



# 17517

15116

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. a) Attempt **any three**:

**(4×3=12)**

- 1) State functions of relocating loader.
- 2) Draw the foundation of system programming.
- 3) Explain general design of Assembler.
- 4) Explain the lexical phase of compiler.

b) Attempt **any one**:

**(6×1=6)**

- 1) Explain components of system software with examples.
- 2) State use of macro with suitable example.

2. Attempt **any two**:

**(8×2=16)**

- 1) Write an algorithm for assembler first pass. Explain it in detail.
- 2) Explain the database used by pass I and Pass II of an assembler.
- 3) Explain simple machine independent optimization algorithm with an example.

3. Attempt **any four**:

**(4×4=16)**

- 1) List various applications of system software.
- 2) Explain hash and random entry searching.
- 3) Outline the algorithm for syntax analysis phase of compiler.
- 4) Explain dynamic binder loading scheme.
- 5) Explain the meaning of top down and bottom up parser.

**P.T.O.**

**4. A) Attempt any three :****(4×3=12)**

- 1) How sub-routine linkage are applied in loaders ?
- 2) Apply the optimization techniques for suitable example.
- 3) Explain four purposes of storage assignment phase of compiler.
- 4) Explain the concept of top down parser.

**B) Attempt any one :****(6×1=6)**

- 1) State and explain four basic task of macro processor.
- 2) Compare advantages and disadvantages at top down and bottom up parser.

**5. Attempt any two :****(8×2=16)**

- 1) Explain overlay structure in detail.
- 2) Write the algorithm for elimination and common sub-expression. Apply it for the following statements and show the designed matrix :

$$B = A$$
$$A = C * D * (D * C + B).$$

- 3) Show the result of each pass by using Radix Sort :

424, 887, 807, 709, 882, 616, 573, 413, 679, 180, 975, 264.

**6. Answer any four of the following :****(4×4=16)**

- 1) Describe conditional macro expansion with suitable example.
  - 2) How to improve the assembler design ?
  - 3) What is the algorithm for direct linking loader ?
  - 4) Explain how to reduce different process in compiler ?
  - 5) What is purpose of ID number on ESD cards ? Why it is not needed for locally defined symbols ?
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