**SVKM’S NMIMS, School of Technology Management & Engineering | Navi-Mumbai**

**B-Tech (A.Y. 2020-21)**

**Term Work 1 (a)**

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| **Course: BTech (COMPUTER Sc. And Business Systems)** | **SEM: III** |
| **Subject: Formal Language and Automata Theory** | **Marks: 5** |
| **Date of Exam: 26.08.2020** | **Duration: 1 Hour** |

***Instruction to students:***

1. Answer all questions.
2. All question carry equal marks – **1 mark each**
3. Figures in brackets on the right hand side indicate full marks.

Q. 1 Define the following and give suitable examples.

1. Cardinality of a set
2. Closure of a set
3. Alphabet
4. Symbol
5. Language
6. Word

Q.2 If *R* = {(*a*, *b*), (*b*, *c*), (*c*, *a*)} is a relation over {*a*, *b*, *c*}, find *R*+ and *R*\*.

Q.3 Show that ‘the set of real numbers R is not countable’.

Q.4 Discuss the relative powers of NFA and DFA.

Q.5 Explain whether a language of palindromes is accepted by an FSM. Justify.