

CBCS SCHEME

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15AE62

Sixth Semester B.E. Degree Examination, Dec.2018/Jan.2019 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. Describe the various gas turbine engines used in aircraft. Explain the advantages and disadvantages of each. (08 Marks)
b. Draw the pressure and velocity diagram in an axial compressor and explain. (08 Marks)

OR

- 2 a. What are the different types of combustion chambers used in gas turbine engines? Explain the advantages and disadvantages. (08 Marks)
b. Explain what is thrust reversal. What are the different types of thrust reversals used in aircraft? (04 Marks)
c. Explain thrust augmentation. How is it done? (04 Marks)

Module-2

- 3 a. What are the parts of turbine engine that are manufactured by powder metallurgy and explain their advantages? (08 Marks)
b. Write about the usage of composites and ceramics in the gas turbine engine. (08 Marks)

OR

- 4 a. Draw a typical oil system of a gas turbine engine and how does it lubricate the various parts. (08 Marks)
b. What are the different types of starting system used in gas turbine engine and explain each? (08 Marks)

Module-3

- 5 a. Why is Surge Margin required? Explain. (08 Marks)
b. Describe the starting process of a gas turbine engine. (08 Marks)

OR

- 6 a. What is wind milling and how is it used for starting the engine? (08 Marks)
b. What are the parameters generally monitored for accessing the engine performance and how it affects the engine. (08 Marks)

Module-4

- 7 a. What is Ram Pressure Recovery? How is it important in improving or decreasing the engine performance. (08 Marks)
b. What is after burner? Describe the function of a typical after burner and associated system. (08 Marks)

OR

- 8 a. What are the losses in combustion chamber and explain? (08 Marks)
- b. What is the effect of inlet distortion in an aircraft? (08 Marks)

Module-5

- 9 a. What is a flying test bed? Why is required? Explain. (08 Marks)
- b. What is an altitude test facility and what are to be ensured during the test? (08 Marks)

OR

- 10 a. What are the engine parameters instrumented and recorded during a test of an engine? (08 Marks)
- b. The observed parameters gathered during an engine run are RPM, EGT, Thrust, and TSFC. What is the corrected values of the above values. (08 Marks)
