Department of Electrical & Computer Engineering (ECE)

North South University

Course Code: 231, Section: 6

Course Title: Digital Logic Design

Fall 2018

Time: 20 Minutes **Marks: 15**

Name: **Student ID:**

Please answer all the following questions:

Q1. Simplify the following Boolean function in terms of **Sum of Product (SOP)** using **K-map:** **4**

$$F(A,B,C,D) = \prod(1,4,6,9,12,14)$$

Q2. Simplify the following Boolean function in terms of **Product of Sum (POS)** using **K-map:** **5**

$$F(A,B,C,D) = \sum(0,3,5,10,15) + \sum d(3,7,13,11)$$

Q3. Simplify the following Boolean function in terms of **Sum of Product (SOP)** and find out the **number of Prime Implicant (PI)** and **Essential Prime Implicants (EPI):** **6**

$$F(A, B, C, D) = \prod(4, 6, 9, 12, 14)$$