CHAROTAR UNIVERSITY OF SCIENCE & TECHNOLOGY

First Semester of B. Tech. Examination (CE/IT/EC)

May 2014

CE103 Computer Concepts & Programming

Date: 27.05.2014, Tuesday   Time: 01:30 p.m. To 04:30 p.m.   Maximum Marks: 70

Instructions:
1. The question paper comprises of two sections.
2. Section I and II must be attempted in separate answer sheets.
3. Make suitable assumptions and draw neat figures wherever required.

SECTION - I

Q – 1 (a) Do as directed.   [06]
   1. Evaluate with proper calculation: $(BAD)_{16} = (?)_2$
   2. Design a flow chart: Find maximum between the two integers.
   3. The _____ statement is used to skip part of the statements in a loop and _____ statement is used to jump out of the loop.

(b) What is the correct output of the following code?   [04]

```
(1)  #define X (a*(b+c)/2)        (2)   void main(){
     void main()                            int i=1,j=0;
     {                                       switch(i) {
         int a=2, b=3, c=4;                      case 0,1:    j=1;
         c = 5 + X % 2;                          case 2:      j=2;
         printf("%d",c);                         default:     j=0;
     }                                       }
                                         printf("%d",j);}
```

Q – 2 (a) Compare the following pairs of statements: 1) *while* and *for*   2) *break* and *goto*   [04]

(b) Draw and explain the basic structure of a C program in detail.   [05]

(c) Explain the following functions of *string.h* file with example: [06]
   1) *strlen(s)*   2) *strcpy(s1,s2)*   3) *strcmp(s1,s2)*

OR

Q – 2 (a) What the term Nesting refers to? Explain nested if-else with example.   [04]

(b) List out all categories of operators and explain any two of them.   [05]

(c) Explain the follwoing character testing functions with example: [06]
   1) *isalpha(c)*   2) *isdigit(c)*   3) *tolower(c)*

Q – 3   1. int c[3][3] = { 1,2,3,4,5,6,7,8,9 }; What will be the value of the element c[1][1]?   [02]
   2. Write a C program to check given integer is negative, positive or zero.   [04]
   3. Write a user-defined function **sum_of_even()** that prints sum of even numbers   [04]
      between 1 and 100.

OR

Q – 3   1. char c[15] = {"INDIA ROCKS"}; What will be the value of the element c[0]?   [02]
   2. Write a C program to check whether entered character is vowel or not.   [04]
   3. Define a structure called **TimeStruct** having 3 members called Hour, Minute and   [04]
      Second. Develop a program that would assign values to the individual members and
      display the time in the form 10:40:30.

Q - 4 (a) Mention whether the following statements are True or False. [05]

    1. Syntax error and Logical errors are same.

    2. String variables cannot be used with assignment operator.

    3. A function statement without a return statement is illegal.

    4. If p1 and p2 are declared as pointer to integers, then p2-p1 is invalid statement.

    5. The first element of array **arr** is referred to as **arr[0]**.

(b) **Do as directed.**

    1. Input to a compiler file is called _____. [byte code / source code / object code] [01]

    2. Match the following: [02]

A	B
1. int getw(FILE *stream);	1. Gets a character from stream
2. int getc(FILE *stream);	2. Gets a string from standard input device
3. int getchar(void);	3. Gets an integer from stream
4. char *gets(char *s);	4. Gets a character from standard input device

    3. Classify valid and invalid variable name in **C**. [03]

        (i) float   (ii) wo_m@n   (iii) 9nitaal

        (iv) Row1   (v) basic salary   (vi) Maximum

Q – 5 (a) What is pointer? What is the scale factor of a pointer? [04]

  (b) Differentiate with suitable example: Structure vs Union. [05]

  (c) List out categories of function and explain any two with examples. [05]

OR

Q – 5 (a) Differentiate with suitable example: Array vs Structure [04]

  (b) Explain *call by value* and *call by reference* with example. [05]

  (c) Discuss about *local* variable and *global* variable in detail. [05]

Q - 6 1. City and its railway fare per passenger information from Ahmedabad are given [05] below. Write a C program using switch-case to calculate and print total fare, where number of passengers and initial letter of the city are to be entered by user.

Enter 'D' for Delhi – 1000 Rs	Enter 'K' for Kolkata – 1400 Rs
Enter 'M' for Mumbai – 600 Rs	Enter 'C' for Cochin – 1700 Rs
Enter 'B' for Bengaluru – 1600 Rs	No direct train available in rest of the case.

    2. Write a C program to read marks of 5 subjects out of 100 and find and print total marks and percentage obtained. [05]

OR

Q - 6 1. Write a C program to make a simple calculator using if....else – if **OR** switch-case. [05]

    2. Write a C program to add 3*3 matrices, if A and B both are 3*3 matrices, then [05] resultant matrix C=A+B where $C_{ij} = A_{ij} + B_{ij}$ using 2D array.

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