# National University of Computer and Emerging Sciences



**Lab Manual # 04**

**Digital Logic Design (EL1005)**

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| Section | BDS-2B |
| Semester | Spring 2022 |

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**Purpose of this Lab:**

* Understanding of SOP and POS
* Understanding of SSOP and SPOS
* Conversions from SSOP to SPOS and vice-versa
* Equations simplification using K-maps (2, 3, and 4 variables)
* Circuit implementation on Logic Trainer and Logic Work

**4+3+3 = 10**

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| **Question 1: 3 Variable K-Maps using Min-terms and implement simplified equation on Logic trainer and Logic works** |

F (A, B, C) = ∑m (1, 3, 4, 5, 6)

**4+3+3 = 10**

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| **Question 2: 4 Variable K-Maps using Max-terms and implement simplified equation on Logic trainer and Logic works** |

G (A, B, C, D) = ∏M (0, 1, 2, 4, 5, 6, 8, 9, 10, 12, 13)

**3+4+3 = 10**

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| **Question 3: Convert it into SSOP + Simplify using K-Maps and implement simplified equation on Logic Works.** |

H (A, B, C, D) = A’C’D’ + A’D + B’C + CD + AB’D’

**3+4+3 = 10**

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| **Question 4: Convert it into SPOS + Simplify using K-Maps and implement simplified equation on Logic Works.** |

H (A, B, C, D) = A’C’D’ + A’D + B’C + CD + AB’D’