

GUJARAT TECHNOLOGICAL UNIVERSITY
MCA - SEMESTER-III • EXAMINATION – WINTER 2016

Subject Code: 630005**Date: 06/01/2017****Subject Name: System Software****Time: 10.30 AM TO 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. System software
 2. Language processor
 3. Forward Reference
 4. Production
 5. Grammar
 6. Terminal symbol
 7. Nested macro
- (b)** Do As Directed : **07**
1. A macro is expanded when macro is ____ .
 2. List out assembly statements.
 3. What is Linking and Relocation?
 4. What is DFA?
 5. _____ converts assembly language into machine language.
 6. _____ and _____ are the phases of language processor.
 7. Give the difference between compiler and interpreter.
- Q.2 (a)** Explain Front – end and Back – end of toy compiler with example. **07**
- (b)** Explain debug monitor and types of editor in detail. **07**
- OR**
- (b)** **04**
1. List and explain categories of grammar.
 2. Explain call by value and call by reference with suitable e.g. **03**
- Q.3 (a)** **03**
1. Explain AIF, AGO and ANOP with e.g.
 2. Explain macro parameters with e.g. **04**
- (b)** Explain data structures of assembler with e.g. **07**
- OR**
- Q.3 (a)** Explain data structures of macro with e.g. **07**
- (b)** **03**
1. Give difference between variant – I and variant – II.
 2. Explain LTORG, DC and mnemonic codes. **04**
- Q.4 (a)** Explain triples and quadruples in detail with e.g. **07**
- (b)** Using the following grammar of RD Parser show whether the following strings are valid or not: **07**
- $E ::= T \{ + T \}^*$
 $T ::= V \{ * V \}^*$
 $V ::= \langle id \rangle$
- Input String:
- 1) $\langle id \rangle * \langle id \rangle * \langle id \rangle$
 - 2) $\langle id \rangle + \langle id \rangle * \langle id \rangle \langle id \rangle$

OR

- Q.4 (a)** What is code optimization? Explain local optimization and global optimization in detail. **07**
- (b)**
1. Give difference between static memory allocation and dynamic memory allocation. **04**
 2. What is local and non – local access of variable? **03**
- Q.5 (a)** Explain object module and NTAB of linker in detail with e.g. **07**
- (b)** Explain Derivation and Reduction with suitable e.g. **07**
- OR**
- Q.5 (a)** Explain absolute loader, relocative loader and linking loader in detail. **07**
- (b)** Explain linking overlay in detail with e.g. **07**
