Reg. No. :

Question Paper Code: 57101

B.E./B.Tech. DEGREE EXAMINATION, DEC 2020

Seventh Semester

Electrical Engineering

15UEE702 - POWER SYSTEM OPERATION CONTROL

(Regulation 2015)

Duration: One hour   Maximum: 30 Marks

PART A - (6 x 1 = 6 Marks)

(Answer any six of the following questions)

1. Load factor during a period is   CO1- R

    (a) Average Load / Installed Capacity   (b) Average Load / Maximum Load

    (c) Maximum Load / Average Load   (d) Maximum Load / Installed Capacity

2. If a generating station had a maximum demand loads for a day at 100kw   CO1- R
    and load factor of 0.2, its generation in that day was

    (a) 8.64 mwh   (b) 21.6 units   (c) 2.6 units   (d) 2160 kwh

3. Area Frequency Response Characteristic (AFRC) is   CO2- R

    (a) D+1/R   (b) R+1/D   (c) D/R   (d) D

4. Real power is closely related to   CO2- R

    (a) Voltage   (b) Current   (c) Frequency   (d) Reactive Power

5. A synchronous condenser is usually   CO3- R

    (a) Dc generator   (b) Over excited synchronous motor

    (c) Under excited synchronous motor   (d) Induction motor

6. The permissible voltage variation in transmission and distribution   CO3- R
    system is

    (a) ± 0.1%   (b) ± 1%   (c) ±10%   (d) ±25%

7. The penalty factor   CO4- R

  (a) is always less than 1   (b) is always more than 1

  (c) may be more or less than 1   (d) is equal to or less than 1

8. For economic measure the generators at a power plant operate at   CO4- R

  (a) Equal incremental cost   (b) Equal loads

  (c) Equal power rating   (d) All of the above

9. Power system monitoring is usually done by   CO5- R

  (a) ETAP   (b) SCADA   (c) Matlab   (d) PSPM

10. SCADA means   CO5- R

  (a) Supervisory Control And Data Acquisition

  (b) System Control And Data Acquisition

  (c) Super Control And Data Acquisition

  (d) All of the above

PART – B (3 x 8= 24 Marks)

(Answer any three of the following questions)

11. Explain an overview of power system operation and control and the role of computer in the implementation with help of block diagram.   CO1- U   (8)

12. Develop the block diagram of two area load frequency control system and explain the uncontrolled static analysis.   CO2- U   (8)

13. Draw the circuit diagram for a typical excitation system and discuss.   CO3- U   (8)

14. State the unit commitment problem. With the help of a flow chart explain forward dynamic programming solution method of unit commitment problem.   CO4- U   (8)

15. Draw the block diagram to show the hardware components of a SCADA system for a power system and explain the application of SCADA in monitoring and control of power system.   CO5- U   (8)

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