

63(A-83)

SARDAR PATEL UNIVERSITY
Master of Computer Applications (MCA)
Semester – IV External Examinations
PS04CMCA02 (Compiler Design)
08th April, 2019, Monday

SEAT No. _____

Time: 02:00 PM to 05:00 PM

Max. Marks: 70

Q-1 Choose most appropriate option for the following:

[08]

1. A _____ is a kind of program which translates source code into its equivalent target code.
 - A. interpreter
 - B. compiler
 - C. A and B both
 - D. None of these
2. _____ is the string obtained by deleting zero or more trailing symbols of string s.
 - A. Prefix of s
 - B. Suffix of s
 - C. Substring of s
 - D. None of these
3. A language denoted by a regular expression is called as a _____.
 - A. regular expression
 - B. regular definition
 - C. regular equation
 - D. None of these
4. _____ is a special character that cannot be part of source program.
 - A. #
 - B. Sentinel
 - C. A and B both
 - D. None of these
5. _____ is a grammar transformation that is useful for producing a grammar suitable for predictive parsing.
 - A. Left factoring
 - B. Elimination of left recursion
 - C. A and B both
 - D. None of these
6. Which of the following parsers is least powerful in performance?
 - A. SLR
 - B. LALR
 - C. Canonical LR
 - D. None of these
7. In _____ grammar, two adjacent nonterminals on right side of production not allowed.
 - A. Ambiguous grammar
 - B. Operator grammar
 - C. Language Grammar
 - D. None of these
8. _____ is the sign that indicates string with length zero.
 - A. @
 - B. #
 - C. €
 - D. None of these

- Q-2 Write answers in short: (ANY SEVEN) [14]**
- a. Discuss role of the lexical analyzer.
 - b. What is regular expression? Give an example.
 - c. Define: Transition diagram. Give an example.
 - d. Define the functions FIRST and FOLLOW.
 - e. List various types of errors.
 - f. Differentiate between a sentence and a sentential form.
 - g. Explain Context-Free Grammar (CFG) in brief.
 - h. What is handle pruning? Give an example.
 - i. Explain indirect triple implementation scheme for three address code statements.
- Q-3 A) List all phases of a compiler. Explain any five of them in brief. [06]**
B) Write a short note on compiler construction tools. [06]
- OR**
- B) Write a short note on symbol table management using hash table. [06]**
- Q-4 A) Construct an NFA for the following regular expression using the Thompson's construction method: [06]**
$$a(a|b|c|d)^*d$$
B) Differentiate between NFA and DFA. [06]
- OR**
- B) Discuss how lexical analysis can be performed using a buffer pair. [06]**
Write an algorithm for advancing a forward pointer in this method.
- Q-5 A) Explain how to eliminate ambiguity taking a suitable example. [06]**
B) Explain left most derivations taking suitable example. [06]
- OR**
- B) What is shift-reduce parser? Explain it taking suitable example. [06]**
- Q-6 A) List different types of three address code. [06]**
B) List various principal sources of code optimization. Explain any two of them in brief. [06]
- OR**
- B) List various issues in the design of a code generator. Explain each of them in brief. [06]**

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