First/Second Semester B.E. Degree Examination, June 2012
Computer Concepts and C - Programming

Time: 3 hrs.   Max. Marks:100

Note: *1. Answer FIVE full questions choosing at least two from each part.*
   2. Answer all objective type questions only on OMR sheet page 5 of the Answer Booklet.
   3. Answers to objective type questions on sheets other than OMR will not be valued.

PART - A

1 a. Choose the correct answer :   **(04 Marks)**
   i) Some notebook systems can be plugged into one of these devices which gives the computer additional features
   (A) port station   (B) network station (C) work station   (D) docking station
   ii) Which of the following is not a modifier key :
   (A) shift   (B) backspace   (C) ALT   (D) CNTRL
   iii) The refresh rate of a monitor is measured in _____
   (A) bytes   (B) bits   (C) hertz   (D) centimeters
   iv) The term dots per inch (dpi) refers to a printer's _____
   (A) speed   (B) resolution   (C) output   (D) color
   b. Briefly explain the computers used in organisations.   **(06 Marks)**
   c. Explain with a diagram how a keyboard communicates with the computer.   **(06 Marks)**
   d. Briefly explain the information processing cycle.   **(04 Marks)**

2 a. Choose the correct answer :   **(04 Marks)**
   i) A computer system that uses a smaller instruction set is said to use _____technology.
   (A) CISC   (B) RISC   (C) MISC   (D) DISC
   ii) Which of the following is a common drive interface standard used in PC's?
   (A) ETC   (B) QWERTY   (C) EIDE   (D) IOU
   iii) Each side of a standard DVD – ROM disc can hold upto _____ of data.
   (A) 4.7 GB   (B) 9.4 GB   (C) 17 GB   (D) 140 GB
   iv) Flash memory is an example of _____ storage device.
   (A) Magnetic   (B) Optical   (C) Solid - state   (D) None of these
   b. What is machine cycle? Briefly explain the parts of a machine cycle.   **(06 Marks)**
   c. Briefly describe the areas that are created on a disk when it is formatted with FAT file system.   **(06 Marks)**
   d. What is average access time? How it is measured?   **(04 Marks)**

3 a. Choose the correct answer :   **(04 Marks)**
   i) An operating system is an example of _____ software.
   (A) utility   (B) application   (C) system   (D) none of these
   ii) A _____ is an agreed upon format for transmitting data between the devices.
   (A) protopology   (B) protoplasm   (C) prototype   (D) protocol
   iii) A _____ is a computer that stores and forwards email messages.
   (A) mail server   (B) mail center   (C) mail system   (D) mail box
   iv) In a _____ network all devices are connected to a device called hub and communicate through it.
   (A) bus   (B) star   (C) ring   (D) mesh

b. Describe the four primary functions of an operating system. **(08 Marks)**

c. Explain the uses of networking the computers. **(08 Marks)**

4 a. Choose the correct answer : **(04 Marks)**

i) Which of the following is a valid variable name

   (A) n1 + n2   (B) doubles   (C) 3rd place   (D) int

ii) What would be the value of x after execution of the following segment?

   int x,y = 10 ; char z = 'q' ; x = y + z – 'p' ;

   (A) 110   (B) 111   (C) 10   (D) none of these

iii) In a flowchart, a parallelogram symbol is used for

   (A) input   (B) output   (C) input/output   (D) none of these

iv) Which of the following symbol does not belong to the C character set?

   (A) ^ caret   (B) _ underscore   (C) ! exclamation   (D) @ at the rate

b. i) Write the equivalent C statement for $T = \dfrac{2m1m2}{m1 + m2} \cdot g$

ii) Rewrite the following expression after removing unnecessary parenthesis :

   ((x – (y/5) + z) % 8) + 25

iii) What is the value of the expression -14%3?

iv) If x = 4 initially, what is the value of x after the following statement is executed :

   x = x + + ;

v) How many relational operators are supported by C?

vi) What is the complement of the relational expression !(x! = y)? **(06 Marks)**

c. Define flowchart and algorithm. Write flowchart and algorithm to find factorial of a given integer. **(10 Marks)**

PART - B

5 a. Choose the correct answer : **(04 Marks)**

i) If the number 98.7654 is to be printed as 9.88e + 01 ƀ ƀ using printf statement (ƀ is blank), the control string must be set to _____.

   (A) % -10.2e   (B) % -7.2f   (C) % e   (D) % f

ii) By default the real numbers are printed with a precision of _____ decimal places.

   (A) 4   (B) 5   (C) 6   (D) 8

iii) The ternary conditional expression using operator '?' could be easily coded using _____ statement.

   (A) simple if   (B) if - else   (C) while   (D) else – if ladder

iv) Find the value of x and y after the following segment is executed assuming n = 0 :

```
int x = 1, y = 1 ;
   if (n > 0)
      x = x + 1 ;
      y = y – 1 ;
   print f ("% d %" , x, y) ;
```

   (A) x = 1, y = 1   (B) x = 1, y = 0   (C) x = 0, y = 0   (D) x = 2, y = 0.

b. Explain formatted output with an example. **(06 Marks)**

c. Explain switch statement with an example. **(10 Marks)**

6 a. Choose the correct answer : **(04 Marks)**

i) Find out how many times the following loop is executed?

```
int m = 10, n = 7 ;
While (m % n > = 0)
   {
      m = m + 1 ;
      n = n + 2 ;
   }
```

   (A) 5   (B) 4   (C) 0   (D) infinite

ii) Which of the following can be configured as a sentinel controlled loop?

(A) while loop   (B) do – while loop   (C) for loop   (D) all the three loops

iii) In an exit controlled loop, if the body is executed 'n' times, the test condition is evaluated _____ times.

(A) $n + 1$ (B) $n - 1$ (C) n (D) n^2

iv) In the following program segment, the print f statement is executed _____ number of times.

     int m = 1, n = 0 ;
     for (; m + n < 10 ; m + + , n + +);
         print f ("% d", m * n);

(A) 5   (B) 6   (C) 1   (D) 0

b. Write a program to read a positive integer and print the sum of its digits, using a suitable entry controlled loop.   **(06 Marks)**

c. Differentiate between while and do – while loop.   **(04 Marks)**

d. Write a program to find whether the given integer is prime or not.   **(06 Marks)**

7   a. Choose the correct answer :   **(04 Marks)**

i) In an 'n' element array, the nth element will be stored at the index _____.

(A) n   (B) $n + 1$ (C) $n - 1$ (D) None of these

ii) _____ is the process of arranging the elements of an array in order.

(A) searching   (B) sorting   (C) keying   (D) scanning

iii) An array belongs to the _____ data type.

(A) Fundamental   (B) Primary   (C) Userdefined   (D) Derived

iv) An array is a _____ size sequenced collection of elements of the _____ data type.

(A) variable, same   (B) variable, different   (C) fixed, same   (D) fixed, different

b. Explain how 1 – D arrays are declared and initialized.   **(04 Marks)**

c. Write a C program to read a $N \times N$ matrix and find the sum of elements of each of its diagonals.   **(08 Marks)**

d. Write a C program to implement linear search.   **(04 Marks)**

8   a. Choose the correct answer :   **(04 Marks)**

i) The parameters used in a function call are called as _____ parameters.

(A) formal   (B) informal   (C) virtual   (D) actual

ii) Specifying parameter names in a function prototype is _____

(A) compulsory   (B) optional   (C) illegal   (D) none of these

iii) What will be the value of the function call divide (4.5, 1.5) to the following function :

     divide (float x, float y)
       {
         return (x/y) ;
       }

(A) 3.0   (B) 3   (C) 0.333333   (D) 0

iv) A variable declared inside a function is called _____ variable.

(A) local   (B) global   (C) external   (D) actual

b. What is the need for user defined functions?   **(04 Marks)**

c. List and explain the parts of a function body.   **(06 Marks)**

d. Write a C function which accepts a two dimensional matrix as a parameter and returns the largest element of the matrix.   **(06 Marks)**

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