SLR-PK – 385

Seat No.	

Set **P**

B.E. (Electrical) (Part – I) (Old) Examination, 2016
Elective – I : EXTRA HIGH VOLTAGE AC TRANSMISSION

Day and Date : Friday, 29-4-2016 Max. Marks : 100
Time : 3.00 p.m. to 6.00 p.m.

***Instructions**: 1) Q. No. **1** is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. **3**. **Each** question carries **one** mark.*
*2) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 20

1. Choose the correct answer : **20**

1) The type of EHV cable is
   a) High pressure oil filled b) Cross linked polythelene
   c) Gas insulated lines d) All of these

2) The radio interference level is governed by
   a) Amplitude of single phase
   b) Wave shape of single pulse
   c) Repetitive nature of pulse
   d) All of these

3) The allowable noise level at one MHz is
   a) 22 dB b) 26 dB c) 30 dB d) 32 dB

4) For reducing tower footing resistance it is better to use
   a) Chemical and ground only
   b) Chemical and counter poise only
   c) Ground rod and counter poise only
   d) Chemical ground rod and counter poise only

5) Operating 750 KV line gives AN at a level of
   a) 50 dB b) 55.4 dB c) 52 dB d) 58.5 dB

6) The dimensions of constants B and C are respectively _____ and _____
   a) Ohm, Siemen b) Mho, Siemen
   c) Both are dimensionless d) Siemen, Ohm

7) The conductivity of moist is of magnitude
   a) 10^{-1} mho/metre b) 10^{0} mho/metre
   c) 10^{-2} mho/metre d) 10^{-3} mho/metre

P.T.O.

8) The function of steel wire in an ACSR conductor is to
   a) Compensate for skin effect
   b) Take care of surges
   c) Provide additional mechanical strength
   d) Reduce inductance

9) Third mode of propagation is called as
   a) Line to ground b) Phase to phase
   c) Homopolar d) Inter-phase

10) Which of the following is protective device against lightning over voltages ?
   a) Rod gap b) Surge absorber
   c) Horn gap d) All above

11) For 100% series compensation, resonance occur at
   a) Power frequency b) 50% of power frequency
   c) 40% of power frequency d) None of the above

12) Reflection coefficient of voltage (K_r) for open circuit is
   a) 0 b) + 2 c) + 1 d) – 1

13) In general method of Laplace transform the series and shunt impedance operator per unit length of line is
   a) z(s) = r + l(s) b) y(s) = g + c(s)
   c) both a) and b) d) none of the above

14) A refraction coefficient of voltage (K_T) is given by
   a) $\frac{2Zo}{Zo + Zt}$ b) $\frac{Zo - Zt}{Zo + Zt}$ c) $\frac{2Zt}{Zo + Zt}$ d) $\frac{Zt - Zo}{Zo + Zt}$

15) The positive sequence reactance per phase in ohms 1 km in 750 transmission line is
   a) 0.272 b) 0.227 c) 0.722 d) None of these

16) The mechanism responsible for dielectric loss in a dielectric are
   a) Conduction b) Polarization c) Ionisation d) Both b) and c)

17) The crest time of pulse properties for positive cycle is
   a) 20 ns b) 30 ns c) 40 ns d) 50 ns

18) Which type of corona discharge gives interference to radio broadcast ?
   a) Pulse type b) Pulse less type
   c) Glow corona d) None of the above

19) The effect of high voltage gradient on bundled conductors are evaluated all over the world by
   a) Drums b) Solid cylinders
   c) Cages d) None of the above

20) The conductor used in EHV transmission in recent development is
   a) ACSR b) ACAR c) AAAR d) All of the above

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B.E. (Electrical) (Part – I) (Old) Examination, 2016
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Day and Date : Friday, 29-4-2016 Marks : 80
Time : 3.00 p.m. to 6.00 p.m.

SECTION – I

2. Write short notes on **any four** : **(4×5=20)**
   a) Aeolian vibrations.
   b) Distribution of voltage gradient on sub-conductors of bundle.
   c) Effect of bundled conductors on its inductance.
   d) Explain reflection and refraction of travelling waves.
   e) Attenuation of travelling wave.
   f) Tower footing resistance.

3. Solve **any two** : **(2×10=20)**
   a) Brief the charge potential relations of the multi conductor lines.
   b) Derive the expressions for resistance and inductance of ground return.
   c) How the audiable is generated and what are the characteristics ?

SECTION – II

4. Write short notes on **any four** : **(4×5=20)**
   a) The gap less metal oxide arrester.
   b) Power circle diagram and its use.
   c) Static reactive compensating system.
   d) Sinusoidal excitation lumped parameter circuit.
   e) Expressions for generalized constants.
   f) Ferro resonance voltages.

5. Solve **any two** : **(2×10=20)**

   a) Describe the insulation co-ordination and over voltage protection.

   b) Explain the sub-synchronous resonance problems and counter measures.

   c) 100 MVA 230 KV 50 Hz transformer has X_f = 12% and is connected to a line 200 Km long which has an inductance of 1 mH/Km. The filter connected to the L.V. side 33 KV of the transformer, is required to suppress the 5^{th} harmonic generated by the TCR to 1% of I_n. Calculate the value of filter capacitor if the filter inductance used in 2 mH.
