UNIVERSITY OF SCIENCE AND TECHNOLOGY OF HANOI
BACHELOR ICT

Discrete mathematics - Chapter Boolean Algebra practical work

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ATTENTIONS

- Practical work duration: *14:00 - 16:30.*

- Remember to send your work to my email address *giang-anh.tuan@usth.edu.vn* with this email title format *"[ICT Bx] - Chapter Boolean practical work - your name"* before *23:59* (x is your enrollment academic year, i.e ICT B6, incorrect format or late submission will not be considered).

Computer Projects: write programs with these inputs and outputs.

1 PROBLEM 1

Construct a table listing the set of values of all 256 Boolean functions of degree three.

2 PROBLEM 2

Given the values of a Boolean function in n variables, where n is a positive integer, construct the sum-of-products expansion of this function.

3 PROBLEM 3

Given the table of values of a Boolean function of degree three, construct its K-map.

4 PROBLEM 4

Given a threshold value and a set of weights for a threshold gate and the values of the n Boolean variables in the input, determine the output of this gate.

5 PROBLEM 5

Given the table of values of a Boolean function, express this function using only the operators $+$ and $\bar{\ }$.