

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-VI- EXAMINATION – SUMMER 2016

Subject Code:160706

Date:13/05/2016

Subject Name: System Programming

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)** What is Language Processor? Explain all phases of Compiler with neat flowchart. **07**
- (b)** Briefly explain Language Processing Activities. **07**
- Q.2 (a)** With the help of following grammar and given string explain role of Operator Precedence Parser. **07**
- $E \rightarrow E+T / T$
 $T \rightarrow T*V / V$
 $V \rightarrow a / b / c / d$
String to Parse ' $a+b*c*d$ '.
- (b)** Write unambiguous production rules (grammar) for arithmetic expression containing +, -, *, / and ^ (exponentiation). **07**
- Construct parse tree and abstract syntax tree for :
 $\langle id \rangle - \langle id \rangle * \langle id \rangle ^ \langle id \rangle + \langle id \rangle$
- OR**
- (b)** Compare Top Down and Bottom Up Parsing. Find out First and Follow and construct LL(1) parser table for following Grammar: **07**
- $E \rightarrow TE'$
 $E' \rightarrow +TE' | \epsilon$
 $T \rightarrow FT'$
 $T' \rightarrow *FT' | \epsilon$
 $F \rightarrow (E) | id$
- Q.3 (a)** What is Macro Expansion? Explain Advance Macro Facilities. **07**
- (b)** Explain use and field of following tables of macro: **07**
- KPDTB, SSTAB, MDT, EVTAB
- OR**
- Q.3 (a)** Compare one pass and two pass Assembler. Write an algorithm of Single Pass Assembler. **07**
- (b)** Explain this terms in detail : LITAB, POOLTAB, LTOrg, EQU **07**
- Q.4 (a)** Compare Loader and Linker. Describe "Absolute Loader" with example. **07**
- (b)** Write three address codes and triple representation for $x=x*y*z+x*y+y*z$. **07**
- OR**
- Q.4 (a)** Compare Macro and Subroutine in detail. **07**
- (b)** What is Program Relocation? Explain Self Relocating Programs and MS Dos Linker. **07**
- Q.5 (a)** Compare Following Terms: **07**
1. Scanning and Parsing
 2. Compiler and Interpreter
- (b)** What is Code Optimization? Explain techniques of it in brief. **07**

OR

- Q.5 (a)** Explain following terms with suitable example if required: **07**
Macro Preprocessor, Left Recursion, Forward Reference, Regular Expression
- (b)** Explain Direct linking Loader. **07**
