C. U. SHAH UNIVERSITY
Summer Examination-2019

Subject Name: System Programming

Subject Code: 4TE06SYP1   **Branch: B.Tech (IT)**

Semester: 6   **Date: 29/04/2019**   **Time: 10:30 To 01:30**   **Marks : 70**

Instructions:
    (1) Use of Programmable calculator & any other electronic instrument is prohibited.
    (2) Instructions written on main answer book are strictly to be obeyed.
    (3) Draw neat diagrams and figures (if necessary) at right places.
    (4) Assume suitable data if needed.

Q-1   **Attempt the following questions:**   **(14)**
    a) The _____is software system, which generates a program in the target PL.
          a. Program specification
          b. Program generator
          c. Program execution
          d. Program interpretation
    b) Give full name of MES.
    c) SET symbols are stored in a temporary symbol table and discarded at the end of pass 0- state true or false.
    d) Define: linker
    e) Define: Symbol table
    f) Define: intermediate code
    g) Define: Macro assembler
    h) The location of _____cannot be accessed by programmers.
          a. Constants
          b. Literals
          c. Neither a nor b
          d. Both a and b
    i) What is the use of backpatching?
    j) How to avoid backtracking in top down parsing?
    k) Define: Grammar
    l) Define: Handle
    m) Define Dynamic linking
    n) The high level output of a compiler is generally called object program. – state true or false.

Attempt any four questions from Q-2 to Q-8
Q-2   **Attempt all questions**   **(14)**
    a)   Explain semantic gap, specification gap and execution gap.   **(5)**
    b)   What are the various tasks performed during analysis and synthesis phase   **(5)**

of the assembler?

	c)	What is ambiguous grammar? How to remove ambiguity in grammar.	**(4)**
Q-3		**Attempt all questions**	**(14)**
	a)	Describe following data structures: OPTAB, SYMTAB, LITTAB and POOLTAB.	**(7)**
	b)	Explain recursive descent parsing algorithm with example.	**(7)**
Q-4		**Attempt all questions**	**(14)**
	a)	What is operator precedence parsing? Show operator precedence matrix for following operators: +, - , *, (,) Parse following string: |-<id> +<id> *<id> -|	**(7)**
	b)	Define macro in the context of programming language. Explain the structure of a macro definition.	**(7)**
Q-5		**Attempt all questions**	**(14)**
	a)	Write short note on macro preprocessor.	**(5)**
	b)	Explain types of compiler.	**(5)**
	c)	List the steps of program relocation algorithm.	**(4)**
Q-6		**Attempt all questions**	**(14)**
	a)	What is intermediate code? Explain types of intermediate code in compilers.	**(7)**
	b)	Construct LL(1) parsing table for following grammar. S -> iCtSeS | iCtS | a C -> b	**(7)**
Q-7		**Attempt all questions**	**(14)**
	a)	Describe the steps involved in Program Development Activity.	**(7)**
	b)	What is overlay? Explain linking of overlay structured program	**(7)**
Q-8		**Attempt all questions**	**(14)**
	a)	Give classification of Debuggers in detail.	**(7)**
	b)	Construct an optimized DFA: 0*1*(0/1)#	**(7)**