Third Semester MCA Degree Examination, June/July 2014
Systems Software

Time: 3 hrs.   Max. Marks:100

Note: *Answer any FIVE full questions.*

1 a. Define system software. Differentiate between application software and system software.
                                                                    (05 Marks)
   b. Describe the following with respect to SIC.XE architecture:
      i)   Memory
      ii)   Data format
      iii) Instruction format
      iv)   Registers.   **(10 Marks)**
   c. Write an assembly language program to transfer string from STR1 to STR2.   **(05 Marks)**

2 a. Write an algorithm for Pass 2 of 2 Pass assembler.   **(10 Marks)**
   b. Generate a machine code for the following SIC program:

SUM	START	4000	LDA → 00
FIRST	LDX	ZERO	LDX → 04
	LDA	ZERO	STA → OC
LOOP	ADD	TABLE, X	ADD → 18
	TIX	COUNT	TIX → 2C
	JLT	LOOP	JLT → 38
	STA	TOTAL	RSOB → 4C
	RSUB		
TABLE	RSEW	2000	
COUNT	RESW	1	
ZERO	WORD	0	
TOTAL	RESW	1	
	END	FIRST	

                                                                    (10 Marks)

3 a. What are the differences between literal and immediate operand, how does the assembler
      handle literals?   **(05 Marks)**
   b. Explain any five assembler directives with example.   **(10 Marks)**
   c. Give the format for the following records necessary to obtain the object code:
      i)   Header record
      ii)   Text record
      iii) End record.   **(05 Marks)**

4 a. With a programming example, explain boot strap loader.   **(08 Marks)**
   b. Explain linking loader and linkage editor.   **(12 Marks)**

5 a. With a neat diagram, explain the structure of text editor. **(10 Marks)**
   b. Discuss the capabilities of an interactive system and debugging. **(10 Marks)**

6 a. Illustrate the concept of recursive macro call with suitable example. **(10 Marks)**
   b. Explain the following with regard to the machine independent macro processor features:
      i)   Conditional macro expansion.
      ii) Keyword macro parameters. **(10 Marks)**

7 a. Explain the structure of yacc program with example. **(10 Marks)**
   b. Explain the following terms with respect to lex. Give example to each other yylex( ), yyiin, yylex( ), yyin( ), yyleng( ), yytext( ), yywrap( ). **(10 Marks)**

8 Write short notes on the following:
   a. Meta characters.
   b. Symbol table.
   c. Dynamic linking.
   d. Program relocation. **(20 Marks)**

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