# Digital Logic Design (CS302)

Assignment # 01

**Fall 2026**

**Total marks = 20**

**Deadline**

**22nd of November 2026**

**Please carefully read the following instructions before attempting the assignment.**

## RULES FOR MARKING

**It should be clear that your assignment would not get any credit if:**

- The assignment is submitted after the due date.
- The submitted assignment does not open, or the file is corrupted.
- Strict action will be taken if the submitted solution is copied from any other student or the internet.

**You should consult the recommended books to clarify your concepts, as handouts are insufficient.**

**You are supposed to submit your assignment in Doc or Docx format.**

Any other formats like scanned images, PDF, ZIP, RAR, PPT, BMP, etc. will not be accepted.

**Topic Covered:**

The objective of this assignment is to assess the understanding of students about:

- Number Systems & Codes
- Boolean Algebra and Logic Simplification
- Karnaugh Map & Boolean Expression Simplification

**Topic Covered**

Lecture 01 to Lecture 12

## NOTE

No assignment will be accepted *via email after the due date* (whether it is due to load shedding, internet malfunctioning, etc.). Hence, refrain from uploading assignments within the last hour of the deadline. It is recommended that the solution be uploaded at least two days before its closing date.

If you find any mistakes or confusion in the assignment (Question statement), please consult your instructor before the deadline. After the deadline, no queries will be entertained in this regard.

**For any query, feel free to email me at:**

**CS302@vu.edu.pk**

**Question No 01** **Marks (20)**

Consider the below given Five (5) variable Boolean expression in non-standard Sum of Products (SOP) form:

$$F = P'QR + Q'S' + RST + PQR'S'T' + PQR'S'T$$

Convert the given Boolean expression into Standard (Canonical) Sum of Products (SOP) form by expanding each product term into its corresponding minterms. Then, Simplify the given Boolean expression using the Karnaugh Map simplification method.

***Note: Please perform all steps of this method. In case of missing steps, marks will be deducted.***