

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
|- <id> +<id> * <id> -| using Operator precedence parser. **07**

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**
