Time : 10.30 am to 1.30pm Duration: **03** hrs

Instructions: All questions are compulsory.

			Marks	Bloom's Level	CO
Q.1		**Attempt the following**			
	a)	Explain briefly about factors affecting the thrust.	08	2	1
	b)	Explain performance characteristics of turbojet and turbo prop engines.	08	3	1
		OR			
	b)	Explain the following (i) Water injection (ii) Afterburning (iii) Inter-turbine combustion.	08	2	1
Q.2		**Attempt the following**			
	a)	Explain the Shock swallowing by area variation.	08	2	2
	b)	Derive the relation between minimum area ratio and external deceleration ratio.	08	2	2
		OR			
	b)	Explain the subsonic inlets and modes of inlet operations	08	2	2
Q.3		**Attempt any two from the following**			
	a)	Write about different types of combustors with neat sketch.	08	2	3
	b)	Explain combustion chamber performance with suitable sketches.	08	2	3
	c)	Explain the Use of flame holders and Flame stabilization.	08	2	3
Q.4		**Attempt any two from the following**			
	a)	Explain convergent nozzles and nozzle choking.	08	2	4
	b)	Explain thrust reversal with neat sketches.	08	2	4
	c)	Expain over expanded and under expanded nozzles.	08	2	4
Q.5		**Attempt any Two of the following**			
	a)	Explain the working principle of centrifugal compressor.	09	2	5
	b)	Sketch the velocity diagrams for axial flow compressor with brief explanation.	09	3	5
	c)	Explain performance characteristics of centrifugal and axial compressor.	09	3	5
Q.6		**Attempt any Two of the following**			
	a)	Explain Ram jet engine with neat sketch.	09	2	6
	b)	What is rocket propulsion? Explain it with suitable sketches.	09	2	6
	c)	Briefly explain pulse detonation engine.	09	2	6

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