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10AE74

**Seventh Semester B.E. Degree Examination, Dec.2015/Jan.2016**  
**Gas Turbine Technology**

Time: 3 hrs.

Max. Marks:100

**Note: Answer any FIVE full questions, selecting  
atleast TWO questions from each part.**

**PART – A**

- 1 a. With neat sketch explain working principle of turboprop engine along with advantages and disadvantages. (10 Marks)
- b. With neat sketch explain working principle of turbojet engine along with advantages and disadvantages. (10 Marks)
- 2 a. Describe different types of combustion chambers. (10 Marks)
- b. Explain different methods of thrust augmentation. (10 Marks)
- 3 a. Briefly explain the heat range of the following alloy :  
 i) Aluminum alloys  
 ii) Titanium alloys  
 iii) Steel alloys  
 iv) Nickel based alloy  
 v) Cobalt based alloys. (10 Marks)
- b. Explain briefly about manufacturing processes used for gas turbine component. (10 Marks)
- 4 a. Name different types of fuel controls and explain. (10 Marks)
- b. Explain briefly about fuel system components. (10 Marks)

**PART – B**

- 5 a. What do you mean by design and off design and transient performance? What are the different parameters in design point performance? (10 Marks)
- b. Mention the steps involved in starting of gas turbine engine. (10 Marks)
- 6 a. Describe surge, rotating stall and locked stall of a compressor with suitable sketches. (10 Marks)
- b. What is compressor map and what result can be obtained? (10 Marks)
- 7 a. Explain engine trimming process for various engines. (10 Marks)
- b. What are the basic engine ratings for turbojet and turbo fan? Explain briefly. (10 Marks)
- 8 a. What do you mean by test bed? Give their types and explain briefly any two of them. (10 Marks)
- b. Write short note on following :  
 i) Pressure measurement  
 ii) Temperature measurement. (10 Marks)

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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.