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B.M.S. College of Engineering, Bengaluru-560019

Autonomous Institute Affiliated to VTU

May 2023 Semester End Main Examinations

Programme: B.E. **Semester: I**
Branch: Common to All Branches **Duration: 3 hrs.**
Course Code: 22CS1ESICP **Max Marks: 100**
Course: Introduction to C-Programming **Date: 19.05.2023**

Instructions: 1. Answer any FIVE full questions, choosing one full question from each unit.
2. Missing data, if any, may be suitably assumed.

UNIT - I

1 a) What is a flowchart? Explain different symbols used in flowchart. Write a flowchart to check whether the given number is odd or even. **7**

b) Find the result of each of the following expressions with i=4, j=2, k=6. **5**
i) k*=i+j ii) j=j/=k iii) i%=i/3 iv) m= i+(j=2+k)
v) a=i*(j/=k/2)

c) Write a C program to enter basic salary. Calculate gross salary with 5% DA and 15% TA on basic salary. Display calculated gross salary **8**

UNIT - II

2 a) Write the syntax of Switch statement and explain how it is different from if-else statement. **5**

b) Write the output of the following code snippets. **8**

i.
```
#include<stdio.h>
int main()
{
  int n;
  for(n = 7; n!=0; n--)
    printf("n = %d", n--);
  getchar();
  return 0;
}
```

ii.
```
#include <stdio.h>
int main()
{
   int c = 5, no = 1000;
   do {
      no /= c;
   } while(c--);
  printf ("%d\n", no);
  return 0;
}
```

c) Write a C program to find the sum and average of first n natural numbers. **7**

UNIT - III

3 a) With suitable example, explain how two-dimensional arrays can be created. **4**

b) Write a C program to read the n numbers of values in an array and display it in reverse order. **6**

c) Write a C program to input a n×n matrix and print the sum of principle diagonal elements of the matrix. **10**

UNIT - IV

4 a) Explain different ways of passing parameters to a function. **5**

b) Write a program to reverse the given integer using function. **7**

c) Write the output of the below code snippets **8**

i)

```
#include <stdio.h>
int fun(int n)
{
   int i, j, sum = 0;
   for(i = 1;i<=n;i++)
      for(j=i;j<=i;j++)
         sum=sum+j;
   return(sum);
}

int main()
{
   printf("%d",fun(15));
   getchar();
   return 0;
}
```

ii)

```
#include <stdio.h>

void func(int a, int b)
{
a += b;
printf("In func,a=%d b=%d\n",a,b);
}
int main(void)
{
 int x = 5, y = 7;

 func(x, y);
printf("In main,x=%d y=%d\n",x,y);
   return 0;
}
```

OR

5 a) What is a String? Explain different ways of initializing the strings. **5**

b) Write a C Program to compare two strings using strcmp(). **7**

c) Write a program to convert an upper-case letter into lower-case and vice-versa in a given string without using built-in function. **8**

UNIT - V

6 a) Explain the concept of passing structures to a function with an example. **5**

b) Write a C program to declare a structure circle containing data members as radius, area, perimeter. Accept radius for from user and find out perimeter and area. Display the data. **10**

c) Write the output of the following code **5**

```
#include <stdio.h>
 struct Point {
   int x, y;
};
 int main()
{
   struct Point p1 = { 0, 1 };
    // Accessing members of point p1
   p1.x = 20;
   printf("x = %d, y = %d", p1.x, p1.y);
    return 0;
}
```

OR

7 a) What is pointer? How to initialize pointers? Give examples. **5**

b) Write a program to accept two numbers from user and perform addition, subtraction, multiplication and division operations using pointer. **10**

c) Write the output of the following code snippet **5**

```
#include<stdio.h>
int main()
{
 int x, y;
 int *ptr;
 x=100;
ptr=&x;
y=*ptr;
printf("%d",y);
return 0;
}
```

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