Daffodil International University

Department of Electrical and Electronic Engineering

Faculty of Engineering

Mid Term Examination, Fall-2025

Course Code: 0713-227
Section: A, B & C
Full Marks: 25

Course Title: Transmission and Distribution of Electrical Power
Level-Term: L2-T2
Exam Date: October 18, 2025

Teacher's Initial: KA
Time: 1.5 Hours

[There are three (3) questions, answer all of them.]
[The figures in the right-hand margin indicate the allocated marks.]
[COs represent learning outcomes of the course.]

Q1.	a)	**Explain** why A.C.S.R. conductors the ideal choice for distribution and transmission lines.	CO1 C-2	02
	b)	**Compare** DC and AC voltage transmission based on their advantages and disadvantages.	CO1 C-2	03
	c)	**Define** skin effect and corona? **Discuss** the methods for reducing corona effect in an overhead transmission line.	CO1 C-2	03
	d)	**Identify** the main advantages of suspension type insulator over pin type insulator. **List** the methods for improving string efficiency?	CO1 C-2	04
Q2.	a)	**Show** that in a string of suspension insulators, the disc nearest to the conductor has the highest voltage across it.	CO2 C-2	03
	b)	The three bus-bar conductors are being supported by three-disc insulators having a safe working voltage of 2A·C kV. The voltage across the across the top unit is 1B·C kV. **Calculate** i) The bus-bar voltage ii) String efficiency Here, ABC is last 3 digit of your Student ID.	CO2 C-4	03
	c)	A three-phase transmission line 120 km long, is delivering 20 MW at 66 kV 0.85 power factor lagging has the following constants: Resistance/km = 0·03 Ω Reactance/km = 0·065 Ω Susceptance/km = 0.06×10^{-6} siemens **Estimate** (i) The voltage regulation (ii) The transmission efficiency, considering the total capacitance of the line is localized at the receiving end alone.	CO2 C-4	04
Q3.	a)	A transmission line has a span of 250 m between level supports. The conductor has a cross-sectional area of 3.80 cm^2. The breaking stress of the conductor is 4218 kg/cm^2. The specific gravity of the conductor material is 2·7 gm/cm^3 and wind pressure is 1·2 kg/m length. **Determine** the height of the conductor above the ground level at which it should be supported if a minimum clearance of 6.5 m is to be left between the ground and the conductor and safety factor is 3.	CO3 C-3	03