

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

MCA - SEMESTER-III • EXAMINATION – SUMMER • 2014

Subject Code: 2630005

Date: 05-06-2014

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)** Answer the following: **07**
Define:
1. Language Processor
2. Load time address
3. Scanning and Parsing
4. Expression tree
5. Address sensitive instruction
6. Linked time address
7. Grammar
- (b)** Answer the following: **07**
Define:
1. Alphabet
2. Hybrid entry format
3. tokens
4. Public Definitions
5. External variables
6. Translated origin
7. Program relocation
- Q.2 (a)** Explain ORIGIN, EQU and LTORG assembler directives in detail. **07**
(b) Explain accessing local and nonlocal variables in block structure language. **07**
OR
- (b)** Answer the following **07**
i. Differentiate between static memory allocation and dynamic memory allocation.
ii. Explain the three features of assembly language that makes it better than machine language.
- Q.3 (a)** Explain the different types of device drivers. **07**
(b) Draw and explain the structure of User Interface. Also explain Menulay and Hypercard UIMS. **07**
OR
- Q.3 (a)** Write a short note on non-relocatable and relocatable programs. **07**
(b) Explain all the components of object module of a program. **07**
- Q.4 (a)** Write short note on – control flow analysis? **07**
(b) Explain status of every stage of parsing operation for given string **07**
|- <id> +<id> * <id> -| using Operator precedence parser.

OR

- Q.4 (a)** How can you differentiate DFA with FSA? Build the DFA for regular expression $(a|b)^*bb(a|b)^*$. **07**
- (b)** According to the grammar **07**
 $E ::= T + E \mid T$
 $T ::= V^* T \mid V$
 $V ::= \langle id \rangle$
Validate the given string $\langle id \rangle + \langle id \rangle * \langle id \rangle$ using top down parsing and discuss the drawbacks of above technique.
- Q.5 (a)** Explain code optimization techniques with examples. **07**
- (b)** Write the advantages of overlay techniques. **07**
- OR**
- Q.5 (a)** List and explain Pass – I algorithm of Macro preprocessor. **07**
- (b)** Define Local Optimization and Basic block. Explain with suitable example - how value number technique is applied on basic block. **07**
