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16172

3 Hours / 100 Marks

Seat No.

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- Instructions :**
- (1) All Questions are *compulsory*.
 - (2) Illustrate your answers with neat sketches wherever necessary.
 - (3) Figures to the right indicate full marks.
 - (4) Assume suitable data, if necessary.

Marks

1. Solve any FIVE :

20

- (1) List the four components of system programming.
- (2) What are the goals of system software ?
- (3) Compare binary search and linear search.
- (4) Define the terms : (i) Allocation (ii) Relocation (iii) Linking (iv) Loading
- (5) Explain four basic operations of macroprocessor.
- (6) Describe the term overlay structure.
- (7) Draw flowchart of pass-I of assembler.

2. Solve any FOUR :

16

- (1) Describe the concept of compile & go loader.
- (2) Draw the foundation of system software.
- (3) Explain bottom-up parsing technique.

- (4) Explain bucket sort with example.
- (5) Explain the concept of subroutine linkages in loader.
- (6) Draw & explain passes of compiler.

3. Solve any FOUR :**16**

- (1) Differentiate between searching and sorting.
- (2) What type of information is contained by ESD, RLD, TXT, END cards of direct linking loader ?
- (3) State four functions of compiler.
- (4) Define the terms : (i) Binder (ii) Dynamic loader (iii) Linking editor (iv) Overlays.
- (5) Write algorithm for syntax analysis phase of compiler.
- (6) Explain the structure of Macro Definition Table (MDT) and Argument List Array (ALA) with example.

4. Solve any FOUR :**16**

- (1) Explain working of relocating loader.
- (2) Draw format of MOT, POT, ST, BT databases of pass-I of assembler.
- (3) Draw macro instruction structure.
- (4) Explain the structure of : (i) Identifier Table (ii) Matrix Database of compiler.
- (5) Explain Random Entry Searching.
- (6) Explain machine dependent optimisation phase of compiler with example.

5. Solve any FOUR :**16**

- (1) Explain macro within macro.
- (2) Draw flowchart & explain working of absolute loader.
- (3) Explain general model of a compiler.
- (4) Mention four functions of storage assignment phase of compiler.
- (5) Explain single pass algorithm for macro processing.
- (6) Define parser. Draw the parse tree for string 'abccd' using top-down parser.

6. Solve any FOUR :**16**

- (1) Explain assembly phase of a compiler.
 - (2) Sort following numbers in ascending order by bucket sort :
78, 354, 51, 278, 63, 89, 312, 12
 - (3) Explain features of macro facility.
 - (4) List the steps for binary search algorithm. List the best, worst and average case complexity.
 - (5) Describe the term token with respect to Lexical Analysis.
 - (6) Explain conditional Macro expansion.
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