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

Time: 3 hrs.

Max. Marks: 100

Note: Answer any FIVE full questions.

1.
 - a. Bring out differences between system software and application software. (04 Marks)
 - b. Explain SIC/XE machine instruction formats and all addressing modes, clearly indicating the 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 an algorithm for pass – 1 of a 2 – pass assembler. Describe the data structure used in them. (10 Marks)
 - b. Generate object code to the given SIC program : (06 Marks)

WRDATA	START	1000	
	LDX	ZERO	
WLOOP	TD	OUTPUT	LDX – 04
	JEQ	WLOOP	TD – EO
	WD	OUTPUT	JEQ – 30
	LIX	LENGTH	LDCH – 50
	JLT	WLOOP	WD – DC
ZERO	WORD	0	TIX – 2C
OUTPUT	BYTE	X '05'	JLT – 38
LENGTH	RESW	1	
BUFFER	RESB	4096	
END	WRDATA		

- c. Write short notes on program blocks feature of assemblers. (04 Marks)
3.
 - a. Write and explain the algorithm of a bootstrap loader. (10 Marks)
 - b. write algorithm for pass-1(one) of linking loader. (10 Marks)
4.
 - a. Write short notes on : i) Automatic library search ii) MS – DOS linker. (10 Marks)
 - b. With a neat diagram, explain the concept of dynamic linking. (10 Marks)
5.
 - a. With a neat diagram, explain the concept of dynamic linking. (10 Marks)
 - b. Discuss 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 features of microprocessor :
 i) concatenation of macro parameters ii) generation of unique labels. (10 Marks)
7.
 - a. Write in detail, conditional macro expansion, using an example. (10 Marks)
 - b. Explain the following :i) ANSI C macro language ii) Recursive Macro expansion. (10 Marks)
8.
 - a. Illustrate with an example any two basic compiler functions. (10 Marks)
 - b. Explain with a diagram : i) p – code compiler ii) compiler – compilers. (10 Marks)