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P.E.S. College of Engineering, Mandya - 571 401

(An Autonomous Institution affiliated to VTU, Belgaum)

Fifth Semester, B.E. - Computer Science and Engineering

Semester End Examination; Dec - 2016/Jan - 2017

System Software

Time: 3 hrs *Max. Marks: 100*

***Note**: Answer **FIVE** full questions, selecting **ONE** full question from each unit.*

UNIT - I

1a. With reference to SIC/XE machine architecture explain :
i) Registers ii) Instruction format 10
iii) Addressing modes iv) Memory.

b. Write SIC/XE instructions to clear 20 byte string to all blanks. 4

c. Define system software. Differentiate it from application software. 6

2 a. Write target address generated for the following machine instruction:
i) 032600h ii) 03C300h iii) 0310C303h, 6
if (B) = 006000, (Pc) = 003000, (X) = 000090.

b. Write SIC/XE instruction sequence to copy a 10 byte character string to another string. 4

c. Explain the following with reference to Pentium pro architecture,
i) Registers ii) Data format iii) Instruction format 10
iv) Addressing mode v) Input and output.

UNIT - II

3 a. Explain any Five assembler directives. 5

b. Write the format for Header, Text and End record. 5

c. Write algorithm for Pass-1 of a two pass assembler. 10

4 a. Explain the following with respect to assembler design; 10
i) Expressions ii) Symbol defining statements.

b. Explain program blocks and control section with examples. 10

UNIT - III

5 a. Explain with an example, how relocation is done using; 10
i) Bit mask ii) Modification record.

b. Explain how object program can be processed using linking loader and linkage editors. 10

6 a. Discuss boot strap loader with algorithm. 10

b. Explain automatic library search with respect to loaders. 6

c. Explain any four loader option commands. 4

Contd.....2

UNIT - IV

7	a.	With suitable example, explain Macro definition, Macro expansion and Macro invocation.	10
	b.	Explain the data structures used in the implementation of one pass macro processor.	10
8	a.	Explain the following with examples : i) Conditional macro expansion ii) Concatenation of Macro parameters.	10
	b.	Explain recursive macro expansion with example.	5
	c.	Write short note on MASM macro processor.	5

UNIT - V

9	a.	Explain structure of LEX program with an example.	6
	b.	List all the characters that form regular expression and explain any four characters with an example for each.	6
	c.	Write LEX program to count the number of blank spaces, words, lines and character in a file.	8
10	a.	Explain the following with an example for each, i) yytext( ) ii) yywrap( ) iii) yyin( ) iv) yylex( ).	8
	b.	Explain shift reduce parsing.	4
	c.	Write YACC program to recognize the grammer $\{a^n b^n$ where $n > 0\}$.	8

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