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First/Second Semester B.E. Degree Examination, June/July 2011
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 in OMR sheet page 5 of the answer booklet.
 3. Answer to objective type questions on sheets other than OMR will not be valued.

PART – A

- 1 a. Select the correct answer :
- Which of the following device stored instructions that help computer to start up?
 A) Joystick B) RAM C) ROM D) Monitor
 - A collection of 8-bits is called
 A) Byte B) Word C) Record D) File
 - Which of the following is not an output device?
 A) Printer B) Keyboard C) VDU D) CRT Screen
 - Which of the following is not a type of keyboard connector?
 A) 5-pin connector B) 6-pin connector C) 8-pin connector D) USB connector. (04 Marks)
- b. With a neat diagram, explain the basic structure of a computer. (08 Marks)
- c. Explain two types of monitors based on the technique used to display image and text. (04 Marks)
- d. i) Convert the decimal number 37_{10} to binary form.
 ii) Convert the binary number 0011110 to decimal. (04 Marks)
- 2 a. Select the correct answer :
- Unlike a transistor, a magnetic disk can store data without a continual source of
 A) electricity B) RPMs C) polarity D) light
 - A magnetic disk's tracks are divided into smaller parts called
 A) clusters B) sectors C) bytes D) slices
 - A translator which reads an entire program written in high level language and converts it into machine language code is
 A) Assembler B) Translator C) Compiler D) System software
 - A distributed network configuration in which all data/information pass through center computer is
 A) Bus network B) Star network C) Ring network D) Point-to-point network (04 Marks)
- b. What is an operating system? List and explain different types of operating system based on usage and requirement. (08 Marks)
- c. What is OSI model? Explain the principle used to develop seven layers of OSI model. (04 Marks)
- d. List the basic components of a network. (04 Marks)

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
 2. Any revealing of identification, appeal to evaluator and/or equations written eg. $42+8=50$, will be treated as malpractice.

- 3 a. Select the correct answer :
- Which of the following are not valid identifiers?
A) student_name B) _total C) 2names D) int
 - Which of the following are not character constants?
A) 'C' B) "C" C) 'bb' D) '?'
 - Which field specification is used to read or write short integer?
A) %c B) %d C) %f D) %hd
 - Which function reads data from the keyboard?
A) displayf B) read C) printf D) scanf (04 Marks)
- b. List and explain coding constants. (06 Marks)
- c. What is variable? Explain variable initialization. (04 Marks)
- d. Explain the structure of 'C' program. (06 Marks)

- 4 a. Select the correct answer :
- _____ is used to determine the order in which different operations in an expression are evaluated.
A) Associativity B) precedence C) evaluation D) format
 - Which of the following is not a valid assignment expression?
A) X = 23 B) 4X = 8 = 3 C) Y% = 5 D) x = r = 5
 - Which of the following is not an expression format?
A) assignment B) conditional C) binary D) primary
 - Which of the following has highest precedence?
A) prefix increment B) Multiply C) Modulus D) Assignment (04 Marks)
- b. If a = 2, b = 8, c = 4, d = 10, what is the value of each of the following?
- $a + b / c \cdot d - c / a$ ii) $(b / a) \% c$
 - $a++ + b-- + d++$ iv) $++a + b-- + ++d$ (04 Marks)
- c. Write a program to convert temperature from Fahrenheit to Celsius using the following formula.

$$\text{Celsius} = \left(\frac{100}{180}\right) * (\text{Fahrenheit} - 32) \quad (08 \text{ Marks})$$

- d. Convert the following mathematical expressions into 'C' expressions:
- $a + b \times c$ ii) $\frac{a + b}{2}$ iii) $\sqrt{s(s-a) \times (s-b) \times (s-c)}$ iv) $x^2 + y^2 + 2xy$ (04 Marks)

PART - B

- 5 a. Select the correct answer :
- A function that calls itself for its processing is known as
A) Inline function B) Nested function C) Overloaded function D) Recursive function
 - We declare a function with _____ if it does not have any return type.
A) long B) double C) void D) int
 - Variables inside parenthesis of a function declaration have _____ level access.
A) local B) global C) module D) universal
 - Arguments of a function are separated with
A) comma(,) B) semicolon (;) C) colon (:) D) None of these. (04 Marks)

- b. Explain the different ways of passing parameters to function. (08 Marks)
- c. Write a program to accept two numbers from the user and to add and subtract these two numbers using functions and display the result on the console. (08 Marks)

6 a. Select the correct answer :

- i) Operator used in logical and is
 A) & B) ! C) && D) ||
- ii) Two-way selection is implemented with the _____ statement.
 A) case B) switch C) else if D) if..else
- iii) Which of the following is not a relational operator?
 A) < B) <= C) = D) >=
- iv) The _____ logical operator is true when both the operands are true.
 A) and (&&) B) or (||) C) less than (<) D) >

(04 Marks)

b. Explain the logical operators used in C. (06 Marks)

c. Write a recursive function to find the factorial of a number. (04 Marks)

d. Using flow-chart and syntax, explain pretest and post-test loops. (06 Marks)

7 a. Select the correct answer :

- i) The process through which data are arranged according to their values is known as
 A) arranging B) searching C) listing D) sorting
- ii) The _____ search locates the target item by starting at the beginning and moving towards end of the list.
 A) selection B) binary C) sequential D) ascending
- iii) Which of the following statements assigns the value stored in x to the first element on an array ary?
 A) ary = x B) ary = x[0] C) ary = x[1] D) ary[0] = x
- iv) _____ is an integral value used to access elements of an array.
 A) Constant B) Element C) variable D) index.

(04 Marks)

b. Write a program to sort the elements of an array using bubble sort. (08 Marks)

c. What is two dimensional array? Explain initialization of two dimensional array. (04 Marks)

d. What is string? Explain about the string delimiter. (04 Marks)

8 a. Select the correct answer :

- i) Parallel computing is _____ execution of instructions in a computer system.
 A) Simultaneous B) Serial C) Accurate D) Complete
- ii) Which of the following is not an example of parallel computing in the field of science and research?
 A) Bio-informatics B) Quantum research
 C) Solved grid problem D) Distributed processing
- iii) The individual sectors inside a section directives are specified with the help of which of the following directive?
 A) sections B) region C) segment D) None of these
- iv) The use of threads reduces _____ time of the processor.
 A) idle time B) Memory access time C) latency time D) None of these.

(04 Marks)

b. What are the motivating factors which drives us towards parallel computing? (08 Marks)

c. What are threads? Highlight the need of threads. (08 Marks)
