



**Course Name & Code: CSI2005 Principles of Compiler Design**

**Exam Duration: 50+10 Min**

**Slot: B2**

**Faculty Name: R KANNADASAN**

**Maximum Marks: 30**

Answer all Questions		
S.No.	Questions SET A	Course Outcome (CO)
1	Show that the following grammar is LR(1) but not LALR(1) $S \rightarrow Aa/bAc/Bc/bBa$ $A \rightarrow d$ $B \rightarrow d$	CO3
2	Explain peephole optimization with a suitable example.	CO4
3	Translate the following assignment statement into three address codes $A[i,j] := B[i,j] + C[A[k,1]] + D[i+j]$	CO5
<b>SET B</b>		
1	Show that the following grammar is LR(1) but not LALR(1) $A \rightarrow BrC/CpBa$ $C \rightarrow w$ $B \rightarrow q$ Terminals{ a,r,p,w,q}	CO3
2	Explain the DAG representation of the basic block <pre> 1. t<sub>1</sub> := 4 * i 2. t<sub>2</sub> := a[t<sub>1</sub>] 3. t<sub>3</sub> := 4 * i 4. t<sub>4</sub> := b[t<sub>3</sub>] 5. t<sub>5</sub> := t<sub>2</sub> * t<sub>4</sub> 6. t<sub>6</sub> := prod + t<sub>5</sub> 7. prod := t<sub>6</sub> 8. t<sub>7</sub> := i + 1 9. i := t<sub>7</sub> 10. if i &lt;= 20 goto (1) </pre> <p>Suggest any two solutions to minimize/avoid temporaries generated during three address code generation.</p>	CO4
3	Explain the Function preserving transformations.	CO5