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19-CS-44

M.Sc. IV SEMESTER [MAIN/A.T.K.T.] EXAMINATION
APRIL-MAY, 2019

COMPUTER SCIENCE

Paper - IV

[Compiler Design]

[Max. Marks : 75]

[Time : 3:00 Hrs.]

[Min. Marks : 26]

Note : Candidate should write his/her Roll Number at the prescribed space on the question paper.
 Student should not write anything on question paper.
 Attempt five questions. Each question carries an internal choice.
 Each question carries **15 marks**.

- Q. 1 a)** Discuss the concept of cousins of compilers.
- b)** Point out why is buffering used in lexical analysis ? What are commonly used buffering methods ?
- a)** What do you mean by Finite Automation. Also classify it with the concept of DFA (Deterministic Finite Automation) and NDFA (Nondeterministic Finite Automation).

OR

Explain various phases of compilers. Also discuss that the following statement will be translated into every phase.

$$\text{position} = \text{initial} + \text{rate} * 60$$

- Q. 2 a)** Compare and contrast Top-Down parsing and Bottom-Up parsing techniques.
- b)** Elucidate Recursive Decent Parsing.
- c)** Solve the FIRST and FOLLOW by using LL(1) grammar.

OR

Explain the categories of shift reduce parsing ? Also evaluate predictive parsing table and parse the string $\text{id} + \text{id} * \text{id}$

$$E \rightarrow E + T \mid T$$

$$T \rightarrow T * F \mid F$$

$$F \rightarrow (E) \mid \text{id}$$

- Q. 4 a)** What is use of Expression Language (EL) in JSP ? Explain.
b) What are JSP implicit objects ? Explain with example.

OR

- a)** Compare business and presentation logic.
b) Explain following -
i) JSP life cycle.
ii) JAVA Beans.

- Q. 5 a)** Briefly explain MVC design pattern.
b) What are JAVA custom tags and compare them with JAVA Beans.

OR

- a)** Discuss types of errors and exception in JSP with examples.
b) What is session handling in JSP ? Explain.

