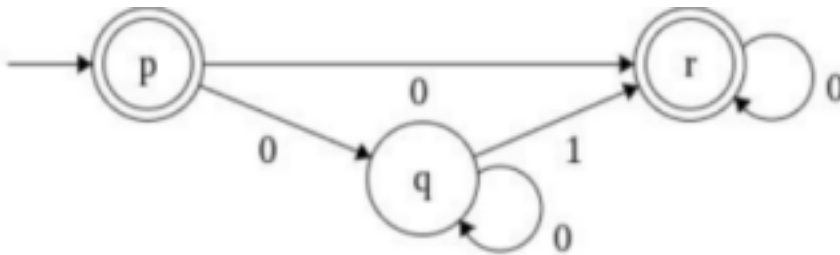


Bachelor Level / sixth-semester / Science Full marks: 60 **Computer Science and Information Technology(CSC365)** Pass marks: 24
(Compiler Design and Construction) Time: 3 hours Candidates are required to give their answers in their own words as far as practicable.
The figures in the margin indicate full marks.

Attempt all questions. (10x6=60)

1. Differentiate between compiler and interpreter. "Symbol table is a necessary component of compiler", justify this statement with examples.

2. List out the major tasks carried out in the Lexical Analysis Phase. Convert the following NFA to DFA.



3. Differentiate between recursive descent and non-recursive predictive parsing methods. Find first and follow of all the non-terminals in the following grammar.

$E \rightarrow TA$
 $A \rightarrow +TA \mid \epsilon$
 $T \rightarrow FB$
 $B \rightarrow *FB \mid \epsilon$
 $F \rightarrow (E) \mid id$

4. Construct an SLR parse table for the following grammar.

$S \rightarrow E$
 $E \rightarrow E+T \mid T$
 $T \rightarrow T * F \mid F$
 $F \rightarrow id$

5. What is Syntax Directed Definition? Define synthesized and inherited attributes with example.

6. Differentiate between static and dynamic type checking. How can we carry out type checking for the following expression using syntax-directed definition?

$S \rightarrow id = E$
 $S \rightarrow if E then S1$
 $S \rightarrow while E do S1$
 $S \rightarrow S1; S2$

7. Define three address codes. Write three address codes for

$S \rightarrow do m=n-p while a \leq b$

8. Define new code optimization. Discuss about any three code optimization techniques with examples. 9. What is the activation record? Discuss the different activities performed by caller and callee during procedure call and return. 10. Discuss about the different factors affecting target code generation.