

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST-1 EXAMINATION-AUGUST-SEPTEMBER 2025

B.Tech- Vth Semester

Course Code:18B11CI513 (3)

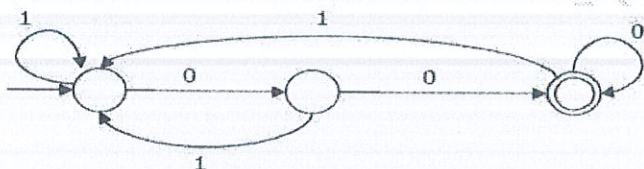
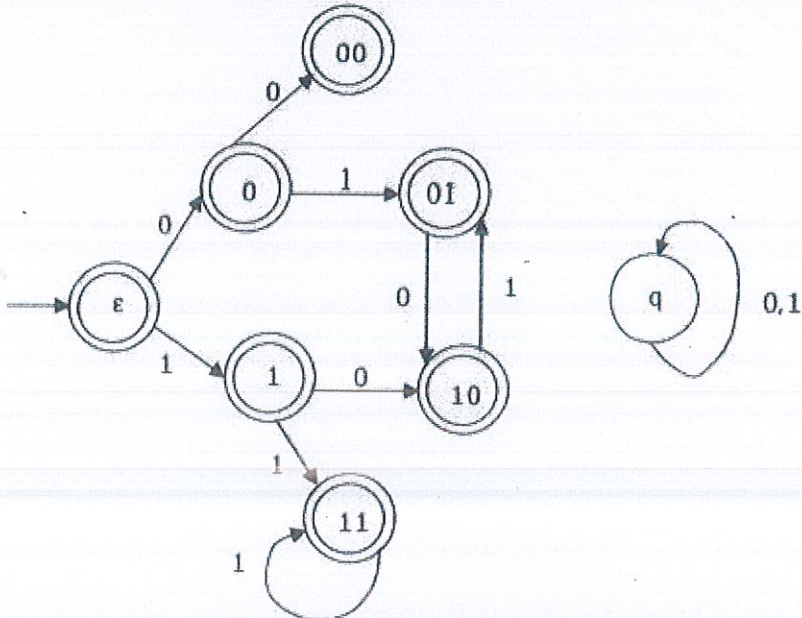
Max Marks: 15

Course Name: FORMAL LANGUAGES & AUTOMATA THEORY

Course Instructor: **Dr. Praveen Modi**, Dr. Rakesh Kanji, Dr. Amit Jhakad,
Mr. Faisal Firdous

Max Time: 01:00 Hr

Note: All questions are compulsory. Marks are indicated against each question in Marks column. Write the answer of the question belonging to the same part in the same order.

Q.No	Question	CO	Marks
Q1.	Find the regular expression for the given DFA below? 	2	3
Q2	Design the minimized mealey machine for the regular expression $(0 + 1)^*(00+11)$ where the output symbols $\Delta = \{y,n\}$?	3	3
Q3	Find the rest of transitions for the given incomplete DFA below to make it complete DFA that accept the set of string in which every substrings of 3 symbols contains atmost two zeros? Hint: 001110 and 011001 are in the language, but 100010 is not. 	2	3

Q4.	Write the regular expression for following languages over $\Sigma(0,1)$? a. Set of all strings in which the 5 th symbol from the right end is 0. b. Set of all strings in which the starting and ending symbols are the same.	1	3
Q5.	Design the DFA for the language over $\Sigma(0,1,2)$ in which the decimal value of a string is $\text{Dec}(w) \bmod 5 = 2$?	2	3

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