R16 Code No: 134BX JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD **B.Tech II Year II Semester Examinations, December - 2018 POWER SYSTEMS – I** (Electrical and Electronics Engineering)

Time: 3 Hours

Max. Marks: 75

Note: This question paper contains two parts A and B. Part A is compulsory which carries 25 marks. Answer all questions in Part A. Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART-A

| | | (25 Marks) |
|------|---|------------|
| 1.a) | Explain the function of boiler. | [2] |
| b) | How to do shielding and safety precautions in nuclear power station? | [3] |
| c) | Explain about mass curve in hydro power plant. | [2] |
| d) | Explain about draft tube with simple diagram. | [3] |
| e) | Write the comparison of DC vs AC distribution. | [2] |
| f) | What are design features of DC distribution systems? | [3] |
| g) | Give the comparison of Indoor & Outdoor substations. | [2] |
| h) | Draw the single line diagram of gas insulated substations. | [3] |
| i) | Define tariff. | [2] |
| j) | Write the comparisons of load duration and integrated load duration curves. | [3] |

PART-B

(50 Marks) 2. Draw the layout of thermal power plant and explain each component. [10] OR 3.

- With neat sketch explain the principle of operation of nuclear reactor. [10]
- 4. Explain the principle of operation and components of Hydro power plant with neat diagram. [10]

OR

- What do you mean by catchment area? And explain about pumped storage plant with 5. suitable diagram. [10]
- 6. A DC 2 wire distributor is 1000m long and is loaded as follows. Distance in mts from the feeding point: 250 700 1000 100 200 300 Load in Amps: The resistance of each conductor is $025\Omega/Km$. Find the voltage at each load point if the voltage at the feeding point is at 250V. [10] OR
- Derive the voltage expressions for a DC distributor fed at a) one end b) both the ends 7. with concentrated loads. [10]

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8. What do you mean by bus bar? And explain about single bus bar and sectionalized single bus bar. [10]

OR

- 9. Explain about Comparison of air insulated substations and gas insulated substations. [10]
- 10. A 60 MW power station has an annual peak load of 50 MW. The power station supplies loads having maximum demands of 20 MW, 17 MW, 10MW and 9MW. The annual load factor is 0.45. Find a) Average load b) Diversity factor c) Demand factor. [10]
 OR
- 11. What are economic aspects of power generation and explain each. [10]

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