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

COMPUTER SCIENCE

(2nd Semester)

Course No. : MCS–201 (C)

(Program with C)

Full Marks : 75
Pass Marks : 30

Time : 3 hours

The figures in the margin indicate full marks for the questions

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

UNIT—I

1. *(a)* Name and describe basic data types in C. 9

(b) Write a C program to print "Hello". 2

(c) What is the purpose of the do-while statement? How does it differ from the while statement? 4

2. *(a)* What is a keyword? Give an example. 2

(b) Temperature of a city in Fahrenheit degree is entered through the keyboard. Write a program to convert and print the temperature in Centigrade degree. 4

(c) Write a program that print the even numbers from 1 to 100. 5

(d) Write a program to round off an integer *i* to the next largest multiple of another integer *j*. 4

UNIT—II

3. *(a)* What is user-defined function? How is it different from C library functions? 2+2=4

(b) Explain call-by-value and call-by-reference with examples. 3+3=6

(c) Explain any *two* of the following classes of variables : 2½×2=5

(i) Automatic

(ii) External

(iii) Static

4. *(a)* Write a program to find the average marks obtained by a class of 30 students in a test using array structure. 5

(b) Write a function to calculate the factorial value of a positive integer using recursion. 5

(c) Define array and write the syntax for declaring one-dimensional array. 2½+2½=5

UNIT—III

5. *(a)* What will be the output of the following program? Explain. 5+3=8

```
main( )
{
int arr [ ]   {10, 20, 30, 45, 67, 56, 74}
int   i,   j;
i   & arr [1]
j   & arr [5]
printf ("% d  % d", j–i,   j     i );
}
```

(b) Differentiate between the following : 2+2=4

(i) P and P

(ii) P and P

(c) What is the relationship between an array name and a pointer? 3

6. *(a)* What are pointer and pointer-to-pointer? Explain with suitable examples. 5

(b) Explain the uses of indirection operator and address of operator. 2½+2½=5

(c) What is the output of the following program? Consider the address of i 65524 and explain. 5

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

UNIT—IV

7. *(a)* Define a structure. How does structure differ from an array? Write the syntax of defining a structure. 2+2+2=6

(b) What is union? How does it differ from structure? 5

(c) Ten floats are to be stored in memory. What would you prefer an array or a structure? Why? 4

8. *(a)* Write a program to explain the concept of passing structure to a function. 6

(b) How can the value of a structure variable be assigned to another structure variable? Explain with a suitable example. 5

(c) Explain self-referential structure. 4

UNIT—V

9. *(a)* Write a C program to compare two files specified by the user, displaying a message indicating whether the files are identical or different. 8

(b) Write a program to concatenate two files. 7

10. *(a)* What is command-line preprocessor? Explain with suitable example. 7

(b) What is meant by opening a data file? How is this accomplished? 5

(c) Write a brief note on macros. 3

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