ME103
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Second Semester MCA Degree Examination, Dec.2016/Jan.2017
System software / System Programming

Time: 3 hrs.   Max. Marks:100

Note: *Answer any FIVE full questions.*

1 a. Bring out the differences between system software and application software.   **(04 Marks)**
   b. Explain SIC/XE machine instruction formats and all the addressing modes clearly indicating setting of flag bits.   **(10 Marks)**
   c. Write an assembly language program in SIC/XE to add 2 arrays of 100 integers.   **(06 Marks)**

2 a. Write a algorithm for pass – 1 of 2 – pass algorithm. Describe the data structures used.   **(10 Marks)**
   b. Write short notes on program blocks feature of assembler.   **(04 Marks)**
   c. Generate object code for given SIC program

WRDATA	START	1000		
	LDX	ZERO		
WLOOP	TD	OUTPUT	LDX – 04	TD – E0
	JEQ	WLOOP	JEQ – 30	LDCH – 50
	WD	OUTPUT	WD – DC	TIX – 2C
	TIX	LENGTH		JLT – 38
	JLT	WLOOP		
ZERO	WORD	0		
OUTPUT	BYTE	X '05'		
LENGTH	RESW	1		
BUFFER	RESB	409.6		

                                                                        (06 Marks)

3 a. Explain the program of bootstrap loader.   **(10 Marks)**
   b. Write and explain the pass – 1 algorithm of a linking loader along with data structures.   **(10 Marks)**

4 a. With a neat diagram, explain the concept of dynamic linking.   **(10 Marks)**
   b. Write short notes on :   i) Linkage editor   ii) MS – DOS Linker.   **(10 Marks)**

5 a. With a neat block diagram, describe the typical editor structure.   **(10 Marks)**
   b. Describe the debugging functions and capabilities of interactive debugging system.   **(10 Marks)**

6 a. What do you mean by a MACRO? Explain macro definition and expansion with suitable example.   **(10 Marks)**
   b. Write a note on the following machine independent feature of microprocessor.
      i) Concatenation of macro parameters   ii) Generation of unique labels.   **(10 Marks)**

7 a. Explain conditional macro expansion with an example.   **(10 Marks)**
   b. Write algorithm for one – pass macroprocessor.   **(10 Marks)**

8 a. Explain the basic compiler functions.   **(10 Marks)**
   b. Write a note on : i) P – code compilers   ii) Compiler – Compilers.   **(10 Marks)**

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