Code: D-14   **Subject: COMPUTER SOFTWARE FUNDAMENTALS**
Time: 3 Hours   **June 2006**   **Max.**
              Marks: 100

NOTE: There are 9 Questions in all.

- **Question 1 is compulsory and carries 20 marks. Answer to Q. 1. must be written in the space provided for it in the answer book supplied and nowhere else.**
- **Out of the remaining EIGHT Questions answer any FIVE Questions. Each question carries 16 marks.**
- **Any required data not explicitly given, may be suitably assumed and stated.**

Q.1   Choose the correct or best alternative in the following: (2x10)

a. '   ' is a flowchart symbol to signify the operation:

    (A) Manual input   **(B)** Extract
    (C) Merge   **(D)** Sort

b. Algorithms can be represented as

    (A) Equations   **(B)** Programs
    (C) Series of 1's & 0's   **(D)** Set of files

c. OOP paradigm has mainly

    (A) Abstraction and Reusability   **(B)** Machine independent
    (C) Fewer errors   **(D)** Less cost

d. Multiple instances of a class are

    (A) Members   **(B)** Modules
    (C) Classes   **(D)** Objects

e. Assembly level language: Assembler, High level language: _____

    (A) Linker   **(B)** Loader
    (C) Compiler   **(D)** Debugger

f. Dynamic binding helps in

    (A) Data sharing   **(B)** Inheritance
    (C) Modularity   **(D)** Polymorphism

g. Pseudo code is also called PDL. PDL stands for

(A) Program Decision Logic   **(B)** Pseudo Design Language

(C) Program Design Language   **(D)** Programmable Device Logic

h. 'Ready', 'Run' and 'Blocked' are

     (A) Computer status   **(B)** Operating system tasks

     (C) Process states   **(D)** I/O device states

i. Thesaurus helps in

     (A) Finding an alternative word   **(B)** Finding the meaning

     (C) Spell check   **(D)** Grammar check

j. 'Justification' is a method of

     (A) Paragraph formatting   **(B)** Text alignment

     (C) Selecting a Font   **(D)** Setting page width.

Answer any FIVE Questions out of EIGHT Questions.
Each question carries 16 marks.

Q.2   a. Write a C program to sort a given array of 'n' numbers in ascending order.   **(12)**

      b. List any two advantages and two disadvantages of pseudocode.   **(4)**

Q.3   a. Discuss the factors involved in selecting a programming language.   **(6)**

      b. Describe inheritance and polymorphism concepts of object oriented paradigm. **(4)**

      c. What is personal assistance package? What are the features commonly supported by it? **(6)**

Q.4   a. Using pseudocodes, write a program to compute the area of a polygon with 4 sides.   **(6)**

      b. Define a 'student' class with appropriate data members and member functions. Create 10 objects of that class and initialise them using a program segment.   **(10)**

Q.5   a. Write a Fortran program to compute the sum of 10 numbers and print the sum with appropriate message.   **(8)**

   b.   Why is COBOL called a self documenting language? Illustrate with an example. **(8)**

Q.6   a.   Illustrate with an example, the linked allocation method of disk space allocation. **(10)**

   b.   Discuss the causes and solutions to the problems of fragmentation. **(6)**

Q.7   a.   Explain deadlock situation with an example. **(8)**

   b.   Write a note on Real Time Operating Systems. Give a few examples of RTOS. **(8)**

Q.8   a.   Each employees pay record includes the hours worked and the pay rate. The gross pay is to be determined as hours worked times pay rate and is to be printed for each employee. For all hours worked in excess of 40, the overtime rate, which is 1.5 times the regular rate, is to be paid. Draw a flowchart for the problem. Assume a suitable sentinel value for any of the input fields of the trailer record. **(10)**

   b.   Briefly explain relative and absolute cell addressing available in spreadsheets. **(6)**

Q.9   Explain the following with an example each:

         (i)   Use of mail merge feature in MS Word.
         (ii)   Use of formula in the MS Spreadsheet.
         (iii)   Commonly available features in a graphics package.
         (iv)   Text editing features in MS Word.   **(4x4 = 16)**