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**PRESIDENCY UNIVERSITY
BENGALURU**

**SCHOOL OF ENGINEERING
MID TERM EXAMINATION - OCT 2023**

Semester : Semester VII - 2020

Course Code : EEE3025

Course Name : Sem VII - EEE3025 - Power System Operation and Control

Program : B. TECH

Date : 31-OCT-2023

Time : 2:00PM - 3:30PM

Max Marks : 60

Weightage : 30%

Instructions:

- (i) Read all questions carefully and answer accordingly.
- (ii) Question paper consists of 3 parts.
- (iii) Scientific and non-programmable calculator are permitted.
- (iv) Do not write any information on the question paper other than Roll Number.

PART A

ANSWER ALL THE QUESTIONS

(5 X 2 = 10M)

1. Explain tie line bias control of two area load frequency control with block diagram representation
(CO1) [Knowledge]
2. Classify solution methods of unit commitment of a power system .
(CO1) [Knowledge]
3. What is power quality? list the parameters consider for power quality measurements.
(CO2) [Knowledge]
4. List the IEEE Standards on Power Quality.
(CO2) [Knowledge]
5. Explain:
(i) A G C
(ii) Economic load dispatch.
(CO2) [Knowledge]

PART B

ANSWER ALL THE QUESTIONS

(2 X 15 = 30M)

6. Apply the mathematical equations for developing automatic speed governor system.
(CO1) [Comprehension]
7. Evaluate an expression for the equivalent regulation of parallel operation of two units of different capacity and regulation characteristics
(CO2) [Comprehension]

PART C

ANSWER THE FOLLOWING QUESTION

(1 X 20 = 20M)

8. Areas A,B and C comprising a power pool, initially have a zero tie line flow before 1050MW load decreases in area B. Each area has AGC assisted frequency regulation which results in 1.5 times its combined load and generator natural characteristic. The frequency is 60Hz before the load loss:
Area A: Base generation=10000MW, Natural regulation=1% of base per 0.1Hz
Area B: Base generation=7000MW, Natural regulation=2% of base per 0.1Hz
Area C: Base generation=11500MW, Natural regulation=4% of base per 0.1Hz
- a) What is the system frequency after the load loss
b) What is the net tie line power flow does each pool member have after disturbance

(CO2) [Application]