

B.Tech I Year (R13) Supplementary Examinations December 2017

**PROBLEM SOLVING COMPUTER PROGRAMMING**

(Computer Science &amp; Engineering)

Time: 3 hours

Max. Marks: 70

**PART – A**

(Compulsory Question)

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1 Answer the following: (10 X 02 = 20 Marks)

- (a) Define algorithm and mention the properties of an algorithm.
- (b) What is an identifier in C?
- (c) Describe associativity of operators with appropriate example.
- (d) Write a C program to print all the ASCII values and their equivalent characters using while loop. The ASCII values vary from 0 to 255.
- (e) Explain call by reference mechanism.
- (f) How two dimensional arrays are represented in the memory?
- (g) Illustrate Bitwise shift-left operator with a neat diagram.
- (h) Define enumerated type in C.
- (i) What is function pointer in C.
- (j) Write a statement to open a file in read mode.

**PART – B**

(Answer all five units, 5 X 10 = 50 Marks)

**UNIT – I**

- 2 (a) Describe different computing environments with suitable diagram.
- (b) Explain in detail about the system development life cycle.

**OR**

- 3 (a) What are the stages of problem solving? Explain.
- (b) Explain top-down design process in detail.

**UNIT – II**

- 4 (a) Explain the structure of C program.
- (b) Illustrate the concept of different loops in C with syntax and flowcharts.

**OR**

- 5 (a) Write an algorithm for the generation of Fibonacci sequence.
- (b) What is type conversion? Explain the different types of conversion in detail.

**UNIT – III**

- 6 Write a C program to multiply two 3X3 matrices.

**OR**

- 7 Every integer can be expressed as a product of prime numbers. Design an algorithm to compute all the prime factors of an integer n.

**UNIT – IV**

- 8 Define C string. Discuss in detail about standard string manipulation functions.

**OR**

- 9 What is structure in C? How it is different from an array? Explain with suitable example.

**UNIT – V**

- 10 Define single linked list. Explain the insertion of new node into a single linked list at different possible locations.

**OR**

- 11 Discuss in detail about standard library functions for files in C.

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