B.E (Electrical) SEM-VIII CBGS   11/12/18
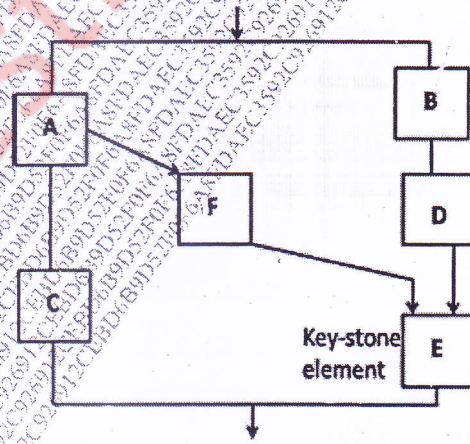
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(Time: 3 Hours)   Total Marks – 80

N.B.:- (1) Question No.1 is compulsory.
        (2) **Attempt** any **three** questions out of remaining **five** questions.
        (3) Assume necessary data wherever necessary.

Q 1.   Answer any four of the following questions.   20
  a)   What do you mean by weather load model?   5
  b)   Write short note on DC load flow.   5
  c)   What do you mean by bath tub curve in reliability studies?   5
  d)   Obtain COPT of a generating system consisting of: 5
            3*10MW units with FOR of 0.01

            1*20MW unit with FOR of 0.01

  e)   Draw the Markov model used for rapid start units in operating reserve studies.   5

Q 2 a) Explain various classifications of power system loads.   10
Q 2 b) What do you mean by load forecasting?   10

Q 3 a) Explain reactive power planning of power system.   10
Q 3 b) Explain strategic planning of powers system.   10

Q 4 a) Derive the general expression for reliability in terms of hazard rate.   10
Q 4 b) Evaluate reliability of the given system using conditional probability method.   10
        Each component has a reliability of 0.99. Take E as the key-stone element.

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Q 5 a) A generating system consists of the following units: **10**

1*10MW units with FOR of 0.08

1*20MW units with FOR of 0.08

1*30MW units with FOR of 0.08

1*40MW units with FOR of 0.08

Calculate LOLE for this system for a single daily peak load of 60MW.

Q 5 b) A generating system contains 3*25MW units each with a 4% FOR and **10** 1*30MW unit with a 5% FOR. If the peak load for a 100 day period is 75MW, what is the LOEE for this period? Assume that the appropriate load characteristic is a straight line from the 100% to the 80% points.

Q 6 a) What are the various data required for reliability evaluation of composite **10** generation and transmission systems?

Q 6 b) Write short notes on: **10**

Area risk curve   ii) Outage replacement rate

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