

THE OPEN UNIVERSITY OF SRI LANKA
B.Sc. DEGREE PROGRAMME: LEVEL 05
DEPARTMENT OF COMPUTER SCIENCE
CSU5305 – THEORY OF COMPUTING 2019/2020
CSU5305- HOME ASSIGNMENT
ANSWER ALL QUESTIONS

1.

- i. What is meant by grammar?
- ii. How could a grammar be a “Regular Grammar”?
- iii. Give the definition of Regular Expressions over an alphabet Σ .
- iv. What is the connection between regular expressions and regular languages?
- v. Write a regular expression for each of the languages given below.
 - a) For set of all strings, containing exactly one “a” over $\Sigma = \{a, b, c\}$.
 - b) For set of all strings over $\{0, 1\}$ beginning with 00.

2.

- i. How many types of grammar are in Chomsky Hierarchy of grammars?
- ii. Write the names of the types in the ascending order.
- iii. Draw a graphical representation of the types you mentioned in your answer to part (ii).
- iv. Given a grammar $Q \langle \{S\}, \{a, b\}, P, S \rangle$,

where P is

$$S \longrightarrow aSb$$

$$S \longrightarrow \epsilon$$

Derive the string **aaabbb** using the above grammar.

INSTRUCTIONS

- On the right hand side of your answer script write your **Name & Registration Number**.
- Write short answers where possible.

The answers to the home assignment should be submitted on or before **30.07.2020**
under registered post : TO: Coordinator –CSU5305,

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