

Code: EE3T3

**II B.Tech - I Semester–Regular/Supplementary Examinations
November 2016**

**THERMAL AND HYDRO PRIME MOVERS
(ELECTRICAL AND ELECTRONICS ENGINEERING)**

Duration: 3 hours

Max. Marks: 70

PART – A

Answer *all* the questions. All questions carry equal marks

11x 2 = 22 M

1.

- a) Define boiler? How are boilers classified?
- b) What do you mean by diagram efficiency?
- c) What is the main principle of the surface condensers?
- d) Write the merits of closed cycle gas turbine.
- e) What is the difference between reheat and regeneration?
- f) Define octane number and cetane number.
- g) Write the effects of supercharging on performance of IC engines.
- h) Explain the Degree of reaction.
- i) Define gross head and net head.
- j) What are the main components of centrifugal pump?
- k) Write the differences between centrifugal pump and reciprocating pump.

PART – B

Answer any **THREE** questions. All questions carry equal marks.

3 x 16 = 48 M

2.

a) Explain the pressure compounding impulse steam turbine showing pressure and velocity variations along the axis of the turbine. 8 M

b) Describe with a neat sketch the working of Parallel flow and counter flow jet condensers. 8 M

3.

a) Differentiate between a closed cycle gas turbine and open cycle gas turbine. 6 M

b) List the methods of improving the efficiency of gas turbine and explain one method with neat sketch. 10 M

4.

a) Draw the layout of diesel engine power plant and explain briefly. 8 M

b) Explain different types of fuels used in Diesel power plant. 8 M

5.

a) Draw the neat sketch and working principles of Francis turbines. 10 M

b) Give the Comparison between Hydraulic turbines and pumps. 6 M

6.

a) Define centrifugal pump. Explain the working of single stage centrifugal pump with neat sketch. 10 M

b) Give the Comparison between centrifugal pump and reciprocating pump. 6 M