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## MCA DEGREE I SEMESTER EXAMINATION DECEMBER 2015

### CAS 2104 SYSTEM SOFTWARE (Regular and Supplementary)

Time: 3 Hours

Maximum Marks: 50

#### PART A

(Answer *ALL* questions)

(15 × 2 = 30)

- I. (a) What is an assembler directive? List any three assembler directives.  
(b) What is forward reference problem? Illustrate with an example.  
(c) Explain the features of MASM.
- II. (a) Write notes on bootstrap loader.  
(b) What are the functions of an absolute loader?  
(c) List out the advantages of dynamic linking.
- III. (a) What is a macro? Give suitable examples.  
(b) With example explain conditional macro expansion.  
(c) What are general purpose macro processors?
- IV. (a) What is BNF?  
(b) Write notes on lexical analysis.  
(c) Compare and contrast interpreters and P-code compilers.
- V. (a) What are the different types of operating systems?  
(b) Illustrate the functions of an interrupt handler in an operating system.  
(c) Explain the concept of virtual memory.

#### PART B

(5 × 4 = 20)

- VI. Explain how the literals and symbols are handled in an assembler.  
**OR**
- VII. Describe the structure and logic of a single pass assembler.
- VIII. Design the algorithm and data structure for a linking loader.  
**OR**
- IX. Compare the features of linkage editor and linking loader.
- X. With example explain how one macro can be invoked by another macro.  
**OR**
- XI. Explain the algorithm for one-pass macro processor.
- XII. With example differentiate operator precedence parsing and recursive-descent parsing.  
**OR**
- XIII. Explain various machine independent features of a compiler.
- XIV. Explain the difference between process scheduling and job scheduling.  
**OR**
- XV. With an example, explain the hierarchical structure of an operating system.