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| **Module – 1** | | **MARKS** | **BT** |
| **Q.1** | Define the following terms with examples: Alphabet, Power of an alphabet, String, Concatenation and Languages. | 10 | L3 |
| **Q.2** | Define DFSM. Design a DFSM to accept each of the following languages: i) L= {wϵ{0,1}\* : w has 001 as a substring}  ii) L={ wϵ{0,1}\* : w has even number of a’s and even number of b’s} | 10 | L2 |
| **Q.3** | Convert the following NDFSM to DFSM.   |  |  |  |  |  | | --- | --- | --- | --- | --- | | δ | ϵ | a | b | c | | ->p | {q,r} | {} | {q} | {r} | | q | {} | {p} | {r} | {p,q} | | \*r | {} | {} | {} | {} | | 10 | L1 |
| **Q.4** | Define distinguishable and indistinguishable states. Minimize the following DFSM.   |  |  |  | | --- | --- | --- | | δ | a | b | | ->A | B | F | | B | G | C | | \*C | A | C | | D | C | G | | E | H | F | | F | C | G | | G | G | E | | H | G | C | | 10 | L5 |
| **Q.5** | Define Regular expression. Write the regular expression for the following languages:   1. Representing for strings of a’s and b’s having odd length. 2. To accept strings of a’s and b’s such that third symbol from the right is a and fourth symbol from the right is b. | 10 | L1 |