



# SNS COLLEGE OF TECHNOLOGY

(An Autonomous Institution)

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COIMBATORE-641 035, TAMIL NADU



## DEPARTMENT OF AEROSPACE ENGINEERING

Faculty Name : **Dr.A.Arun Negemiya,** Academic Year : **2025-2026 (Even)**  
ASP/Aero  
Year & Branch : **II Aerospace** Semester : **IV**  
Course : **23ASB201 & Aerospace Propulsion**

### Question Bank

#### UNIT III – FUNDAMENTALS OF GAS TURBINE ENGINES

##### Part A – 2 Marks (20 Questions)

Q.No	Question	Bloom's Level	Source (Company / Exam / Year)
1	Define a gas turbine engine.	Remember (L1)	NPTEL
2	State the basic working principle of a gas turbine engine.	Understand (L2)	HAL (2019)
3	What is the Brayton cycle?	Remember (L1)	GATE 2020
4	Define compressor pressure ratio.	Remember (L1)	Rolls-Royce (2018)
5	What is specific fuel consumption?	Remember (L1)	GATE 2021
6	Define a turbojet engine.	Remember (L1)	AIRBUS (2019)
7	What is a turbofan engine?	Remember (L1)	Rolls-Royce
8	Define bypass ratio.	Understand (L2)	GATE 2022
9	What is a turboprop engine?	Remember (L1)	HAL
10	Define thrust augmentation.	Remember (L1)	DRDO (2020)
11	What is afterburning?	Understand (L2)	GATE
12	Define the overall efficiency of the gas turbine engine.	Understand (L2)	NPTEL

13	What is engine pressure ratio (EPR)?	Remember (L1)	BOEING
14	What is net thrust?	Remember (L1)	GATE
15	Define the thermal efficiency of the gas turbine cycle.	Understand (L2)	NPTEL
16	Name any two thrust augmentation methods.	Remember (L1)	AIRBUS
17	What is propulsive efficiency in turbofan engines?	Understand (L2)	Rolls-Royce
18	What is compressor surge?	Remember (L1)	DRDO
19	Define engine performance characteristics.	Understand (L2)	NPTEL
20	Mention one application of turboprop engines.	Remember (L1)	HAL

**Part B – 15 Marks (30 Questions)**

Q.No	Question	Bloom's Level	Source
1	Explain the working principle of a gas turbine engine with a neat diagram.	Understand (L2)	NPTEL
2	Explain the Brayton cycle with T-S and P-V diagrams.	Understand (L2)	GATE 2020
3	Derive the expression for the thermal efficiency of the Brayton cycle.	Apply (L3)	GATE 2019
4	Explain the construction and working of a turbojet engine.	Understand (L2)	Rolls-Royce
5	Compare turbojet and turbofan engines.	Analyze (L4)	AIRBUS
6	Explain the working of a turboprop engine.	Understand (L2)	HAL
7	Discuss thrust and efficiency characteristics of gas turbine engines.	Analyze (L4)	NPTEL
8	Explain methods of thrust augmentation in aircraft engines.	Understand (L2)	DRDO
9	Describe the afterburner operation with advantages and limitations.	Analyze (L4)	GATE 2021
10	Explain engine performance characteristics with plots.	Analyze (L4)	Rolls-Royce
11	Define and explain specific thrust and specific fuel consumption.	Understand (L2)	GATE
12	Discuss the effect of bypass ratio on turbofan performance.	Analyze (L4)	AIRBUS
13	Explain compressor and turbine matching in gas turbine engines.	Analyze (L4)	NPTEL

14	Compare turbofan and turboprop engines.	Analyze (L4)	HAL
15	Explain the thrust generation mechanism in gas turbine engines.	Understand (L2)	NPTEL
16	Derive an expression for the propulsive efficiency of jet engines.	Apply (L3)	GATE 2022
17	Explain losses occurring in gas turbine engines.	Analyze (L4)	Rolls-Royce
18	Discuss surge and choking phenomena in compressors.	Analyze (L4)	DRDO
19	Explain engine pressure ratio and its significance.	Understand (L2)	BOEING
20	Analyze effect of altitude and Mach number on engine performance.	Analyze (L4)	GATE
21	Solve a numerical problem on Brayton cycle efficiency.	Apply (L3)	GATE 2023
22	Discuss the advantages and limitations of turbojet engines.	Evaluate (L5)	AIRBUS
23	Explain noise generation in gas turbine engines.	Analyze (L4)	ICAO
24	Compare ideal and real gas turbine cycles.	Analyze (L4)	NPTEL
25	Discuss recent advancements in gas turbine engines.	Evaluate (L5)	Rolls-Royce (2023)
26	Explain the role of compressors and turbines in thrust production.	Understand (L2)	HAL
27	Case study: High-bypass turbofan engine.	Create (L6)	AIRBUS
28	Explain the fuel consumption characteristics of jet engines.	Analyze (L4)	GATE
29	Discuss operational limitations of gas turbine engines.	Evaluate (L5)	DRDO
30	Design-level discussion on future gas turbine technologies.	Create (L6)	Rolls-Royce