SANKALCHAND PATEL COLLEGE OF ENGINEERING, VISNAGAR

COMPUTER ENGINEERING DEPARTMENT

B.E. Semester – VI (Computer Engineering)

ASSIGNMENT - 2

Subject: System Programming (160706) **Date: 24/03/2014**

Q.1	Explain analysis and synthesis phases of an assembler by clearly stating their tasks.
Q.2	Describe following data structures: OPTAB, SYMTAB, LITTAB and POOLTAB.
Q.3	Explain and show usage by giving examples of following assembler directives: ORIGIN, EQU, LTORG, START.
Q.4	Explain & compare various intermediate code forms (representations) for an assembler.
Q.5	Define two macros of your choice to illustrate nested calls to these macros. Also show their corresponding expansion.
Q.6	Explain with examples - expansion time variables, expansion time statements - AIF and AGO for macro programming. Show their usage for expansion time loop by giving example.
Q.7	Explain attributes of formal parameters, default specifications of parameter and semantic expansion for macro by giving examples.

Q.8	Let us consider a two pass assembler and assume that each instruction is one word. Given an assembly program and code for Mnemonics.
	`START 101`
	`READ A`
	`READ B`
	`MOVER BREG, A`
	`MULT BREG, B`
	`MOVEM BREG, D`
	`STOP`
	`A DS 1`
	`B DS 1`
	`D DS 1`
	`END`
	
	Mnemonics CODE
	STOP 00
	MULT 03
	MOVER 04
	MOVEM 05
	READ 09
	DS 02
	START 01
	END 02
	Ordinal number of BREG is 2
	
	(i) Show content of symbol table at the end of pass-one of an assembler.
	(ii) Write intermediate code representation of the assembly program. Use variant-II of intermediate code representation.

Q.9	Compare single pass assembler and two pass assembler. Explain two pass assembler in detail with suitable example.
Q.10	Write a macro which takes B, C, and D as parameters and calculates B*C + C*D.
Q.11	Explain advanced macro facilities with suitable example.
Q.12	Explain following terms with suitable example. (i) Expansion time variable (iii) Semantic Expansion (ii) Positional parameter (iv) Macro Preprocessor
Q.13	What is macro in programming language. Write an algorithm for macro definition.
Q.14	List and explain tasks involved in macro expansion.