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Roll No .....

### MCA-101

### M.C.A. I Semester

Examination, November 2018

### Information Technology

Time : Three Hours

Maximum Marks : 70

- Note: i) Attempt any five questions.  
 ii) All questions carry equal marks.

1. a) What is Data? How it is different from Information? Discuss various data processing techniques.  
 b) Explain the followings:
  - i) Application software and system software
  - ii) Storage devices
2. a) Explain in brief the basic steps followed in the design of a two pass assembler.  
 b) What are macros? Explain various features of macros with suitable examples.
3. a) Describe the advanced macro facilities and illustrate their use.  
 b) Briefly explain the following:
  - i) Compiler and interpreter
  - ii) Debug monitors
4. a) Explain code optimization. What are the ways in which code optimization can be achieved?  
 b) How memory allocation is done by compilers? Discuss static and dynamic memory allocation.

5. a) What is an absolute loader? Explain its role, advantages and disadvantages in brief.  
 b) What are the data structures required for linker? Write an algorithm for 1<sup>st</sup> pass linker.
6. a) Comment on the following statements:
  - i) Self-relocating programs are less efficient than relocatable program.
  - ii) There would be no need for linker if all programs are coded as self-relocating programs.
 b) Explain the following terms:
  - i) Linked address
  - ii) Load time address
  - iii) Linked origin
  - iv) Load origin
7. a) What are indexed sequential files? Explain its structure. Why overflow area is required in indexed sequential files?  
 b) Compare and contrast the given file organization
  - i) Sequential file organization
  - ii) Random file organization
8. Write short notes on the following (any four)
  - a) Inverted files
  - b) Nested macro calls
  - c) Various types of file organizations
  - d) Multi key access
  - e) Binary overlays

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