

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

MCA - SEMESTER-III • EXAMINATION – SUMMER • 2015

Subject Code: 630005

Date: 19-05-2015

Subject Name: System Software

Time: 02:30 pm - 05:00 pm

Total Marks: 70

Instructions:

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1 (a)** Define the following: **07**
1. Language Processor
 2. Compiler
 3. Binding
 4. Macro
 5. Device Driver
 6. Grammar
 7. Heap
- (b)** What are device drivers? Explain various types of device drivers. **07**
- Q.2 (a)** Construct the operator precedence table for the operators given in the expression $a+b*c+d$. Now using this table check the validity of the string. Also show the steps to construct the AST. **07**
- (b)**
1. What is the role of a debug monitor? **03**
 2. Give the classification of grammar. **04**
- OR**
- (b)**
1. Write a short account on editors **03**
 2. Write a brief account on search data structures. **04**
- Q.3 (a)**
1. Clearly mention the problems faced in a top down parsing with backtracking. **03**
 2. Differentiate between the following: **04**
 - a. Literals and Declare Constant
 - b. Imperative Statement and Assembler Directive
- (b)** Write a short note on Code Optimization. **07**
- OR**
- Q.3 (a)**
1. Construct a DFA for Integers. Also give the corresponding regular expression. **03**
 2. Differentiate between the following: **04**
 - a. LL parsing and Recursive descent parsing
 - b. Program controlled memory allocation and Automatic controlled memory allocation
- (b)** Consider the following expression: $a + b * c + d * e \$ f$ **07**
Construct the triple, quadruple and indirect triple for the above expression.
- Q.4 (a)** Explain the various data structures needed for the processing of a macro. Give the detailed description of each table and explain each field of the table. **07**
- (b)**
1. Write a brief account on various types of formal parameter used in macro. **04**
 2. Mention clearly the advantages and limitations of using macro over sub-routines. **03**

OR

- Q.4 (a)** What do you understand by nested macros? With the use of the stack model explain nested macros. Give proper example to support your answer. **07**
- (b)**
1. What expansion time variables are available in macros? **04**
 2. List and explain any three advanced macro facilities. **03**
- Q.5 (a)**
1. Write a brief account on overlays **04**
 2. Explain in brief about the MS-DOS linker **03**
- (b)** Write an algorithm to explain the program relocation. **07**
- OR**
- Q.5 (a)** Define the following terms: **07**
1. Linked origin
 2. Translated origin
 3. Relocation factor
 4. Linker
 5. Loader
 6. Absolute loaders
 7. Public definitions
- (b)**
1. What do you understand by self-relocatable, non-relocatable and relocatable programs? **03**
 2. What is object module? Explain in brief. **04**
