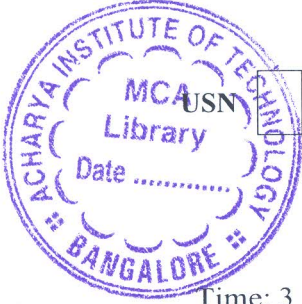


# CBCS SCHEME



18AE644

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. List out different types of engines and arrangements of parts with neat schematic sketch. (12 Marks)  
b. Define TSFC, SFC and compare them for different engines. (08 Marks)

OR

- 2 a. What are the different types of burners available and list out their advantages and disadvantages with a neat sketch? (14 Marks)  
b. Define :  
i) Thrust reversal  
ii) Thrust augmentation  
iii) After burner. (06 Marks)

### Module-2

- 3 a. Explain the criteria needed for selection of materials in gas turbine engine. (12 Marks)  
b. Explain the following :  
i) Surface finishing  
ii) Powder metallurgy. (08 Marks)

OR

- 4 a. With neat schematic diagram, explain FADEC interface with engine. (10 Marks)  
b. Explain starting system and also gas turbine starters used in industry. (10 Marks)

### Module-3

- 5 a. Explain about transient performance with transient working lines. (08 Marks)  
b. With a neat diagram, explain starting process and wind milling of engines. (12 Marks)

OR

- 6 a. Explain in detail about thrust engine start envelope with suitable diagram. (12 Marks)  
b. Explain engine performance monitoring. (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-4**

- 7 a. Discuss the three off – design performance characteristics of compression used in gas turbine engine. (10 Marks)
- b. Explain the various tests to which a jet engine combustor will be subjected to during its performance evolution. (10 Marks)

**OR**

- 8 a. Explain the turbine testing and its performance evolution. (10 Marks)
- b. Write short notes on :
- i) Ram pressure recover of inlets and propelling nozzles.
- ii) Testing and performance evolution of ducts. (10 Marks)

**Module-5**

- 9 a. List the proof of concepts used in the process of engine testing. Explain preliminary flight rating test in detail. (10 Marks)
- b. Explain :
- i) Estimating engine operating limits
- ii) Methods of displacing equilibrium tests. (10 Marks)

**OR**

- 10 a. Briefly explain the instruments used in test cell for measurement of various parameters. (10 Marks)
- b. Explain with relevant sketches :
- i) Mass and CUSUM plots
- ii) Uncertainty in measurements and its analysis. (10 Marks)

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