

Seat No.: \_\_\_\_\_

Enrolment No. \_\_\_\_\_

# GUJARAT TECHNOLOGICAL UNIVERSITY

MCA - SEMESTER– III EXAMINATION – WINTER 2018

**Subject Code: 630005**

**Date: 09-01-2019**

**Subject Name: System Software**

**Time: 10.30 am to 1.00 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)** Do as directed **07**
1. Give the advantages of PL Domain.
  2. What is a language translator?
  3. For allocation data structure, which of the following holds true?  
a. is created only once    b. Is searched only once  
b. c. both 1 and 2    d. Only a.
  4. \_\_\_\_\_ allows allocation and deallocation of entities in a random order.  
a. Stack    b. Trees    c. Heaps    d. Both b and c.
  5. Analysis which determines the meaning of a statement once its grammatical structure becomes known is termed as \_\_\_\_\_ analysis.  
a. Semantic    b. Syntax    c. Regular    d. General
  6. A parser which is a variant of top-down parsing without backtracking is  
a. Recursive Descend.    c. Operator Precedence.  
b. LL(1) parser.    d. LALR Parser.
  7. Define: Absolute Loader
- (b)** Explain classification of Grammar. **07**
- Q.2 (a)** Explain the difference between Derivation and Reduction by taking suitable example. **07**
- (b)** Which techniques are used for collision handling? Explain any one in brief. **07**
- OR**
- (b)** Given the expression  $SI = P * R * N / 100$ , identify the tasks that will be performed during lexical, syntax and semantic analysis. **07**
- Q.3 (a)** What do you understand by operator precedence parsing? Parse the following string giving the Diagrammatic trace of the algorithm.  $\langle id \rangle a + \langle id \rangle b * \langle id \rangle c$ . **07**
- (b)** What is code optimization technique. Discuss techniques used by compilers for code optimization. **07**
- OR**
- Q.3 (a)** What do you understand by top down parsing? Explain the prediction making mechanism. Give the Trace of top down parsing for source string  $x - 2 * y$  to be parsed according to following grammar
- $$\begin{aligned} E &::= E + T \mid E - T \mid T \\ T &::= T * F \mid T / F \mid F \\ F &::= \langle digit \rangle \mid \langle id \rangle \end{aligned}$$
- (b)** Explain the use of value numbers to determine the equivalence of occurrence of an expression in a block. **07**
- Q.4 (a)** Explain data structures used for Macro Processing. **07**

- (b) Construct all data structures for Macro given below 07  
MACRO  
MCA &X , &Y , &REG = BREG  
AIF (&Y EQ 0 ) .ERR  
MOVER &REG , &X  
DIV &REG , &Y  
.ERR MEND  
Also generate the statements for Macro call MCA 5 , 5 , REG = AREG

**OR**

- Q.4 (a) Explain the procedure for expansion of Nested Macro calls in detail. 07  
(b) Write a short note on program relocation with suitable example. 07  
Q.5 (a) Write an algorithm for Pass 1 of Assembler. 07  
(b) Write a short note on block device drivers. 07  
**OR**  
Q.5 (a) Explain Intermediate code forms for Imperative Statements generated by Assembler. 07  
Compare and contrast them.  
(b) Write a short note on character device drivers. 07

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