

Code: R7 311302

B.TECH III Year I Semester (R07) Supplementary Examinations, May 2012

PRIME MOVERS AND MECHANICAL COMPONENTS

(Electronics and Control Engineering)

Time: 3 hours

Max Marks: 80

Answer any FIVE questions

All questions carry equal marks

- 1 (a) Define the terms of impact of jets and turbines.
(b) Define the specific speed of a turbine? Derive an expression for specific speed.
(c) Describe briefly the function of various main components of Pelton turbine with neat sketch.
- 2 (a) What is a reciprocating pump? Describe the principle and working of a reciprocating pump with a neat sketch.
(b) What is an air vessel? Describe the function of the air vessel for reciprocating pumps.
- 3 (a) Sketch and describe Benson boiler. What are its special features?
(b) What are the essential features of good steam boiler?
- 4 (a) What are the uses of boiler mounting and accessories?
(b) Explain with the help of neat sketch, a pressure gauge for steam boiler.
(c) What is the function of steam separator? Explain its location in the steam boiler.
- 5 (a) Explain the difference between impulse turbine and reaction turbine.
(b) Explain with the help of neat sketch a single stage impulse turbine.
- 6 (a) Write working principle of open cycle gas turbine and draw a neat sketch.
(b) Explain about ideal and actual cycles of gas turbine plant.
- 7 (a) What are hydraulic systems? Give some examples.
(b) Explain hydraulic pump duty check control valve with neat sketch.
- 8 (a) What are the different types of mechanical motions? Explain.
(b) What is degree of freedom? Explain different mechanical constraints.
(c) Classify kinematic chains.
