Third Semester MCA Degree Examination, Dec.2014/Jan.2015
System Software

Time: 3 hrs.   Max. Marks:100

Note: *Answer any FIVE full questions.*

1 a. Define system software. Explain SIC machine architecture.   (10 Marks)
   b. Explain addressing modes with respect to SIC/XE machine.   (05 Marks)
   c. Write SIC/XE program to store the value (NUM1 + COUNT – 1) in VAL1 and (NUM2 * COUNT + 1) in VAL2.   (05 Marks)

2 a. List all and explain any three assembler directives with example.   (05 Marks)
   b. What are the basic assembler functions?   (05 Marks)
   c. Write algorithm for PASS2 of assembler.   (10 Marks)

3 a. What is a program block? What are the necessary steps to be followed to handle it during PASS1?   (05 Marks)
   b. What is a control section? Explain all the record types used in building the object program of a control block.   (05 Marks)
   c. Write an algorithm for one pass assembler.   (10 Marks)

4 a. Describe the basic loader functions.   (05 Marks)
   b. Explain a simple boot strap loader with an algorithm or source program.   (05 Marks)
   c. With a diagram explain the processing of an object program using
       (i) Linking loader   (ii) Linkage editor.   (10 Marks)

5 a. What is a macro definition and macro expansion with an example?   (05 Marks)
   b. With an example explain concatenation of macro parameters.   (05 Marks)
   c. Write an algorithm for one pass macroprocessor.   (10 Marks)

6 a. What are the different tasks involved in document editing process?   (04 Marks)
   b. What are the seven user interface criteria used in interactive debugging system? Explain any three.   (06 Marks)
   c. Explain typical editor structure with suitable diagram.   (10 Marks)

7 a. Explain the structure of a Lex and yacc program with example.   (10 Marks)
   b. Write a Lex program to count number of variable declarations used in a C program.   (10 Marks)

8 a. Write yacc program to test the validity of a simple expression involving operators +, –, *, /.   (10 Marks)
   b. Explain the following :
       i) yylex( )   ii) yytext   iii) yyparse( )   iv) yyleng   v) y.tab.h   (10 Marks)

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