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13MCA24

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

Max. Marks:100

Time: 3 hrs.

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

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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. (10 Marks)
i) Concatenation of macro parameters ii) Generation of unique labels.
- 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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Important Note: 1. On completion of answers, compulsorily draw diagonal cross lines on the remaining blank pages.
 2. Any revealing of identification, appeal to evaluator and/or equations without drawing diagonal cross lines will be treated as malpractice.