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# 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*

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| Q1. | (a) **Explain** the advantage of 3-wire DC distribution system over 2-wire DC distribution system. | CO-1 C(2) | 4+4 |
| | (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 C(3) | 6+2 |
| 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 C(4) | 5+3 |
| | (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. | | |
| 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 C(3) | 8 |
| Q5. | (a) **Write** short notes on any two of the following:<br>(i) Smart Grid, (ii) HVDC, (iii) SCADA | CO-1 C(2) | 4+4 |
| | (b) **Discuss** the different ways of insulator failure. | | |