CS101

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M S RAMAIAH INSTITUTE OF TECHNOLOGY

(AUTONOMOUS INSTITUTE, AFFILIATED TO VTU)

BANGALORE – 560 054

SEMESTER END EXAMINATIONS – DEC 2013 / JAN 2014

Course & Branch	: **B.E.- Common to all branches**	**Semester**	: **I**
Subject	: **Fundamentals of Computing**	**Max. Marks**	: **100**
Subject Code	: **CS101/201**	**Duration**	: **3 Hrs**

Instructions to the Candidates:

- Answer one full question from each unit.

UNIT – I

1. a) List and give examples for the different types of C tokens (08)

   b) Write the output of the following program (04)

```
main()
{
  int x=100;
  printf("%d/n", 10 + x++);
  printf("%d/n", 10 + ++x);
}
```

What is the error in each of the following statements

I.
```
if(m == 1 & n! = 0)
  printf("OK");
```

II.
```
if(x=<5)
  printf("Jump");
```

   c) Explain with examples the user defined types supported in C along with their syntax. (08)

2. a) Differentiate between variables and symbolic constants with example. (06)

   b) Convert the following mathematical expressions into C expressions: (06)

A. $x = \frac{-b+\sqrt{b^2-4ac}}{2a}$

B. $c=\sqrt{a^2+b^2}$

C. $y=\sin(wt)\cos(\frac{w\pi}{t})$

D. $\frac{xy}{x}(3x^3+4x^2+3)$

E. $(m+n)(x+y)$

F. $\left(\frac{ab}{c}\right)\sqrt{\sin wt \cos wt}$

   c) Explain Implicit type conversion and Explicit type conversions with appropriate examples (08)

UNIT-II

3. a) Discuss formatted output with examples for integers and strings (06)

b) Write a C program to find the roots of a quadratic equation using else if ladder (06)

c) Explain switch statement with syntax and Give the final values of x y and z for the following code assuming x=2,y=1 and z=0 as their initial values (08)

```
switch(x)
{
   case 0:
         x=0;
         y=0;
    case 2:
         x=2;
         z=2;
     default:
         x=1;
         y=2;
}
```

4. a) Consider the value y=98.7654, Write the output for the following printf statements (08)

A. printf("%7.4f",y);

B. printf("%7.2f",y);

C. printf("%-7.2f",y);

D. printf("%f", y);

E. printf("%10.2e",y);

F. printf("%11.4e",-y);

G. printf("%-10.2e",y);

H. printf("%e", y);

b) With syntax and flow chart, explain the working of else if ladder (06)

c) Write a C program to perform a desired arithmetic operation using switch statement and declaring choice as char data type. (06)

UNIT-III

5. a) Differentiate between break and continue with example program for each. (06)

b) Write a C program to print the following using for loop (06)

```
* * * * *
 * * * *
  * * *
   * *
    *
```

c) Bring out any four different ways of initializing a two dimensional array Write a program to find the transpose of a matrix. (08)

6. a) Differentiate between while and do while with example. (06)
   b) Write a program to evaluate sine series. (07)
   c) Define array and write a c program to sort the entered list of integer numbers using bubble sort. (07)

UNIT-IV

7. a) Explain any four commonly used string functions with syntax and example program for each. (08)
   b) Write a program to sort n names in alphabetical order. (06)
   c) Explain any two categories of functions in C. (06)

8. a) Write a C program to concatenate two strings without using any string built-in functions. (06)
   b) Illustrate nesting of functions with an example. (06)
   c) Explain any two types of storage classes with appropriate programs and their corresponding output. (08)

UNIT-V

9. a) Bring out the four rules while initializing structure variables at compile time. and also write a C program to declare three structure variables of type complex having two members of type integer name real and magp. Initialize the two structure variables and add their real and imaginary part separately and store the result in the third structure variable. Display all structure variables in "*real* +i *imag*" format. (10)
   b) Fill in the blanks: (04)
      A. A pointer variable contains as its value the _____ of another variable.
      B. The _____ operator is used with a pointer to de-reference the address contained in the pointer.
      C. The _____ operator is called as address operator.
      D. The variables defined in a structure definition are called its_____
   c) Write a C program to find the length of a character string using pointers (06)

10. a) Define structure with an example. Bring out the three ways of accessing members of a structure. (05)
    b) What will be the output of the following program: (07)

```
main()
{
  int a,b,*p1,*p2,x,y,z;
  a=12;
  b=4;
  p1=&a;
  p2=&b;
  x=*p1 *  *p2 - 6;
```

```
 y=4*-*p2/*p1+10;
 printf("a=%d,b=%d\n",a,b);
 printf("x=%d,y=%d\n",x,y);
 *p2=*p2+3;
 *p1=*p2-5;
  z=*p1* *p2-6;
  printf("a=%d,b=%d\n",a,b);
 printf("z=%d\n",z);
}
```

c) Bring out the difference between call by value and call by reference? (08) Write C programs to illustrate them.

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