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13MCA24

Second Semester MCA Degree Examination, Dec.2015/Jan.2016

System Programming/System Software

Time: 3 hrs.

Max. Marks: 100

Note: Answer any FIVE full questions.

- 1 a. Explain SIC/XE architecture. (10 Marks)
- b. Explain the following features of SIC machine (06 Marks)
- i) Registers ii) Instruction Set iii) Data Format.
- c. Calculate Target Address for the following :
- (Pc) = 000003 (x) = 003000
- | | Opcode | n | i | x | b | p | e | Disp/address |
|-----|--------|---|---|---|---|---|---|-------------------------|
| i) | 000100 | 1 | 1 | 1 | 0 | 1 | 0 | 0000 0000 |
| ii) | 000000 | 1 | 1 | 0 | 0 | 0 | 1 | 00001100 0011 0000 0011 |
- (04 Marks)
- 2 a. Write the algorithm for pass 2 of two – pass assembler and explain the functions of it. (10 Marks)
- b. Explain MASM assembler. (10 Marks)
- 3 a. Write an algorithm for Pass 1 of a linking loader and explain. (10 Marks)
- b. Explain Absolute loader. (04 Marks)
- c. Explain how relocation is done using (06 Marks)
- i) Modification record ii) Bit masks
- 4 a. Explain MS – DOS linker. (07 Marks)
- b. What is Dynamic linking? Explain with a neat diagram loading and calling of a subroutine using dynamic linking. (08 Marks)
- c. Give a brief on Automatic library search. (05 Marks)
- 5 a. Explain the components of editor and its functions with a neat diagram. (10 Marks)
- b. Describe the debugging functions and capabilities of an interactive debugging system. (10 Marks)
- 6 a. Explain the following : (04 Marks)
- i) Macro definition and Macro Expansion (04 Marks)
- ii) Generation of Unique labels.
- b. Write an algorithm for one – pass macro processor and discuss the different data structures used by the macro processor. (12 Marks)
- 7 a. Discuss in detail about Recursive macro expansion. (07 Marks)
- b. Explain ANSI C Macro processor. (08 Marks)
- c. Discuss in detail about General Purpose Macro processors. (05 Marks)
- 8 a. Explain Machine dependent code optimization of compiler with an example. (10 Marks)
- b. Write a note on the following : (10 Marks)
- i) Interpreters ii) P – code compilers.

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.