CS101/201

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M S RAMAIAH INSTITUTE OF TECHNOLOGY

(AUTONOMOUS INSTITUTE, AFFILIATED TO VTU)

BANGALORE – 560 054

SEMESTER END EXAMINATIONS – JANUARY 2015

Course & Branch	**: B.E.:- (Common to All Branches)**	**Semester**	**: I / II**
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) What is a variable? What are the conditions need to be followed to declare a variable. Give examples. (08)

   b) i) What would be the value of x & y after execution of following statement? Explain. (06)

```
int x,y=10;
char z='a';
x=y+z;
y=x-z;
```

   ii) Write the output of the following program

```
main()
{
  int x=30;
  printf("%d", x++ +x);
  printf("%d", x-(--x));
}
```

   c) What is a constant? Explain types of constant? (06)

2. a) Explain increment and decrement operators with examples. What are the rules to be followed for increment and decrement operators? (08)

   b) i) Evaluate the following expression. Identify whether the expression is true or false. (08)

   a) 5+5==10 || 1 +3==5 b) 10!=15&&!(10<20)||15>30

   ii) What is the output of the following segment when executed?

```
int m=-14, n=3;
printf("%d",m/n*10);
n=-n;
printf("%d",m/n*10);
```

c) Write a C program to print the highest value between two numbers using conditional operator. (04)

UNIT – II

3. a) Explain formatted input and output function for integers with example. (08)

b) Write a C program that reads the value from the terminal and prints the largest of three numbers using nested-if statement. (06)

c) Explain *goto* statement. Write a C program to print the square root of three numbers using *goto* statement. (06)

4. a) Explain *else-if* ladder with the syntax and flowchart. (07)

b) Write a C program to read marks from the terminal print the grades depending upon marks given below using *switch* statement: (07)

MARKS	GRADES
80-100	Distinction
60-79	First division
50-59	Second division
40-49	Third division
0-39	Fail

c) Write a C program to read four values a,b,c,d from terminal and evaluate the ratio of (a+b) to (c-d) and print the result, if (c-d) is not equal to d. (06)

UNIT – III

5. a) Explain nesting of *for* loops with syntax. (06)

b) Write a C program to print all the prime numbers between 1 to *n*, where '*n*' is the value supplied by the user. (06)

c) Differentiate between *while* and *do while* with appropriate example. (08)

6. a) Define array. Explain how to declare and initialize "COMPUTER" through one-dimensional array along with the syntax. (06)

b) What is the output of the following program? Explain. (06)

```
main( )
{
  char string[ ]="HELLO WORLD";
   int m;
   for(m=0; string[m]!='\0';m++)
   if((m%2)==0)
   printf("%c, string[m]);
  }
```

c) Write a C program to multiply the elements of 2 *nxn* matrix. (08)

UNIT – IV

7. a) Define string. Explain the declaration and initialization of string variables with example. (08)

   b) Considering the string **"The sky is the limit"**, determine what output of the following program segments will be: (04)

      A. printf ("%s", string);

      B. printf("%25.10s", string);

      C. for(i=0;string [i]!='\0';i++)
         printf ("%c", string[i]);

      D. printf("%c", strlen(string));

   c) Write a C program that reads a string and prints if it is a palindrome or not. (08)

8. a) Explain the elements of function definition in detail with syntax. (06)

   b) Write a C program to calculate the standard deviation of an array of values. The array elements are read from the terminal. Use function to calculate standard deviation and mean. (08)

   c) What are Automatic variables? Write a multifunction program program to illustrate how automatic variables work. (06)

UNIT – V

9. a) Define a structure with an example. Bring out three differences between arrays and structure. (06)

   b) Given the following declaration: (07)

```
typedef struct abc
{
char x;
int y;
float z[10];
} ABC;
```

   State which of the declaration are valid and invalid. If it is invalid give reason?

      A. struct abc. v1;

      B. struct abc v2[10];

      C. struct ABC v3;

      D. ABC a,b,c;

      E. ABC a[10];

   c) Write a C program to reverse a character string "INDIA" using pointers. (07)

10. a) Define a pointer and bring out the rules of pointer operations. (06)

b) What are the output of the following program. (08)

```
main()
{
  int a=7,b=8,*p,*q;
  p=&a; q=&b;
  a=--(*p)+(*q);
  b=*p+(++(*q));
  printf("%d",++a);
  printf("%d",++(*p));
  printf("%d",--(*q));
  printf("%d",--b);
}
```

c) Write a C program to swap two numbers using call by reference. (06)

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