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PRESIDENCY UNIVERSITY BENGALURU

**SET-A**

SCHOOL OF ENGINEERING

**END TERM EXAMINATION – MAY/JUNE 2024**

**Semester :** Semester VI - 2021

**Course Code :** EEE3025

**Course Name :** - Power System Operation and Control

**Program :** B.Tech. Electrical and Electronics Engineering

**Date :** June 21, 2024

**Time :** 1:00 PM - 4:0 PM

**Max Marks :** 100

**Weightage :** 50%

**Instructions:**

1. *Read all questions carefully and answer accordingly.*
2. *Question paper consists of 3 parts.*
3. *Scientific and non-programmable calculator are permitted.*
4. *Do not write any information on the question paper other than Roll Number.*

**Part - A**

**Answer any 5 questions 5 x 4M= 20M**

* 1. Explain the importance of unit commitment in power system.
  2. Define power quality and list the effects of poor power qualities.
  3. Illustrate the functions of RLDC and NLDC.
  4. Review the major blackouts in worldwide and location.
  5. List the components of speed governing mechanism.
  6. Explain the necessity of regulate voltage and frequency in the power system.
  7. Discuss the concept of TAKE -OR-PAY fuel Supply Contract.

(CO1) [Knowledge] (CO1) [Knowledge] (CO2) [Knowledge] (CO2) [Knowledge] (CO3) [Knowledge] (CO3) [Knowledge] (CO4) [Knowledge]

**Part - B**

**Answer any 4 questions 4 x 10M = 40M**

* 1. Illustrate the dynamic Programming method with the help of Flow chart.

(CO1) [Comprehension]

* 1. Examine the concept of two area systems in a Power system Network.

(CO2) [Comprehension]

* 1. Two generators rated 400MW and 700MW are operated in parallel. The droop characteristics of their governors are 3% and 4% respectively from no load to full load. Assuming that the governors are operating in 50Hz at no load, how would a load of 1000MW is shared between them? What will be the system frequency at this load? Assume linear governor operation. Determine the full load speed for each machine.
  2. Explain the need for a speed governing mechanism in power plants.
  3. List the major blackouts in worldwide and the reason.
  4. Explain the block diagram of ECC.

(CO2) [Comprehension] (CO3) [Comprehension] (CO4) [Comprehension] (CO5) [Comprehension]

**Part - C**

**Answer any 2 questions 2 x 20M = 40M**

* 1. Explain the following on Constraints in unit commitment. (i)Spinning reserve
     1. Thermal Constraints
     2. Hydro, must run and fuel constrain.
  2. Summarize the operation of Speed governing system in a thermal power plant.
  3. Explain the configurations of SCADA and EMS functions.

(CO1) [Application] (CO3) [Application] (CO5) [Application]