00116

The Open University of Sri Lanka

B.Sc. Degree Programme

Department of Computer Science

CSU 5304 – Mathematics for computing

Continuous Assessment Test 01 (CAT-1) 2023/24

Duration: One hour only (1 hour)

Date: 30.07.2023 Time: 09.00 a.m. – 10.00 a.m.

Reg Number:

Important Instructions

- This paper has 2 questions on 04 pages.
- Answer all 2 questions.
- Write your answers only on the space provided on this question paper.
- No extra sheets will be provided.
- Questions appear on both sides of the paper.
- Last page (page 04) can be used as for rough work.

To be completed by the examiners:

1	
2	
Total	
%	

Reg Number: _____

(1) (i) Define the term **"Statement"** with regards to Mathematical Logic.

(ii) If **A** and **B** are two sets. Write the following in set notation.

(a) Union:
(b) Intersection:
(c) Difference:

(iii) Give the symbols for the sets given below

(a) Set of natural numbers:
(b) Set of integer numbers:
(c) Set of rational numbers:

(iv) what is the difference between an "image set" and a "Codomain" in a function.

(v) $f: \mathbb{R} \to \mathbb{R}$ $\quad g: \mathbb{R} \to \mathbb{R}$ $\quad gof(x): \mathbb{R} \mapsto \mathbb{R}$

$f: x \mapsto ax + b$ $\quad g: x \mapsto 1 - x + x^2$ and $gof(x) \mapsto 9x^2 - 9x + 3$

find the values of a and b.

(vi) In an interval regards to mathematics the two end points are "a" and "b". "x" is any point on the interval. Draw two diagrams for the

(a) Open Interval: (b) Closed Interval:

(vii) Suppose there are, two logical implications p and q such that $p \to q$
Write, the following:

(a) The contrapositive in terms of p & q :
(b) The converse in terms of p & q :

(70 marks)

Reg Number: [ ]

(2) Use truth table to verify whether $[\neg p \wedge (p \vee q)] \rightarrow q$ is a contingency or a tautology. Justify your answer.

(30 marks)