JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -1 EXAMINATION- 2025

B.Tech-VI Semester (CSE)

COURSE CODE (CREDITS):18B11CI612 (3)

COURSE NAME: COMPILER DESIGN

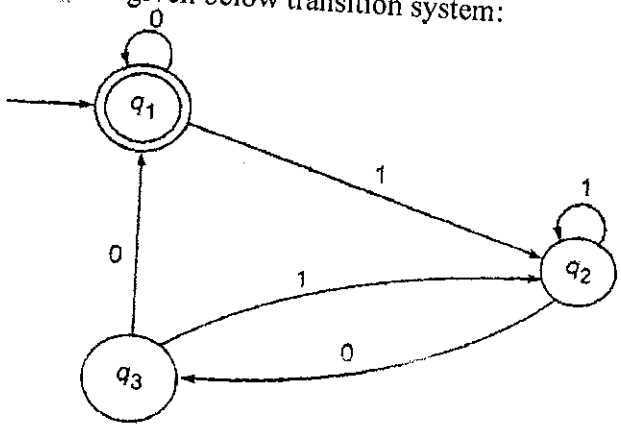
MAX. MARKS: 15

COURSE INSTRUCTORS: {Pardeep, Ramesh, Nitika, Akshay}

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*

| Q.No | Question | CO | Marks |
|---|---|---|---|
| Q1 | Consider the following code segment and list the bug along with the name of the phase of compiler detecting the particular bug:<br>#include<stdio.h><br>#include<conio.h><br>int main()<br>{ int aaaaaaaaaaaaaaaaaaaaaaaaaaaa,b,c,d;<br>scanf("%d%d", &b, &c);<br>b+c=d;<br>d=z+c;<br>d=b/c; /* if c=0 */<br>) | 1 | 3 |
| Q2 | (a) Show the design of a cross compiler for language Java in implementation language C to generate code for machine N assuming that the existing compiler for C runs on different machine M and generates code for machine M.<br>(b) Consider the given below transition system:<br>  <br><br>and prove that the regular expression represented by it is (0+1(1+01)* 00)* | 1 | 2+3 |

<table>
<tr><td></td><td></td><td></td><td></td></tr>
<tr><td>Q3</td><td>Consider the following code segment and count the number of tokens<br>:<br>int main()<br>{ int a,b,c,d;<br>scanf("%d%d", &b, &c);<br>b+c=d;<br>d=z+c;<br>d=b/c; /* if c=0 */<br>printf("values of d is =%d", d);<br>in /*Hello*/ t m=40;<br>}</td><td>2</td><td>3</td></tr>
<tr><td>Q4</td><td>Convert the given Non-Deterministic Finite Automata (NDFA) M into Deterministic Finite Automata (DFA) M1.<br>M=({$q_0$, $q_1$,$q_2$,$q_3$}, {0,1}, T, $q_0$, {$q_3$}) where the transition system T is given as under:
<table>
<tr><th>State/∑</th><th>a</th><th>b</th></tr>
<tr><td>→ $q_0$</td><td>$q_0$, $q_1$</td><td>$q_0$</td></tr>
<tr><td>$q_1$</td><td>$q_2$</td><td>$q_1$</td></tr>
<tr><td>$q_2$</td><td>$q_3$</td><td>$q_3$</td></tr>
<tr><td>($q_3$)</td><td>Φ</td><td>$q_2$</td></tr>
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</td><td>2</td><td>4</td></tr>
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