END TERM EXAMINATION

FIRST SEMESTER [BCA] Nov.-Dec. - 2019

Paper Code: BCA105   **Subject: Introduction to Programming Languages Using C**
Time: 3 Hours   **Maximum Marks: 75**

Note: Q. No. 1 is compulsory. Attempt one question from each unit.

Q1 Answer briefly [Any Five]:-   **[5x5=25]**

a) Discuss pre processor directives in c.

b) What do you understand by dynamic memory allocation? Explain malloc(), calloc(), realloc() and free() functions with their syntax and a suitable example.

c) Write a short note on storage classes in c.

d) Discuss the various operators in c.

e) Explain the different loop structures in c through suitable examples.

f) Distinguish between a structure and a union through a suitable example.

UNIT I

Q2. a) Explain the if..else statement with all its variations. Compare it with switch..case. Write a c program that demonstrates the difference between the two.   (7)

b) Write a c program to test whether a given integer is a prime number or not. Display an appropriate message in the output.   (5.5)

Q3. a) What do you understand by type casting? Why is it required? Explain using an example.   (6)

b) Write a C program to display the following pattern (for n lines):   (6.5)

```
1
1    2
1    2    3
1    2    3    4
1    2    3    4        5
```

UNIT II

Q4. a) Write a short note on recursion.   (5.5)

b) Write a complete c program that displays the first n Fibonacci numbers through a recursive function Fibonacci.   (7)

Q5. a) Differentiate between call by value and call by reference methods of passing parameters to functions using an appropriate example.   (7)

b) Write a c function that searches for an element x in an array of integers.   (5.5)

UNIT III

Q6. a) What are structures and what are Bit Field structures? How are they different from Unions?   (4)

b) Explain how structures can be passed as parameters to functions, by value and by reference? And how they can be returned from function? (6)

c) What do you understand by pointers to structures? How can we access the elements of a structure through a pointer to the structure?   (2.5)

[P.T.O.]

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Q7.a) Write a c program that creates and displays a text file on screen. (7.5)
b) Discuss the following file handling functions, through syntax and examples: (5)
i) fopen()
ii) fclose()
iii) lseek()
iv) fwrite()
v) fread()

UNIT IV

Q8. a) Write a c program that counts the number of occurrences of a character in a given string without the use of any string handling library functions. (7.5)
b) Explain any five string handling functions from string.h with syntax and example. (5)

Q9. a) Write a short note on header files. (2.5)
b) Explain any two functions each from the following header files: Stdio.h, math.h, stdlib.h, ctype.h, string.h [10]

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