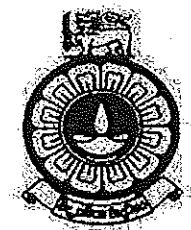


The Open University of Sri Lanka
B.Sc. Degree Programme
Department of Computer Science
CSU 5304 – Mathematics for computing
Continuous Assessment Test 01 (CAT-1) 2023/24
Duration: One hour only (1 hour)



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:

(I). (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) $f : \mathbb{R} \rightarrow \mathbb{R}$ $g : \mathbb{R} \rightarrow \mathbb{R}$ $g \circ f(x) : \mathbb{R} \rightarrow \mathbb{R}$
 $f : x \mapsto ax + b$ $g : x \mapsto 1 - x + x^2$ and $g \circ f(x) \mapsto 9x^2 - 9x + 3$
 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 $p \rightarrow q$
 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)

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