

Ref. No.: EX/IT/T/111/2017(S)  
BACHELOR OF INFORMATION TECHNOLOGY  
EXAMINATION, 2017  
1<sup>st</sup> YEAR 1<sup>st</sup> SEMESTER **Supplementary**  
**Introduction to Programming**

Time: 3 Hours

Full Marks: 100

Answer question number 1, 2 and any FOUR questions from question 4 to 10.

NOTE:

- Please make your answer script clean.
- Write all parts of a question in a single place.
- Give the corresponding output of your program whether mentioned or not, when you are asked to write a program.
- Write your program in such a way that user will provide input based on the problem.
- Avoid printing your output from any function except main().

1. Write short notes on: 6 x 5 = 30
  - a) Programming Paradigms
  - b) Hierarchy Chart
  - c) File Handling
  - d) Structure and Union
  - e) Procedural Programming
  - f) Enum and Const
  
2. Write difference between: 6 x 5 = 30
  - a) Algorithm and Flowchart
  - b) Break and Continue
  - c) Call by reference and Call by value
  - d) Character array and String
  - e) Do-while and While
  - f) Array name and Pointer
  
3. Write a menu driven program to maintain the purchase records of books for a library. For each book, the records to be maintained are Name of the book, ISBN, Author of the book, No. of copies purchased and the price of the book. Your program will accept records for 10 books and stored in memory. It will also print all or a specific record based on the menu options. 10
  
4. Write a program that will accept marks of 50 students in 6 different subjects and display the total marks of each student, highest marks of each subject and highest mark among all the subjects for each student. 10

5. Write a program to print the following pattern for line number 3. The line number will be the user input.

```
1                1
1   2           2   1
1   2   3   2   1                                10
```

6. Write a recursive function to calculate the following series. The no. of terms should be the user input.

$$S = (1/2!) - (2/2! + 2/3!) + (3/2! + 3/3! + 3/4!) - (4/2! + 4/3! + 4/4! + 4/5!) + \dots$$

10

7. Write a program to create another number from a number by changing each of its digits to its next one. For example, 51907 should be converted to 62018.

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8. Write a program to print all three digit Krishnamurthy numbers. A Krishnamurthy number is one whose sum of factorial of digits equals to the number itself. For example,  $145 = 1! + 4! + 5! = 1 + 24 + 120 = 145$

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