

19. (i) What is a header file ? What are the advantages of using header files ? 4
- (ii) Explain the working of the following statements with example : 4
- (a) Exit ()
  - (b) Break
  - (c) Continue
  - (d) Local and static variables
- (iii) Explain the following : 4
- (a) Time complexity
  - (b) Big-oh-notation

3600

Roll No. ....

BCA-102(N)

**B. C. A. (First Semester)**  
**EXAMINATION, Dec., 2014**

(New Course)

Paper Second

PROGRAMMING PRINCIPLE AND ALGORITHM

Time : Three Hours ]

[ Maximum Marks : 75

**Note :** Section A is compulsory. Attempt any *eight* questions from Section B and *one* question from Section C.

**Section—A**

1. Determine the value of each of the following expressions if: 4

$$a = 5, b = 10, c = -6$$

- (i)  $(a > b) \& \& (a < c)$
- (ii)  $(a > b) !! (b == c)$
- (iii)  $(a == c) ! b > a$
- (iv)  $((b > 15) \& \& (c < 0) !! a > 0)$

2. What is the conditional operator ? Write a program to find out the largest of the three numbers with the help of conditional operator. 4
3. Distinguish between formal and actual parameter with example. 2
4. Distinguish between variable and keyword with example. 2
5. Write an algorithm that accept two positive integer numbers  $n_1$  and  $n_2$  and print prime number between  $n_1$  and  $n_2$ . 2
6. What is the purpose of assignment statement ? 1

## Section—B

7. What are input and output functions available in C language ? How is the formatted input-output done ? Explain with example. 6
8. Explain the arithmetic, relational and modulo operator used in C. 6
9. Write a function to calculate factorial value of any integer entered by key board. 6
10. What do you understand by Algorithm ? Write down the important features of algorithm. 6
11. What is Recursion ? Explain with suitable example. 6
12. Write a C program which find and print all three digit numbers which are equal to the sum of the cubes of their digits For example ( $153 = 1^3 + 5^3 + 3^3$ ). 6
13. How many types of data are available in C ? What is the size of each data type ? 6

14. Write a program to find whether the alphabet is a vowel or constant. 6
  15. Write a program to print a given triangle. 6
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1
0 1
1 0 1
0 1 0 1
1 0 1 0 1

```

16. What are the advantages of writing the pseudo-code before writing a program ? Explain with the help of a suitable example.

17. Explain the following : 6

- (i) While-do statement
- (ii) Switch statement
- (iii) For-loop

## Section—C

18. Write a menu driven program which has the following options :

- (i) Generate Fibonacci series
- (ii) Odd or even
- (iii) Generate a table of given number
- (iv) Exit

Once a menu item is selected the appropriate action should be taken and once this action is finished the menu should reappear. Unless the user selects the exit option the program should continue to work.

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