# CHRIST UNIVERSITY,BENGALURU - 560029

**End Semester Examination March - 2016**

**Bachelor of Science - CME / CMS - II SEMESTER**

**Code: CSC231** **Max.Marks: 100**

**Subject: DATA STRUCTURES AND OPERATING SYSTEMS** **Duration: 3Hrs**

## SECTION A

**Answer all the questions** **10X2=20**

**1** What do you mean by merging of arrays?

**2** Define a pointer.

**3** What are the different operations that can be performed on a data structure?

**4** Give any two applications of queue.

**5** What do you mean by a complete binary tree?

**6** What are the tasks of bootstrap programs?

**7** Define response time.

**8** Define deadlock.

**9** Define hole.

**10** What do you mean by simple record structure of a file?

## SECTION B

**Answer any eight questions** **8X5=40**

**11** Explain the different properties of an algorithm.

**12** Explain dynamic memory allocation in C.

**13** Convert the given infix expression to prefix expression:

(a) A+(B*C-(D/E^F)+G)*H

(b)(A+B^D)/(E-F)*G

**14** Explain the linked representation of binary trees in memory.

**15** Trace selection sort algorithm for the following set of numbers:

20 100 10 -2 -5 150 70 12

**16** Explain computer system organization with a neat diagram.

**17** With an example explain concurrent processes.

**18** Explain the system model used by processes for utilizing resources.

**19** Elaborate swapping with a neat diagram.

**20** Explain different file types in brief.

## SECTION C

**Answer any two questions** **2X10=20**

**21** Write a program to search a particular element “data” and insert a new element after the position of “data”.

**22** Write a program to create, display and delete an element from the beginning of singly linked list.

**23** Write a program to implement selection sort.

## SECTION D

**Answer any two questions** **2X10=20**

**24** Explain critical section problem in detail with its solution for two processes.

**25** (a) Differentiate between deadlock prevention and deadlock avoidance.

(b) Explain deadlock avoidance in detail.

**26** With a neat diagram, explain the structure of a page table. Explain the significance of a page table in memory management.