

ASSISTANT EXECUTIVE ENGINEERS (Notification No.09/2018)
Electrical Engineering (Paper-III)

REVISED KEY

13. A 220 kV, 20 km long 3-phase transmission line has the following A, B, C, D constants.

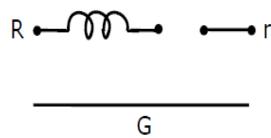
$A = D = 0.96 \angle 3^\circ$, $B = 55 \angle 65^\circ \Omega / \text{phase}$, $C = 0.0005 \angle 80^\circ S / \text{phase}$. Its charging current per phase is

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16. What will be the most economical value of diameter of a single core cable to be used on 50 kV, single phase system, when the maximum permissible stress in the di-electric is not exceeding 40 kV/cm?

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52. The zero-sequence circuit of the three-phase transformer shown in the figure is



67. In pumped storage hydro power plant, the electrical machine is made to work alternately as generator and motor. The efficiency of the generator working at the same electrical power level is

Greater than that as motor

76. In the nuclear fission reactions, isotope of uranium used is

U_{235}

82. The plug setting of a negative sequence relay is 0.2 A. The current transformer ratio is 5:1. The minimum value of line to line fault current for the operation of the relay is

1.732A

83. Directional over current relays have two exciting coils connected across

CT and VT secondaries of in two different phases

100. To protect the power transformer (Y-Y with neutral grounded) against fault, what type of connection do the CTs have?

$\Delta - \Delta$ connection (Both options 2 and 4 are same and correct)

114. The making and breaking currents of 3-phase ac circuit breakers in power system are respectively in what form?

Instantaneous value, RMS value

125. Two generating stations connected to a load centre having capacity of 50 MVA and 75 MVA deliver 100 MW to the load. The incremental fuel cost of plant 1 is $15 + 0.15 P_1$ and that of the plant 2 is $18 + 0.15 P_2$. What are the values of P_1 and P_2 , respectively?

60 W, 40 MW

129. Two plants generate power as given below. $P_{G1} = 50$ MW and $P_{G2} = 100$ MW respectively. If the loss coefficients of the two plants are given as $B_{11} = 0.002$, $B_{22} = 0.0015$, $B_{12} = -0.0011$. the power lost will be

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131. Match the following

List 1

(Types of motors)

- A. DC series motor
- B. DC shunt motor
- C. 3-phase induction motor
- D. Synchronous motor

List 2

(Characteristics)

- 1. Constant speed
- 2. High starting torque
- 3. Low starting torque
- 4. Poor stability

Codes: A B C D
 2 4 3 1

134. Two adjustable speed dc separately excited motors have maximum speeds of 1000 and 500 rpm. Speed is controlled by variation of field flux. Motor-A drives a load requiring constant developed power over the speed range and Motor-B drives a load requiring constant torque. All losses, including armature resistance and armature reaction may be neglected and magnetic circuit is assumed linear. If the developed power is equal at 500 rpm and armature currents are each 800 A, what will be the armature current at 1000 rpm

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