

**R18**

Code No: 154BW

**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD**

**B.Tech II Year II Semester Examinations, July/August - 2021**

**POWER SYSTEM – I**

**(Electrical and Electronics Engineering)**

**Time: 3 hours**

**Max. Marks: 75**

**Answer any five questions  
All questions carry equal marks**

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1. Describe the following components of thermal power station with neat schematic diagram.  
a) Economizers      b) Boilers      c) Super heater.      [5+5+5]
  2. With the help of neat block diagram, explain the functions of various components in Nuclear Power Plant.      [15]
  - 3.a) What do you understand by the load curve? What information is conveyed?  
b) A 1000 MW power station delivers 1000 MW for 3 hours, 600 MW for 7 hours and is shut down for the rest of each day. It is also shut down for maintenance for 70 days annually. Calculate its annual load factor.      [7+8]
  4. What is tariff? Explain different types of tariff.      [15]
  - 5.a) Explain different types of Insulators used in transmission lines.  
b) Each conductor of a 33 KV, 3-phase system is suspended by a string of three similar insulators, the capacitance of each disc is nine times the capacitance to ground. Calculate the voltage across each insulator. Determine the string efficiency.      [7+8]
  6. What is voltage stress in insulation of a cable? Derive the necessary expression for it.      [15]
  - 7.a) Derive the expression for Capacitance in Farads per phase per km of a 3-phase over head transmission lines.  
b) Explain the effects of corona formation on overhead lines.      [8+7]
  8. Explain the following with neat diagrams:  
a) AC 3 phase 3 wire distribution system  
b) AC 3 phase 4 wire system.      [8+7]

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