

Code No: 152AJ

**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD****B.Tech I Year II Semester Examinations, July/August - 2021****PROGRAMMING FOR PROBLEM SOLVING****(Electronics and Communication Engineering)****Time: 3 Hours****Max. Marks: 75**

**Answer any five questions**  
**All questions carry equal marks**

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1. Design an algorithm as well as flowchart for finding out largest number out of three given numbers. [15]
2. Explain the pretest, posttest, counter-controlled and condition-controlled loops with examples. [15]
3. Develop a program to check whether an array is ordered. If ordered print a suitable message as "Ascending" or "Descending". Otherwise "not ordered". [15]
4. What is a union? For what kind of applications are unions useful? Explain the unions with an example. [15]
5. Explain various preprocessor commands in detail with the help of an example. [15]
6. Develop a complete C program for reading an employee's file containing {emp\_number, name, salary, address}. Create an output file containing the names of those employees along with their salary and address whose salary is > 15,000. [15]
- 7.a) What is mean by recursion? Explain the purpose of recursive function with an example.  
b) What is dynamic memory management? Explain different dynamic memory management functions available in C language. [7+8]
8. What is insertion sort? Determine an algorithm to sort a list of n elements in an array using insertion sort. Calculate the best- and worst-case efficiency of insertion sort. [15]

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