

USN

Sixth Semester B.E. Degree Examination, June/July 2024

Gas Turbine Technology

Time: 3 hrs.

Max. Marks: 100

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

Module-1

- 1 a. Explain the working principle of turbojet engine with the help of neat sketch. Write their characteristics, advantages, disadvantages and applications. (10 Marks)
- b. Illustrate the operating parameters for different types of gas turbine engine with the help of plots. (10 Marks)

OR

- 2 a. With the help of diagram, explain the types of burners and write their merits and demerits. (10 Marks)
- b. Draw a diagram of types of thrust reverse. Explain the types with thrust reverser designs and systems. (10 Marks)

Module-2

- 3 a. Describe the selection criteria of materials for gas turbine engines. (10 Marks)
- b. Elucidate any five types of surface finishing in material and manufacturing. (10 Marks)

OR

- 4 a. Explicate the typical fuel system and components for general electric CJ610 engine. (10 Marks)
- b. Expound working of FADEC system along with its interface for engine. (10 Marks)

Module-3

- 5 a. Discuss about the design and off design performance of a gas turbine engine with performance parameter. (10 Marks)
- b. Explain surge margin requirements and surge margin stack up. (10 Marks)

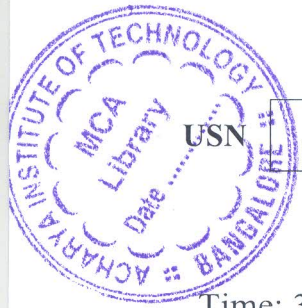
OR

- 6 a. Show the transient working lines for acceleration and deceleration with the performance parameters. (10 Marks)
- b. What is Wind milling? Explain briefly about turbo for wind milling process. (10 Marks)

Module-4

- 7 a. Discuss the three – off – design performance characteristics of compression used in gas turbine. (10 Marks)
- b. Explain the various testing methods subjected to jet engine combustor. (10 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.



OR

- 8 a. Elucidate off design performance of a axial flow turbine. (10 Marks)
b. What is the function of afterburner? Explain the off design performance. (10 Marks)

Module-5

- 9 a. Describe the various preliminary flights rating test. (10 Marks)
b. Write about the following test
i) Qualification test
ii) Acceptance test
iii) Durability and life assessment test (10 Marks)

OR

- 10 a. Discuss the mass and CUSUM plots. (10 Marks)
b. Explain a typical data acquisition system. (10 Marks)

* * * * *