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P.E.S. College of Engineering, Mandya - 571 401

(An Autonomous Institution affiliated to VTU, Belgaum)

Second Semester, B.E. – Make-up Examination; July – 2016

Computer Concepts and 'C' Programming

(Common to all Branches)

Time: 3 hrs *Max. Marks: 100*

Note: i) Answer **FIVE** full questions, selecting **ONE** full question from each unit.
ii) Missing data if any may be suitably assumed if any.

UNIT - I

1 a. Explain with a neat block diagram, the functional units of a digital computer. 8

b. What are the factors affecting the processing speed? Explain. 7

c. Explain the symbols used in flowchart. Write a flowchart for the process of compiling of 'C' program. 5

2 a. Define a variable. How it is different from a constant? 3

b. Explain implicit and explicit type conversion with example. 5

c. In the following expression, write the hierarchy of computation and mention the operator type, $a*x*x+b*x-c/d > x \&\& Z != 15.0$. 6

d. What is the output of the following program,

main( )
```
{
int i = -3, j = 2, k = 0, m ;
m = ++i && ++j || ++k;
printf ("\n%d%d%d%d", i, j, k, m);
}
```
6

UNIT - II

3 a. Find the output obtained from the following statements assuming string = ' Computer",

i) printf("%s", string);

ii) printf ("% 10.3s", string);

iii) printf ("%.5s" string);

iv) printf(" -% 10.3s", string);

v) printf("% 15.0s", string); 5

b. What are exit-controlled and entry-controlled statements in C? Explain with their general syntax. 8

c. Write a 'C' program to find all the possible roots of a quadratic equation using switch statement. 7

4 a. Differentiate between break and continue statements. 6

b. Write a 'C' program to print in which quadrant the given points lies. Use nested if statements.   6

c. Write a 'C' program to find the reverse of a 5-digit number and check whether the entered number is a palindrome or not.   8

UNIT III

5 a. Define an array. How are they initialized and declared? Write a 'C' program to search an element in an array using binary search.   12

b. Write a 'C' program to read two string constants and check for their equality without using string handling functions.   6

c. Write a note on the following :
   i) strcpy   ii) strcmp.   2

6 a. Write a 'C' program to find the product of 2 matrixes. Also check for the compatibility. Also find the norm of the resultant matrix.   12

b. Write a 'C' program to read '*n*' elements from the keyboard to each of the arrays *x*, *y* and *z* to evaluate the expression, $total = \sum_{i=1}^{n}(x_i * y_i) \Big/ \sum_{i=1}^{n} z_i$.   8

UNIT - IV

7 a. With an example, explain the different ways of passing parameters to the user-defined functions.   10

b. Write a function to sort the given elements using bubble sort and call the function from the main program.   10

8 a. Define a pointer in C. Discuss the advantages of using pointers.   6

b. Write a 'C' Program using pointers to compute the largest of two elements.   6

c. Write a 'C' function to find the factorial of an integer number. Using this function, write the main program to compute binomial coefficient.   8

UNIT - V

9 a. Define a structure. How are they different from arrays? Discuss the three ways of accessing the members of a structure.   8

b. Differentiate between structure and union.   4

c. Write a 'C' program using structures to display the total marks scored in three subjects of five students.   8

10 a. Write a program to store the data read from a keyboard into a file and read the same data from the file to display it on the monitor.   10

b. Explain the following functions with respect to files :
   i) fseek   ii) ftell   iii) fscanf   iv) putc   v) getc   10

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