

XoR/NAND

LECTURER. DR. PAVEL STEFANOVIČ

4 laboratory work (1)

- **1 part (0.1 point):**

- By knowing that XOR may be derived from formula:

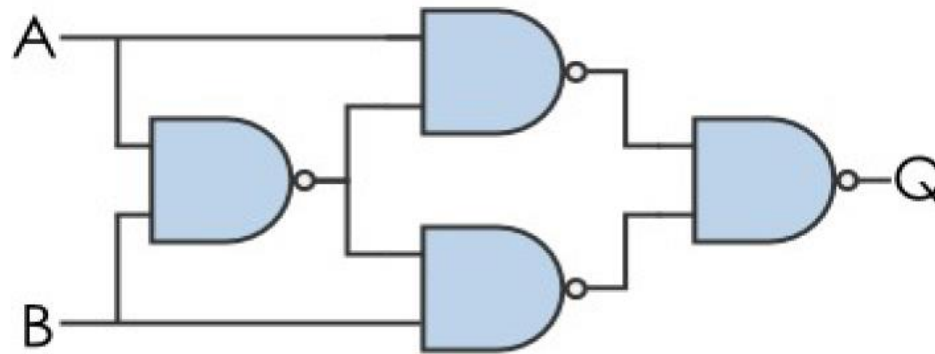
$$(A \vee B) \wedge \neg(A \wedge B)$$

- create a program in any programming language that calculates XOR function WITHOUT using XOR operator. Use bitwise operators & | ~ of C language (same applies to Java, C#, Python, Javascript, PHP).
- The program should take 2 decimal number parameters from command line, make XOR and output the result. Choose input data such way you can prove your XOR function works by passing numbers only once.

4 laboratory work (2)

- **2 part (0.1 point):**

- Convert this electrical schema consisting of NAND gates to the logical formula and program it in any language. Then use same input data as in **part 1** to input data, pass to the programmed function and output the result.



4 laboratory work (3)

- Your program have to show:
 - two decimal numbers which have been used;
 - the result of the first part;
 - the result of the second part;
 - the result obtained by ordinary XOR operation.