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

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

**Term Work 1 (b)**

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| **Course: BTech (COMPUTER Sc. And Business Systems)** | **SEM: III** |
| **Subject: Formal Language and Automata Theory** | **Marks: 5** |
| **Date of Exam: 29.08.2020** | **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.
4. Find the transitive closure and the symmetric closure of the relation:

*R* = {(1, 2), (2, 3), (3, 4), (5, 4)}

1. Show that ‘the set of real numbers R is not countable’.
2. Discuss the relative powers of NFA and DFA.
3. Design an FSM to check divisibility by three, where ∑ = {0, 1, ..., 9}.
4. What is a fault in following diagram? Draw the correct diagram.

