

Code No: Z0121/R07

**Set No. 1**

**I B.Tech Supplementary Examinations, December 2012**  
**C PROGRAMMING AND DATA STRUCTURES**  
( Common to Civil Engineering, Electrical & Electronics Engineering,  
Electronics & Communication Engineering, Computer Science &  
Engineering, Chemical Engineering, Electronics & Instrumentation  
Engineering, Bio-Medical Engineering, Information Technology, Electronics  
& Control Engineering, Computer Science & Systems Engineering,  
Electronics & Telematics, Electronics & Computer Engineering,  
Aeronautical Engineering, Instrumentation & Control Engineering and  
Bio-Technology)

Time: 3 hours

Max Marks: 80

Answer any FIVE Questions  
All Questions carry equal marks

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1. Write a 'C' program to print a table of the binary, octal and hexadecimal equivalents of the decimal numbers in the range 1 through 256. [16]
2. What is a function ? What are the different types of functions? Explain function with no argument and no return type with an example. [16]
3. Write a program to multiply  $M * N$  and  $N * M$  matrix. [16]
4. (a) Write a program to store and print name, address ,rollno using structures.  
(b) What are the differences between structure and unions. Explain [8+8]
5. (a) Write the syntax for opening a file with various modes and closing a file .  
(b) Explain about file handling functions . [8+8]
6. What is the advantage of external sort ? Explain with any one example . [16]
7. Explain the procedure for converting an infix expression to postfix with an example. [16]
8. (a) What is a binary tree? Give the representation of binary tree?  
(b) What are the common operations done in a binary tree. Explain any one with example. [8+8]

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**Set No. 2**

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Time: 3 hours

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Answer any FIVE Questions  
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1. (a) What are the different flowchart symbols available in C. Explain  
(b) Draw a flowchart to add two numbers. [10+6]
2. (a) List and explain the purpose of standard header files available in 'C'.  
(b) What is a preprocessor statement? How it is utilized in 'C' programming? [8+8]
3. Write a program and explain the working of malloc and calloc function. [16]
4. Create a structure containing five strings address1, address2, city, state and zip.  
Create a type def called record that can be used to create instance of structure. [16]
5. Explain the operation of random access file , mention its advantage and disadvantage with example. [16]
6. (a) How linear search is different from binary search? Explain  
(b) Write a program to perform bubble sort for given elements {15,7,12,2,13}. [6+10]
7. Explain the tower-of-hanoi problem. [16]
8. Write an algorithm to determine if a binary tree is  
(a) Strictly binary  
(b) Complete  
(c) Almost complete. [16]

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**Set No. 3****I B.Tech Supplementary Examinations, December 2012****C PROGRAMMING AND DATA STRUCTURES**

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**Time: 3 hours****Max Marks: 80**

**Answer any FIVE Questions**  
**All Questions carry equal marks**

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1. (a) Write a 'C' program to find the squares of N numbers using do - while.  
(b) Write a 'C' program to convert Decimal Number to Octal Number. [8+8]
2. What is the working of following functions  
(a) ceil(x)  
(b) exp(x)  
(c) rand()  
(d) toascii(x) [16]
3. Write a program to find rank of a matrix . [16]
4. Write a 'C' program to evaluate Complex number subtraction using structures and pointers. [16]
5. Write a program to collect the data from the user and store it in a data file. [16]
6. Write a program to sort the elements in an array which considers element by element and insert it at proper place in the sequence . [16]
7. Define stack . What are the different methods used to implement stack, and explain different operations performed on it. [16]
8. (a) What are the different types of graphs ? Explain Adjacency Multi - list representation ?  
(b) What are the rules for constructing graph? [8+8]

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**Set No. 4**

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& Control Engineering, Computer Science & Systems Engineering,  
Electronics & Telematics, Electronics & Computer Engineering,  
Aeronautical Engineering, Instrumentation & Control Engineering and  
Bio-Technology)

Time: 3 hours

Max Marks: 80

Answer any FIVE Questions  
All Questions carry equal marks

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1. (a) Write a 'C' program which reads temperature in either Fahrenheit or Celsius and compute temperature in the opposite scale.  
Formulas are  $C = (F - 32) * 5/9$  ,  $F = 9 (C/5) + 32$   
(b) Write a 'C' program to find greatest common division (GCD) of two given numbers. [6+10]
2. Write a program using function with argument and with return value to find sum of odd & even series. [16]
3. What is the working of malloc function ? Explain with an example . [16]
4. (a) Explain the concept of nesting of structures and accessing structure members with a program.  
(b) What is the use of typedef in structure declaration? [8+8]
5. (a) Write the syntax for opening a file with various modes and closing a file .  
(b) Explain about file handling functions . [8+8]
6. Write a program for searching mechanism whose worst case time complexity is  $O(\log n)$  . [16]
7. What is a singly linked list ? Write a program to delete a node in front, rear and in a particular position and print the list . [16]
8. Write an recursive algorithm for a Binary Search Tree. [16]

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