**11718**

**3 Hours / 100 Marks**     Seat No.

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**Instructions :**  (1)  All Questions are *compulsory.*

(2)  Answer each next main Question on a new page.

(3)  Illustrate your answers with neat sketches wherever necessary.

(4)  Assume suitable data, if necessary.

(5)  Use of Non-programmable Electronic Pocket Calculator is permissible.

**Marks**

1.  **Attempt any FIVE :**                                                                       **20**

(a)  Explain any two components of system software.

(b)  Describe the database format used in pass 1 of macroprocessor.

(c)  Describe Macro instructions with example.

(d)  Explain General Model of compiler with neat labelled diagram.

(e)  Describe Lexical phase of compiler.

(f)  Explain about dynamic binders.

(g)  Explain 'Compile & Go' loader scheme.

2.  **Attempt any TWO :**                                                                       **16**

(a)  Draw and explain flow chart for pass 1 of assembler.

(b)  Explain 'Macro call within macros' with example.

(c)  Draw and explain machine structure diagram.

3. **Attempt any TWO :** 16

   (a) Draw and explain pass 1 of macro-processor.

   (b) Sort the following elements by using shell sort : show all passes.

   19, 13, 05, 27, 01, 26, 31, 16, 02, 09, 11, 21

   (c) Draw and explain design of absolute loader.

4. **Attempt any TWO :** 16

   (a) Specify the databases used in Pass 1 & Pass 2 of loader.

   (b) Draw and explain flowchart for Pass 2 of macroprocessor.

   (c) Explain the format for following tables used by assembler :
       (i) Machine OPcode Table (MOT)
       (ii) Pseudo OPcode Table (POT)

5. **Attempt any TWO :** 16

   (a) Draw and explain Top-down and Bottom-Up parsing.

   (b) Explain machine-independent optimization used in compiler.

   (c) Explain elimination of common subexpression technique used by compiler with example.

6. **Attempt any TWO :** 16

   (a) Draw Tree diagram for following statement :

   COST = RATE * (START – FINISH) + 2 *

   RATE (START – FINISH – 100);

   (b) Explain any two loader schemes.

   (c) Explain address calculation sort with example.

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