

GUJARAT TECHNOLOGICAL UNIVERSITY**MCA - SEMESTER-III • EXAMINATION – WINTER • 2014****Subject Code: 2630005****Date: 05-01-2015****Subject Name: System Software****Time: 10:30 am - 01:00 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 following terms : **07**
1. Application Domain
 2. IRR
 3. Sequencing Symbol
 4. SSM
 5. Impure Interpreter
 6. Data type
 7. APTAB
- (b)** 1. List advantages of Assembly language over machine language. **03**
 2. Explain with suitable example : Derivation and Reduction. **04**
- Q.2 (a)** 1. Discuss how Display array is useful to access nonlocal variable. **04**
 2. Write short note on Extended stack model. **03**
- (b)** What is Bottom up parsing? List Naïve bottom up parsing algorithm. Also discuss disadvantages of this algorithm. **07**
- OR**
- (b)** Define Lexical Analysis. List all notations used in regular expression. Draw DFA and STT for an input token $a^+b^*(cd)^+$. **07**
- Q.3 (a)** Write short note on Advanced assembler directives. Also draw design of all data structures used in Assembler pass-I. **07**
- (b)** 1. Demonstrate with suitable example – use of mixed types of parameter in a Macro. **03**
 2. Explain with suitable example – expansion time loop in a Macro. **04**
- OR**
- Q.3 (a)** Give format of IC token used for label, Mnemonic, operand1 and operand2 parts of an assembly statement. Also list assembler pass-II algorithm. **07**
- (b)** Show all data structures created during Macro preprocessor pass II. Also list macro pass II algorithm. **07**
- Q.4 (a)** Explain the role of Operand descriptor and Register descriptor in compilation of an expression. Also explain how quadruple is used to store IC of an expression. **07**
- (b)** 1. Explain with example: compilation of control structure. **03**
 2. Explain with example: Backtracking in parsing. **04**
- OR**
- Q.4 (a)** Write short note on “Available expression” and “Live variable”. **07**
- (b)** 1. Write short note on Scope rule of a variable. **03**
 2. Write short note on Analysis phase of a Toy compiler. **04**
- Q.5 (a)** What is Program relocation and Linking? List and explain program relocation algorithm. **07**
- (b)** 1. Write short note on absolute loader and relocatable loader. **04**
 2. Write short note on User Interface. **03**

OR

- Q.5 (a)** Define these terms w.r.t. linker: ENTRY, EXTRN, Binary program, Address sensitive instruction, Linking, Overlay, Loading. **07**
- (b)** 1. When loader will perform relocation? Also explain compile and go loader. **04**
2. Write short note on Debug monitor. **03**
