

**B TECH**  
**(SEM II) THEORY EXAMINATION 2018-19**  
**COMPUTER SYSTEM & PROGRAMMING IN C**

Time: 3 Hours

Total Marks: 100

Note: 1. Attempt all Sections. If require any missing data; then choose suitably.

**SECTION A**1. Attempt all questions in brief. 2 x 10 = 20

a. Explain various generation of computers.

b. Convert the following:

i. $(1310)_{10} = ()_8$	ii. $(23.DA)_{16} = ()_2$
iii. $(702)_8 = ()_{10}$	iv. $(56.12)_8 = ()_2$

c. Write the difference between macro and function.

d. Differentiate between the structure and union.

e. Write the code of for loop to display the series:

1, 4, 9, 16, ... upto  $10^{\text{th}}$  terms.

f. What is the role of dynamic memory allocation?

g. What do you mean by formatted output in C language ? Explain with example.

h. Define the algorithm. Write the characteristic of algorithm.

i. Define pointer. Compute the value of p when  $p = p - 3$ , where is the float pointer and p contain address 1654.j. Evaluate the expression:  $x = 23/2.5 + 34*3 - 8.1$ , where data type of x is int.**SECTION B**2. Attempt any three of the following: 10x3=30

a. Explain block diagram of digital computer in detail. Explain different types of computer memory.

b. Explain storage classes in C language with suitable example. Explain the structure of C program.

c. WAP to define the function Fibonacci() to compute the sum of first 100 Fibonacci numbers.

d. What do you mean by sorting? Write a program in C to sort the given n numbers. Also draw the flowchart for the same.

e. Write the difference between call by value and call by pointer. WAP to create an array dynamically and compute the sum of elements. Write the difference between calloc() and malloc().

**SECTION C**3. Attempt any one part of the following: 10x1=10

a. Explain goal and purpose of computer system. Explain types and function of operating system.

b. Define the flowchart. Explain various symbols of flowchart. Draw the flowchart to display all the prime numbers between 50 and 500.

4. Attempt any one part of the following: 10x1=10

a. Explain different types of data types in C language. Explain the difference between type conversion and types casting. Explain escape sequences in C language.

b. What are different types of operators in C language? Explain with example. Discuss the significance of each. What do you mean by operator precedence and associativity? Explain with example.

- 5. Attempt any *one* part of the following: 10x1=10**
- Write the difference between the entry controlled and exit controlled loop. WAP in C to count the number of digits in the given number.
  - Explain switch statement. What are limitations of switch statement. Write a program using switch statement to check whether the given number is odd or even.
- 6. Attempt any *one* part of the following: 10x1=10**
- WAP in C to read a  $n \times m$  matrix using array and compute the following
    - Sum of elements of both diagonal.
    - Sum of all elements of the matrix.
  - Write a program to read two strings from the users. Define the function `xstrcat()` to concatenate the two strings. Also explain five string handling library functions.
- 7. Attempt any *one* part of the following: 10x1=10**
- WAP to display the following pattern in C:  
9  
9 8 9  
9 8 7 8 9  
9 8 7 6 7 8 9  
9 8 7 6 5 6 7 8 9
  - Write the various input function used in file handling in C. A file named DATA contains a series of integer numbers. Write a program to read these numbers and then write all "positive " numbers to a file to be called FIRST and all "negative" numbers to a file to be called SECOND.