

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -1 EXAMINATION- 2026

B.Tech-VI Semester (CSE/IT)

COURSE CODE (CREDITS): 18B11CI612(3)

MAX. MARKS: 15

COURSE NAME: COMPILER DESIGN

COURSE INSTRUCTOR: SEEMA RANI

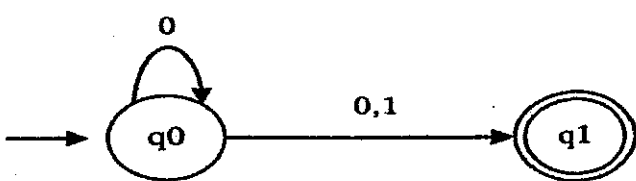
MAX. TIME: 1 Hour

Note: (a) All questions are compulsory.

(b) The candidate is allowed to make Suitable numeric assumptions wherever required for solving problems

(c) Use of calculator is not allowed

Q.No	Question	CO	Marks
Q1	Consider the statement $result = a + b * 10$; (i) Arrange the major phases of a compiler in the sequence through which this statement is processed, indicating the principal output of each phase. (ii) Separate these phases into Analysis and Synthesis and indicate the role of each part in generating the target program.	CO1	5
Q2	Consider the following C code: <pre>int main() { int x = 10; x = x + 20; }</pre> (i) Determine the total number of tokens generated by the lexical analyzer, excluding white spaces. (ii) List all the tokens in their order of occurrence and classify them as keyword, identifier, operator, constant, delimiter wherever applicable.	CO2	4
Q3	Consider a compiler that is initially developed on Machine M1 but is required to generate target code for Machine M2. A compiler for the same language is available on M2. Explain how bootstrapping can be used to develop the required compiler and indicate the role of porting when the compiler is moved from one machine to another.	CO1	3

Q4	Construct a deterministic finite automaton (DFA) corresponding to the following non-deterministic finite automaton (NFA). Show the transition table and the state diagram of the resulting DFA. Identify the start state and final state(s).  <pre> graph LR start(()) --> q0((q0)) q0 -- 0 --> q0 q0 -- "0,1" --> q1(((q1))) </pre>	CO2	3
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