Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

PDDC - SEMESTER–VII • EXAMINATION – SUMMER • 2015

Subject Code:X70902 Date:12/05/2015

Subject Name: Interconnected Power System

Time:02:30 pm - 05:00 pm Total Marks: 70

Instructions:

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

Q.1	**(a)**	List out the types of buses specified in load flow study & Derive the for static load flow equations	**07**
	(b)	Explain Cascade tripping & plant Islanding	**07**
Q.2	**(a)**	Draw the block diagram of State load dispatch centre & Explain it's function	**07**
	(b)	Explain transient, Steady state & Dynamic stability of power system	**07**
		OR	
	(b)	Explain tie line load bias frequency control	**07**
Q.3	**(a)**	List out the methods of Y_{Bus} formation & Explain Singular Transformation method to form Y_{Bus}	**07**
	(b)	Explain Gauss-seidel method for load flow study	**07**
		OR	
Q.3	**(a)**	Explain the dynamic programming method for Unit commitment	**07**
	(b)	Derive the equation for Z_{Bus} formation ,[1]when a element is added between new bus & reference bus & [2] Element is added between old bus & new bus	**07**
Q.4	**(a)**	Explain A.G.C.[Automatic Generation Control] with block diagram	**07**
	(b)	Explain flat frequency control	**07**
		OR	
Q.4	**(a)**	Give the comparison between G-S & N-R methods of load flow studies	**07**
	(b)	List out the methods to improve Transient stability of power system &explain any one in brief	**07**
Q.5	**(a)**	Explain the power angle curve & derive the swing equation for power system stability	**07**
	(b)	Explain equal area criteria of stability with diagram	**07**
		OR	
Q.5	**(a)**	Explain the various criteria for economical load distribution between various plants, when transmission line losses are incorporated	**07**
	(b)	The Fuel inputs per hour of plant1 & Plant 2are given as $F_1=0.2P_1^2+40P_1+120$Rs.per hr $F_2=0.25P_2^2+30P_2+150$Rs.per hr Determine the economic operating schedule & corresponding cost of generation, If maximum & minimum loading on each unit is 100MW &25Mw, the load demand is 180MW & transmission losses are neglected, If the load is equally shared by both the units, Determine the saving obtained by loading the units as per equal incremental production cost	**07**

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