## Unit IV

**7.** (a) Describe various directory structures and file system organizations for operating systems.

(b) How to store files on disk ? Explain the requirement and solution of file protection. **8,7**

**8.** What is a disk ? Draw disk structure. Explain the working of SCAN, C-SCAN, LOOK AND C-LOOK. **15**



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# D-211

## B.C.A. EXAMINATION, May 2017

(Fourth Semester)

(B. Scheme) (Main & Re-appear)

(BCA)

BCA-202-B

OPERATING SYSTEM

*Time :* 3 *Hours*] [*Maximum Marks :* 75

Before answering the question-paper candidates should ensure that they have been supplied to correct and complete question-paper. No complaint, in this regard, will be entertained after the examination.

**Note** : Attempt *Five* questions in all, selecting at least *one* question from each Unit. All questions carry equal marks.

## Unit I

**1.** (a) Describe the essential properties of the following types of operating systems :

(i) Batch

(ii) Interactive

(iii) Time sharing Real-time

(iv) Distributed. **2½×4**

(b) Why OS of a personal computer and that of a server should differ ? Discuss. **5**

**2.** (a) What are the *three* main purposes of an operating system ? **9**

(b) While designing operating system for a real-time environment what are the major challenges ? **6**

## Unit II

**3.** (a) What do you mean by CPU scheduling ? Explain any *two* scheduling algorithms with suitable examples. **6**



(b) Describe the *four* necessary conditions for a deadlock to occur. Explain, how each of these can be avoided to prevent the occurrence of deadlock. **9**

**4.** (a) What are different levels of process scheduling ? What is multiprocessor scheduling ? **7**

(b) What are the *two* differences between user-level threads and kernel threads ? Under what circumstances is one type better than the other ? **8**

## Unit III

**5.** (a) What is Paging ? What is demand paging ? Explain any *three* page replacement algorithms. **10**

(b) What is the cause of thrashing ? How does the system detect thrashing ? **5**

**6.** What is the Dining Philosophers problem ? Show how semaphores can be used to solve it. **15**