2017/EVEN/08/24/MCS–201/548

UG Even Semester (CBCS) Exam., May—2017

COMPUTER SCIENCE

(2nd Semester)

Course No. : MCSCC–201

(Programming in C)

Full Marks : 70
Pass Marks : 28

Time : 3 hours

The figures in the margin indicate full marks for the questions

Answer **five** questions, taking **one** from each Unit

UNIT—I

1. *(a)* Explain the concept of variables, constants and data types in C with example. 2+2+2=6

(b) Write a C program to compare three numbers using nested if ... else. 4

(c) Write a C program to print first and last digit of a five-digit number. 4

2. *(a)* Write a C program to show the purpose of BREAK statement and explain your program step by step. 1+3=4

(b) Two variables *a* and *b* contain values 10 and 20. Write a program to interchange the contents of *a* and *b* *(i)* using a third variable and *(ii)* without using a third variable. 3+3=6

(c) Determine the hierarchy of operators and evaluate the following expression : 2

i 2 3/4 4/4 8 2 5/8

(d) What will be the output of the following program? 2

```
main( )
{
char ch;
int a;
float b;
printf (“bytes occupied by
                ch=%d\n”, sizeof (ch));
printf (“bytes occupied by
                  a=%d\n”, sizeof (a));
printf (“bytes occupied by
                  b=%d\n”, sizeof (b));
}
```

UNIT—II

3. *(a)* What is a function? Give an example. Why we use function? 2+2+2=6

(b) Write a function to calculate square of a number. 4

(c) Write a program to find factorial of a given number using recursion. 4

4. *(a)* Describe in detail the difference between call by value and call by reference with example. 2

(b) Write a function which receives a float and an integer from main( ), finds the product of these two and returns the product which is printed through main( ). 3

(c) What will be the output of the following program? 9

```
main( )
{
int i=3,   j,    k;
j=&i;
k=&j;
printf("\n Address of i=%u", &i);
printf("\n Address of i=%u", j);
printf("\n Address of i=%u",  k);
printf("\n Address of j=%u", &j);
```



```
printf("\n Address of j=%u", k);
printf("\n Address of k=%u", &k);
printf("\n Value of j=%u", j);
printf("\n Value of k=%u", k);
printf("\n Value of i=%d", i);
printf("\n Value of i=%d",  (&i));
printf("\n Value of i=%d",  j);
printf("\n Value of i=%d",   k);
}
```

UNIT—III

5. *(a)* What will be the output of the following programs? 5+2=7

(i)

```
main( )
{
int num[ ]={24, 34, 12, 44, 56, 17};
int i;
for (i=0; i 5; i++)
{printf("\n address=%u", &num[i]);
printf("element=%d%d",
                    num[i], (num+i));
printf("%d%d",  (i + num), i[num]);
}}
```

(ii)

```
main( )
{
int i=4,  j,  k;
j=&i;
j=j+1;
```

```
printf("%d", j);
j=j+3;
printf("%d", j);
}
```

(b) Define an array. Write the syntax to declare and initialize one-dimentional array and two-dimentional array with suitable example. 2+2+2=6

(c) Write output of the following program : 1

```
main( )
{
int x;
x=5;
x=10;
printf("\n x=%d", k);}
```

6. *(a)* Write a program to pass entire array to a function. Explain your program. 4

(b) Write a program to find the addition of two 2-D array. 6

(c) What is an array of pointers? Explain with an example. 4

UNIT—IV

7. *(a)* List some use of structure and union. 3+3=6

(b) Write the syntax to declare a structure. 3

(c) How are structure elements stored in memory? Explain with example. 5

8. *(a)* Can one structure be nested within another? Explain your answer with example. 2+5=7

(b) Write a program to explain the concept of structure pointer. 7

UNIT—V

9. *(a)* Explain the following file opening modes : 5

(i) "W"

(ii) "a"

(iii) "r+"

(iv) "W+"

(v) "a+"

(b) Write a program to take the contents of a file and copy them into another file, character by character. 9

10. *(a)* Name different operations that can be carried out on a file. 5

(b) Explain the following functions with example : 3×3=9

(i) putc( )

(ii) fseek( )

(iii) getch( )

★ ★ ★