C

(Printed Pages 7)

Roll No.

19/1558

B.C.A. Second Semester

Examination, 2019

First Paper

(C Programming)

Time : Three Hours *Maximum Marks : 75*

Note: Attempt any **five** questions. **All** questions carry equal marks.

Note : The answers to short answer type questions should not exceed 200 words and the answers to long answer type questions should not exceed 500 words.

1. (a) How values can be stored in a 1-Dimensional array. Give example of various methods. 6

(b) Consider a 20×5 two-dimensional array Marks which has base address = 1000 and the word size = 2. Now compute the address of the element Marks [18, 4] assuming that the elements are stored in row major order. 2

(c) Write a program in 'C' language to delete a number from a given location in an array. 7

2. (a) What happens when an array is initialized with: 2

(i) Fewer initialisers as compared to its size?

(ii) More initialisers as compared to its size?

(b) What does array name signify? How is an array represented in memory? 2+4=6

(c) Write a program in 'C' language to count the total number of non-zero elements in a two-dimensional array. 7

3. (a) Find output of the following program

```
main ( )
{int arr [ ] = {1, 2, 3, 4, 5};
int * ptr, i;
ptr = & arr [2];
*ptr = -1;
*(ptr + 1) = 0;
*(ptr - 1) = 1;
printf ("/n Array is : ");
for (i = 0; i < 4; i ++)
    printf (" % d", * (arr + i));
}
```

4

(b) Compare pointer and array name. 4

(c) Differentiate between a variable address and a variables value. How can we access a variable's address and its value using pointer? 7

4. (a) Explain with an example how structures are initialized? 4

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(b) What is the use of self referential structure? Explain by using suitable example. 4

(c) Explain utility of typedef keywords in structures. Also explain in which applications unions can be useful. 7

5. (a) Differentiate between a character array and a string by using suitable example. 6

(b) Differentiate between gets ( ) and scanf ( )? 2

(c) Write syntax and role of following functions: 7

(i) strcat ( )

(ii) strcmp ( )

(iii) strlen ( )

(iv) strcpy ( )

(v) strstr ( )

(vi) strncpy ( )

(vii) strchr ( )

6. (a) Why should we incorporate preprocessor directives in our programs? Give at least one example to support your answer. 4

(b) What happens when the argument passed to the macro has multiple white-space characters? 4

(c) Write in short about following: 7

(i) # undef

(ii) # line

(iii) # pragma

(iv) # define

(v) # if

(vi) # endif

(vii) # error

7. (a) What is a file? Differentiate between a text file and a binary file. 2+2=4

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(b) Explain the different modes in which a file can be opened in a 'C' program. 4

(c) Explain the following functions: 7

(i) fopen ( )

(ii) fclose ( )

(iii) fseek ( )

(iv) fewnid ( )

(v) feof ( )

(vi) fgetc ( )

(vii) fputc ( )

8. (a) Differentiate between call by value and call by reference parameter passing in a function. Explain by giving suitable example. 8

(b) Differentiate between pointers to constants and constant to pointers. 3

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(c) Find the output of the following codes: 4

```
main ( )
{ int A [ ] = {1, 2, 3, 4, 5};
int * p, i;
P = A + 4;
for (i = 4; i >= 0; i - -)
    printf ("\n % d", * (p - i));
}
```