C.U.SHAH UNIVERSITY
Summer Examination-2017

Subject Name: Inter Connected Power System

Subject Code:4TE07ICP1   **Branch:**B.Tech (Electrical)

Semester: 7   **Date: 27/03/2017**   **Time:02:30 To 05:30**   **Marks: 70**

Instructions:
    (1) Use of Programmable calculator & any other electronic instrument is prohibited.
    (2) Instructions written on main answer book are strictly to be obeyed.
    (3) Draw neat diagrams and figures (if necessary) at right places.
    (4) Assume suitable data if needed.

Q-1   **Attempt the following questions:**   **(14)**
  a) Draw input output curve of a generating unit for operating cost vs output power.   **(1)**
  b) Write the equation of penalty factor.   **(1)**
  c) What is the unit of lagrangian multiplier?   **(1)**
  d) Draw the schematic diagram of load frequency and excitation voltage regulators of a turbo –generator.   **(1)**
  e) What is meant by Control area?   **(1)**
  f) What is the function of tie line?   **(1)**
  g) Write down the Patonn's formula for estimating the security of available power generation.   **(1)**
  h) What is Concept of interconnection?   **(1)**
  i) What is meant by grid system?   **(1)**
  j) Write full form of ACE.   **(1)**
  k) If the voltage are in KV with resistance in ohms,the units of B-coefficient's are in _____.   **(1)**
  l) What is Islanding?   **(1)**
  m) Write full form of AGC.   **(1)**
  n) What is difference between single area and two area system?   **(1)**

Attempt any four questions from Q-2 to Q-8
Q-2   **Attempt all questions**   **(14)**
  a) Explain the optimal scheduling of hydro thermal system. Write the mathematical formulation of hydro system.   **(7)**
  b) What is meant by optimal unit commitment? Explain in detail method of optimal unit commitment.   **(7)**

Q-3		**Attempt all questions**	**(14)**
	a)	Derive the transmission loss formula.	**(7)**
	b)	Explain the factor responsible for cascade tripping.	**(7)**

Q-4		**Attempt all questions**	**(14)**
	a)	Write Short note on turbine speed governing system.	**(7)**
	b)	Explain in brief load frequency control and economic dispatch control.	**(7)**

Q-5		**Attempt all questions**	**(14)**
	a)	What is two area load frequency control? Explain in brief two area load frequency control.	**(7)**
	b)	Explain the steady state load frequency charactertics of a speed governor system.	**(7)**

Q-6		**Attempt all questions**	**(14)**
	a)	Write short note on proportional plus integral load frequency control for control area concept.	**(7)**
	b)	State and explain the block diagram representation of generator load model.	**(7)**

Q-7		**Attempt all questions**	**(14)**
	a)	What is the penalty factor? Derive the exact co-ordination equation.	**(7)**
	b)	Write the steps of computer solution for optimum loading of generator.	**(7)**

Q-8		**Attempt all questions**	**(14)**
	a)	Draw and explain state space model of two area system.	**(7)**
	b)	What is meant by economic dispatch? Write short note on load dispatch center.	**(7)**