

**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**

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