



Daffodil International University
Department of Electrical and Electronic Engineering
Faculty of Engineering
Final Examination, Summer-2026

Course Code: 0713-227

Section: A, B, C, D, E

Full Marks: 40

Course Title: Transmission and Distribution of Electrical Power

Level-Term: L3-T1

Exam Date: August 24, 2026

Teacher's Initial: SHS, SMP, AJA

Time: 2 Hours

There are 5 questions. Answer all of them. COs on the right side indicate course learning outcomes

- Q1. (a) Explain the advantage of 3-wire DC distribution system over 2-wire DC distribution system. CO-1 4+4
C(2)
(b) Discuss the basic differences between overhead and underground transmission systems.

- Q2. The self capacitance of each unit in a string of three suspension insulators is C. The shunting capacitance of the connecting metal work of each insulator to earth is 0.15 C while for line it is 0.1 C. Calculate (i) the voltage across each insulator as a percentage of the line voltage to earth and (ii) string efficiency. CO-3 6+2
C(3)

- Q3. (a) A 2-wire d.c. distributor AB is fed from both ends. At feeding point A, the voltage is maintained at 230 V and at B 235 V. The total length of the distributor is 200 meters and loads are tapped off as under : 25 A at 50 meters from A ; 50 A at 75 meters from A ; 30 A at 100 meters from A ; 40 A at 150 meters from A The total resistance per kilometer of the distributor line is 0.3 Ω . Calculate : (i) currents in various sections of the distributor (ii) minimum voltage and the point at which it occurs CO-2 5+3
C(4)
(b) A 250 m , 2-wire d.c. distributor fed from one end is loaded uniformly at the rate of 1.6 A/meter. The resistance of each conductor is 0.0002 Ω per meter. Calculate the voltage necessary at feed point to maintain 250 V (i) at the far end (ii) at the mid-point of the distributor. $\checkmark$

- Q4. A 3-phase, 50 Hz, 400 V motor develops 100 H.P. (74.6 kW) at power factor of 0.75 lagging. The motor efficiency is 93%. A bank of capacitors is connected in delta across the supply terminals and power factor raised to 0.95 lagging. Each of the capacitance units is built of 4 similar 100 V capacitors. Determine the capacitance of each capacitor. CO-3 8
C(3)

- Q5. (a) Write short notes on any two of the following: CO-1 4+4
C(2)
(i) Smart Grid, (ii) HVDC, (iii) SCADA
(b) Discuss the different ways of insulator failure.