Report for Practical Work 01:   
Computing Basises (Number Systems, Binary Arithmetic, Boolean Algebra)

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| **Student Name Surname** | **Student DOB (dd.mm.yyyy)** | **Date** |
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Table with Task Answers.

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| Nr | Assignment, Instruction, Variant of Task | Detailed Answer |
| 3.1 | Convert Decimal integer to a) Binary, b) Octal, c) Hexadecimal, d) Check your answer by converting BinàDec   * Choose your variant x = 1st letter of your Name in the English alphabet. * Use your date of birth to number generation from date template DdMmYYyy.   x) Your Variant of Task Text …  **D) Your year of birth in YyyD format**  **Dilnaza** | a)  0040 /2=0020 0()  0020 /2=0010 0()  0010 /2=0005 0()  0005 /2=0002 1()  0002 /2=0001 0()  0001 /2=0 1()  Divide the result by two. Then compute the integer quotient for each iteration. Further, obtain the binary digits remainder. Repeat until the quotient equals zero. Then place digits from bottom to top.  b)  101 000  5 0  Convert every three binary digits (beginning with bit 0) to one octal digit.    c)  0010 1000  2 8  Convert every four binary digits (beginning with bit 0) to one hex digit.    d) 1\*2^5 + 0\*2^4 + 1\*2^3 + 0\*2^2 + 0\*2^1 + 0\*2^0 = 32 + 0 + 8 + 0 + 0 + 0 =  The decimal number is the sum of binary digits (d) multiplied by their power of two (2^n): d1\*2^n+d2\*2^(n-1)+…+dn\*2^0 |
| 3.2 | Convert a Decimal real number to a) Binary integer & b) Binary fraction with an accuracy of 8 digits after RADIX point.   * Choose your variant x = 1st letter of your Surname in the English alphabet. * Use your date of birth to number generation from date template DdMmYYyy.   x) Your Variant of Task Text …  **O) Your date of birth in mM.Dd format:**  **Dana** | 20 /2=10 0()  10 /2=5 0()  5 /2=2 1()  2 /2=1 0()  1 /2=0 1()  Divide the result by two. Then compute the integer quotient for each iteration. Further, obtain the binary digits remainder. Repeat until the quotient equals zero. Then place digits from bottom to top.    0.02 \*2=0.04 0()  0.04 \*2=0.08 0()  0.08 \*2=0.16 0()  0.16 \*2=0.32 0()  0.32 \*2=0.64 0()  0.64 \*2=1.28 1()  1.28 \*2=2.56 0()  2.56 \*2=5.12 1()  5.12 \*2=10.24 0()  The fractional component of the number is obtained by continually multiplying the supplied fractional part of the decimal number by 2, noting the carries in forward order, until the value reaches "0," creating the binary equivalent. |
| 3.3 | Convert Binary integer number to a) Decimal, b) Octal, c) Hexadecimal.   * Choose your variant x = 2nd letter of your Name in the English alphabet.   x) Your Variant of Task Text …  **I)**  **Dilnaza** | a)  Binary Decimal  b) 001 101 011  Binary Octal  c) 0101 0011  Binary Hexadecimal |
| 3.4 | You need a) add two binary numbers; b) check your answer by converting BinàDec.   * Choose your variant x = 2nd letter of your Surname in the English alphabet.   x) Your Variant of Task Text …  **A)** +  **Azim** | a)  Using these binary addition rules, I calculate digits from the right column to the left.  b) |
| 3.5 | Find value for a Boolean expression.   * Choose your variant x = 3rd letter of your Name in the English alphabet or 3rd letter of your Surname in the English alphabet (if you Name is short).   x) Your Variant of Task Text …  **N)** (n OR i) AND (NOT(p) NOR i) for n=true; i=true; p=true.  **Dana** | (1 OR 1) AND (NOT(1) NOR 1) = 1 AND (0 NOR 1) = 1 AND 0 = 0 = false  By Boolean Algebra Rules, the NOT(1) expression was calculated (it comes to 0), then 0 NOR 1 was written equal to 0, giving the possibility to generate 1 AND 0 that equaled 0, which is false. |