

C.U. SHAH UNIVERSITY

Summer Examination-2016

Subject Name: Electrical Power System

Subject Code: 4TE05EPS1

Branch: B.Tech (Electrical)

Semester :5

Date: 27/04/2016

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.
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Q-1

Attempt the following questions:

(14)

- a) Pin type insulators are generally not used for voltages
 - (i) 1 kv
 - (ii) 11 kv
 - (iii) 22 kv
 - (iv) 33 kv
- b) Aluminum has a specific gravity of
 - (i) 1.5
 - (ii) 2.7
 - (iii) 4.2
 - (iv) 7.8
- c) The current drawn by the line due to corona losses is
 - (i) Non Sinusoidal
 - (ii) Sinusoidal
 - (iii) Triangular
 - (iv) Square
- d) Overhead system can be designed for operation up to
 - (i) 11 kV
 - (ii) 33 kV
 - (iii) 66 kV
 - (iv) 400 kV
- e) The usual spans with R.C.C. poles are
 - (i) 40—50 meters
 - (ii) 60—100 meters
 - (iii) 80—100 meters
 - (iv) 300—500 meters
- f) The wooden poles well impregnated with creosote oil or any preservative compound have life
 - (i) from 2 to 5 years
 - (ii) 10 to 15 years



- (iii) 25 to 30 years
- (iv) 60 to 70 years
- g)** Galvanised steel wire is generally used as
 - (i) stay wire
 - (ii) earth wire
 - (iii) structural components
 - (iv) all of the above
- h)** The corona is considerably affected by which of the following ?
 - (i) Size of the conductor
 - (ii) Shape of the conductor
 - (iii) Surface condition of the conductor
 - (iv) All of the above
- i)** Which of the following are the constants of the transmission lines ?
 - (i) Resistance
 - (ii) Inductance
 - (iii) Capacitance
 - (iv) All of the above
- j)** The voltage of the single phase supply to residential consumers is
 - (i) 110 V
 - (ii) 210 V
 - (iii) 230 V
 - (iv) 400 V
- k)** Distribution lines in India generally use
 - (i) wooden poles
 - (ii) R.C.C. poles °
 - (iii) steel towers
 - (iv) none of the above
- l)** Overhead lines generally use
 - (i) copper conductors
 - (ii) all aluminium conductors
 - (iii) A.C.S.R. conductors
 - (iv) none of these
- m)** In transmission lines the cross-arms are made of
 - (i) Copper
 - (ii) wood
 - (iii) R.C.C.
 - (iv) steel
- n)** Transmission line insulators are made of
 - (i) Glass
 - (ii) Porcelain
 - (iii) iron
 - (iv) P.V.C.



Attempt any four questions from Q-2 to Q-8

Q-2	Attempt all questions	(14)
	a) Explain schematic arrangement of Thermal power plant.	7
	b) Explain advantages and disadvantages of diesel power plant	7
Q-3	Attempt all questions	(14)
	a) State factors affecting selection of site and location of Nuclear power plant.	7
	b) State different methods of power factor improvement.	7
Q-4	Attempt all questions	(14)
	a) What is String efficiency? Explain methods to improve it.	7
	b) What is Corona? Explain its advantages and disadvantages. Also state factors affecting it.	7
Q-5	Attempt all questions	(14)
	a) Explain (1) Load factor (2) Demand factor (3) Diversity factor (4) Load duration curve.	7
	b) State and explain different types of tariffs.	7
Q-6	Attempt all questions	(14)
	a) Define short, medium and long transmission line on the basis of its length and voltage. Explain Nominal T method in respect to medium transmission line.	7
	b) Explain basic construction of Cable with neat diagram.	7
Q-7	Attempt all questions	(14)
	a) Define sag of overhead transmission line and derive the equation of sag for equivalent line supports.	7
	b) What is load curve? State the information available from the load curve.	7
Q-8	Attempt all questions	(14)
	a) Explain briefly different types of insulators used in power system.	7
	b) Compare the Thermal, Hydro and Nuclear power plant.	7

