

CBCS SCHEME

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15AE62

Sixth Semester B.E. Degree Examination, Dec.2023/Jan.2024

Gas Turbine Technology

Time: 3 hrs.

Max. Marks: 80

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

- 1 a. With neat sketch, explain the working of Turbojet engine and also mention the characteristics of it. (08 Marks)
- b. Explain the differences between turbo prop and turbo fan engine. Write down the energy distribution of these engines with neat sketch and graph. (08 Marks)

OR

- 2 a. Differentiate between Impulsive and Reaction Turbine. (06 Marks)
- b. List and explain the three basic types of Burners. (06 Marks)
- c. Explain the Thrust reverser, with neat sketch. (04 Marks)

Module-2

- 3 a. What are the characteristics, that must be considered in the selection of material in Gas turbine engine and explain it. (08 Marks)
- b. Explain the Powdered Metallurgy technique with advantages and disadvantages. (08 Marks)

OR

- 4 a. What is FADEC? How does FADEC interacts with Aircraft and engine? Explain. (08 Marks)
- b. Draw and explain typical starting characteristics of starting system. (08 Marks)

Module-3

- 5 a. What are design point performance parameters that are involved in Gas Turbine Engine? (08 Marks)
- b. Draw and explain a typical restart envelop for a Civil turbofan engine. (08 Marks)

OR

- 6 a. Define Wing Milling and describe it in turbojet engine. (08 Marks)
- b. Mention the steps involved in starting of Gas turbine engine. (08 Marks)

Module-4

- 7 a. Explain the Gas turbine combustion testing, Performance and Evaluation. (08 Marks)
- b. What is Compressor MAP? What results can obtain from it. (08 Marks)

OR

- 8 a. Explain the Turbine testing and its performance evaluation. (08 Marks)
- b. Write a short note on :
 - i) Ram pressure recovery of inlets and propelling nozzles.
 - ii) Testing and performance evaluation of ducts. (08 Marks)

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.

Module-5

- 9 a. Explain about measurement of Thrust and Shaft speed. (08 Marks)
b. What is Test Cell? What are the factors to be considered for design of test engine beds? Explain. (08 Marks)

OR

- 10 a. What is Structural Integrity in Gas Turbine Engine? Explain. (08 Marks)
b. Explain the testing of Inlet distortions and Surge test. (08 Marks)
