(ii) If deadlock occurred in the system, discuss how the system can be recovered from deadlock.

9. (i) Explain the Banker's algorithm used for avoiding the deadlock in the system. Explain the algorithm in terms of all the data structures used.

(ii) Compare the performance of LOOK scheduling and SCAN scheduling in terms of Seek time and Rotational latency.

MCA 3rd Semester Current (CBCS Scheme)

w.e.f. Dec-2017-18 Examination,

Nov/Dec.-2019

OPERATING SYSTEMS

Paper-17MCA33C2

Time allowed : 3 hours]   *[Maximum marks : 80*

*Note : **Question No. 1 is compulsory.** In addition to it, attempt **four** more questions by selecting **one** question from each unit. All question carry equal marks.*

1. (i) Write down any four characteristics of time sharing operating system.

(ii) Discuss how threads improve the system's efficiency.

(iii) Explain the working of relocation register in memory management.

(iv) What is the difference between swapper & pager in memory management ?

(v) What is the use of Bit Vector in file management ?

(vi) Define the Unified Buffer Cache and Page Cache used in improving the performance of file system.

(vii) Define the safe, unsafe & deadlock state of a system.

(viii) Write down different types of I/O softwares.

Unit-I

2. (i) Define Operating System with respect to User's view and System's view. Also enumerate different system goals.

   (ii) How Client server systems work differently from Peer to Peer systems in distributed environment ?

3. (i) What do you mean by Inter process Communication ? Discuss how message passing system performs the communication among processes ?

   (ii) What are scheduling algorithms ? Detail out different criteria against which these algorithms can be compared.

Unit-II

4. (i) Differentiate between dynamic loading and dynamic linking with appropriate examples.

   (ii) What is the dynamic storage allocation problem? Discuss how this problem can be solved ?

5. (i) What do you understand by paging ? Discuss how it can be implemented for improving the memory management ? Also mention the hardware support required for paging.

   (ii) Elaborate how demand paging creates the Virtual memory environment. Also explain the page fault trap problem and its solutions.

Unit-III

6. (i) Explain how Indexed allocation works differently from Linked allocation approach for allocating space to the files ?

   (ii) What are concurrent processes ? Explain the Bernstein condition that must be followed for concurrency.

7. (i) With the help of an algorithm, explain how critical section problem can be solved for two processes by suggesting the hardware based solution ?

   (ii) Explain the working of the Monitor with condition variables as a high level synchronization construct.

Unit-IV

8. (i) What is the System Model ? Explain different components in system model and also mention the sequence of operations in the normal mode execution.