GUJARAT TECHNOLOGICAL UNIVERSITY BE - SEMESTER-VIII EXAMINATION – WINTER 2015

Subje	ect (Code:180903	Date:07/12/2015
Subject Name: Power System Practice and Design			
Time: 2:30pm to 5:00pm			Total Marks: 70
Instructions:			
	1.	Attempt all questions.	
	2. 3.	Figures to the right indicate full marks.	
		I gares to the right malcute run marks.	
0.1		What is the effect of (1) strends is a sector (2) have it d	07
Q.1	(a)	what is the effect of (1) stranded conductors, (2) bundled	07
	(h)	What is lamp flicker? What are its causes? What type of	07
	(0)	loads are responsible for it? How can it be reduced?	07
Q.2	(a)	Compare radial, ring and grid distribution system. State	07
-		their applications,	
	(b)	A 3-phase overhead line consists of three conductors in	07
		equilateral formation with 2.44 metre spacing. The	
		conductor diameter is 1.04 cm and surface factor (m) is	
		0.85. The air temperature and pressure are 21.1° C and	
		74cm of mercury. Find visual critical corona voltage.	
	(b)	UK Explain the factors to be considered in selection of a	07
	(U)	voltage suitable for transmitting a certain amount of power	07
		at a given distance	
0.3	(a)	Explain the methods of designing primary distribution	07
X	()	system with reference to (1) Choice of voltage	
		(2) Conductor size (3) type of distribution system	
		(4) voltage drops.	
	(b)	Explain main considerations in mechanical design of	07
		transmission line	
		OR	
Q.3	(a)	Explain touch potential and step potential. How to measure	07
	(-)	soil resistivity?	~ ~
	(b)	Draw substation layout. Explain each component of layout.	07
0.4	(a)	State and explain Valuin's law for most economical	07
Q.4	(a)	conductor size with necessary derivation	07
	(h)	Write a short note on Gas Insulated substation	07
	(0)	OR	07
0.4	(a)	Explain (1) insulation co ordination (2) BIL (3) selection of	07
×	()	arrestor voltage rating (4) protective margin.	
O.4	(b)	Explain factors to be considered for selection of size and	07
C.	. ,	location of generating station.	
Q.5	(a)	Explain merits and demerits of HVDC transmission line	07
		briefly.	
	(b)	Draw and explain single line diagram showing main	07

connections of HVDC transmission.

OR

Q.5 (a) Discuss applications of HVDC systems.
(b) Explain the use of bundled conductors in EHV 07 transmission lines. Also explain how the spacing, selection of size and number of conductors for the EHV lines is done.