

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-V (Old) EXAMINATION – WINTER 2019****Subject Code: 151906****Date: 27/11/2019****Subject Name: Conventional Power Engineering****Time: 10:30 AM TO 01:00 PM****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Use of Steam tables are permitted

- Q.1** (a) Explain Rankine cycle showing main components by line diagram and draw T-S and P-V diagrams for the same. **07**
- (b) Explain Compounding of steam turbines with diagrams. **07**
- Q.2** (a) A power plant using steam as working fluid operates on a Rankine cycle. The boiler and condenser pressures are 30 bar and 1 bar. The condition of steam entering the prime-mover is dry and saturated. Find the thermal efficiency of the cycle (a) neglecting the feed pump work and (b) considering the feed pump work **07**
- (b) Draw general layout of modern thermal power plant. **07**
- OR**
- (b) Explain combine cycle power plant. **07**
- Q.3** (a) What is governing of steam turbines? Enlist governing methods and explain any one in detail. **07**
- (b) Give the classification of steam turbines and briefly explain each. **07**
- OR**
- Q.3** (a) Classify Gas turbines and differentiate open cycle and close cycle gas turbines. **07**
- (b) Discuss the methods of meeting variable loads on power plant. **07**
- Q.4** (a) Explain the methods for improving the efficiency of gas turbine power plants with T-S diagrams. **07**
- (b) Explain working of hydro-electric power generation plant with diagram and briefly explain types of hydraulic turbines. **07**
- OR**
- Q.4** (a) Explain PWR reactor with neat sketch. **07**
- (b) Explain Thermostat and Evaporative cooling system of Diesel Power Plant. **07**
- Q.5** (a) Describe briefly the function of various components of Pelton turbine with neat sketch. **07**
- (b) Enlist all the systems of Diesel Power Plant and explain any one with neat sketch. **07**
- OR**
- Q.5** (a) Draw neat sketch of Nuclear reactor and explain function of all the components and materials used for that. **07**
- (b) Define : Peak load, Base load, Load factor, Plant use factor, Demand factor, Connected load and diversity factor. **07**
