

Total Pages : 4

**End Semester Examination of Semester-I, 2015**

**Subject : BCA**

**Paper : 1111 (Programming in C)**

**Full Marks : 70**

**Time : 3 Hrs**

*The figures in the margin indicate the marks corresponding to the question*

*Candidates are requested to give their answers in their own word as far as practicable.*

*Illustrate the answers wherever necessary.*

**Group A**

1. Answer any five questions : 2x5=10
- a) What is qualifier? Give an example.
  - b) Why a switch statement can always be replaced by a series of if ... else statement?
  - c) What is the difference between while loop and do while loop?
  - d) Write down any two disadvantages of an array.
  - e) What is dummy argument? Give example.
  - f) What is size of operator? Give example.
  - g) What is the difference between post and pre-increment?

( 2 )

h) Give the output of following program segment:

```
for (p = 10; p > 0;)
```

```
    p = p - 1;
```

```
    printf("%f", p);
```

### Group B

Answer any five questions :

5x4=20

2. Distinguish between (\*m)[5] and \*[5].
3. Describe the use and limitations of the function getch and putchar. 2+2
4. What is the value of Z and Y if the value of x = 11010101 and w = 01101010. The  $Z = x \& w$  AND  $Y = x \ll 2$ . 2+2
5. What are storage in C?
6. Differentiate pointer to array and array to pointer.
7. Write a C program to find the GCD of two numbers.
8. Clearly differentiate between function prototype, function definition and function call.

### Group C

Answer any four questions :

4x10=40

9. a) Why we use %S specifies in a C-language? 1
- b) What is the difference between a function declaration and a function definition? 3

- c) What is the function of `strcpy()` and `strcat()`? Give an example of each. (1+1)+(2+2)
10. Discuss briefly the operators in C with suitable example.
11. a) What is dynamic memory allocation?  
b) What is its advantage over static memory allocation?  
c) Write a program to find the largest of n numbers using dynamic memory allocation. 2+2+6
12. Write a program to find all the Armstrong numbers between 1 to 1000. 10
13. a) What is recursive function? What is the essential condition of recursion? What are its advantages and disadvantages?  
b) For all non-negative values of m and n, the Ackerman function is defined as :
- $$\text{Ack}(m, n) = \begin{cases} n+1 & \text{if } m = 0 \\ \text{Ack}(m-1, 1) & \text{if } m \neq 0 \text{ but } n = 0 \\ \text{Ack}(m-1, \text{ack}(m, n-1)) & \text{if } m \neq 0 \text{ \& } n \neq 0 \end{cases}$$
- Write a recursive C function to implement `Ack(m, n)`. (1+2+2)+5
14. a) What is the NULL character and what is its use, in the context of strings?  
b) Explain, with example, how a string is declared and initialized.

( 4 )

- c) Write a C program which converts lowercase characters of a string to uppercase and vice-versa e.g. TestExam15 is converted to tESTeXAM15. Note that 15 remains unchanged. 2+2+6

