Quiz # 1

CSE 4703

Total marks: 15

Time 20 minutes

Student ID:

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| 1. | Let’s consider a binary relation *f*, where *f(a,b)* will be true if a2=b2.  If this relation is an example of equivalence relation? Justify. | 6 |
| 2. | Assume a language L = {w | w has at least one occurrence of two consecutive 0s or 1s}.  For example. 010**11**0, 101**00**101**11**1, **00**1 these are accepted strings, but 010101 is not.  Draw a diagram for a DFA, that will recognize the language L. Here alphabet is {0,1}. | 7 |
| 3. | Define ***Tuple***and ***Relation*.** | 2 |

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| 1. | Let’s consider a binary relation (*f*) between two vertices of a non-directed connected graph, where e *f(a,b)* will be **true** if there is a path from a to b.  If this relation is an example of equivalence relation? Justify. | 6 |
| 2. | Assume a language L = {w | w has no two consecutive 0s or 1s}.  For example, 010101, 01010 is accepted string but 0**11**0101 is not.  Draw a diagram for a DFA, that will recognize the language L. Here alphabet is {0,1}. | 7 |
| 3. | Define ***sequence*** and ***predicate***. | 2 |