

USN

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

13MCA24

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)

* * * * *

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.