Model Question Paper-1 with effect from 2022-23 (CBCS Scheme)

USN | | | | | | | | | | |

Sixth Semester B.E. Degree Examination
Subject Title: Gas Turbine Technology

TIME: 03 Hours   **Max. Marks: 100**

Note: 01. Answer any **FIVE** full questions, choosing at least **ONE** question from each **MODULE**.

		Module -1	***Bloom's Taxonomy Level**	**Marks**
Q.01	a	Enlist the different types of combustion chamber used in gas turbine engines explain the advantages and disadvantages	L1	10
	b	Elucidate thrust reversal & its types used in aircraft	L3	10
		OR		
Q.02	a	Explain the following i. Sound suppression techniques in aircraft engines ii. convergent divergent nozzle iii. after burner system	L2	10
	b	Design an innovative nozzle system for a gas turbine engine, considering both efficiency and noise reduction.	L5	10
		Module-2		
Q. 03	a	Describe the process of powder metallurgy and its applications in manufacturing.	L2	10
	b	Propose suitable materials for a component operating in a high-temperature environment, considering both strength and heat resistance.	L5	10
		OR		
Q.04	a	Analyze the factors influencing the selection of materials for a specific engineering application.	L4	10
	b	Compare and contrast the properties of composites and ceramics in terms of strength, weight, and temperature resistance.	L4	10
		Module-3		
Q. 05	a	Discuss the characteristics of wind milling in gas turbine engines	L2	10
	b	Explain the thrust engine start envelope and its relevance during engine startup	L2	10
	c			
		OR		
Q. 06	a	Design a starting process for a new generation jet engine, considering efficiency and safety.	L3	10
	b	Discuss the characteristics of wind milling in gas turbine engines.	L3	10
		Module-4		
Q. 07	a	Discuss how inlet distortions can impact compressor efficiency and stability.	L2	10
	b	Propose methods to improve turbine efficiency based on Turbine MAP analysis.	L3	10
		OR		
Q. 08	a	Explain the significance of a Compressor MAP in assessing compressor performance.	L4	10
	b	Propose methods to improve surge margin in a compressor design.	L3	10
		Module-5		
Q. 09	a	Analyze the accuracy and uncertainty associated with measurements in engine testing.	L3	10
	b	Design a data acquisition system tailored for engine testing, considering the parameters to be measured and the operating conditions.	L3	10
		OR		

Q. 10	a	Compare and contrast the types of engine testing methods in terms of their advantages and limitations.	L2	10
	b	Define data acquisition system and its role in engine testing	L2	10

*Bloom's Taxonomy Level: Indicate as L1, L2, L3, L4, etc. It is also desirable to indicate the COs and POs to be attained by every bit of questions.