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10EE761

Seventh Semester B.E. Degree Examination, July/August 2022
Power System Planning

Time: 3 hrs.

Max. Marks: 100

Note: Answer any **FIVE** full questions, selecting at least **TWO** questions from each part.

PART - A

- 1 a. Explain the structure of power system with neat diagram, with distribution networks. (10 Marks)
b. Explain types of loads and load forecasting techniques. (10 Marks)
- 2 a. Explain planning formulation with respect to, (i) Options (ii) Uncertainties (iii) Objectives. (10 Marks)
b. What are types of distribution systems used by utilities? Explain them with neat sketches with application. (10 Marks)
- 3 a. Explain financial planning with availability of financial institution with broad options. (10 Marks)
b. Explain objectives of rational Tariffs and types of Tariffs. (10 Marks)
- 4 Explain the following:
(i) Environmental effects on power systems.
(ii) Greenhouse effect.
(iii) Insulation co-ordination.
(iv) Reactive Compensation. (20 Marks)

PART - B

- 5 a. Explain the following terms with respect to power system reliability:
(i) Uncertainty
(ii) System adequacy and Security
(iii) Optimum Reliability. (10 Marks)
b. Explain Load Management with help of block diagram. (10 Marks)
- 6 a. Explain important aspects of power-flow analysis and operational power flow problems. (10 Marks)
b. Explain with the help of schematic diagram power-system simulator. (10 Marks)
- 7 a. Explain optimal power expansion planning. (10 Marks)
b. Explain formulation of least-cost optimization problem incorporating the capital operating and maintenance cost of the plants of thermal, hydel plants. (10 Marks)
- 8 Explain the following optimization techniques for solutions by programming:
(i) Linear programming.
(ii) Integer programming.
(iii) Quadratic programming.
(iv) Dynamic programming. (20 Marks)

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Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and /or equations written eg. 42+8 = 50, will be treated as malpractice.