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END-TERM EXAMINATION

FOURTH SEMESTER [BCA] MAY-JUNE 2006

Paper Code: BCA- 210 *Subject: Operating System*
Paper ID: 20210

Time : 3 Hours *Maximum Marks : 75*

Note: Attempt any five questions. All questions carry equal marks.

Q1. (a) What is an Operating System? Discuss in detail how the operating system can be classified into different categories?

(b) Differentiate between Multiprogramming and Time sharing systems.

Q2. (a) What is round robin scheduling? Explain taking an example. Can it be useful for a single user system? If yes, then explain. If no, then why not?

(b) Distinguish between preemptive and non-preemptive scheduling policies.

Q3. (a) Explain the various Directory structure used in operating system for storing files. Give merits and demerits of all directory structure.

(b) What would be the effect of the system running too many I/O jobs?

Q4. (a) If a space allocation system could use two different sizes of allocation, e.g., 4K bytes and 512 bytes, how could this be used to minimize fragmentation?

(b) Distinguish between disk caching and RAM disk and indicate typical applications of each.

(c) For each of the file listed below, calculate the percentage wasted in file space due to incomplete filling of the last cluster. Assume a cluster size of 612 and on the average half of the cluster will be unused
File sizes:- 1300 bytes, 20000 bytes, 127000 bytes.

Q5. (a) A variable partition memory system has at some point in time the following hole sizes in the given order:- 20k, 15k, 40k, 60k, 10k, 25k. A new process is to be loaded. Which hole size would be filled using best-fit, first-fit and worst-fit respectively?

(b) A computer uses an 18 bit address system, with 6 bits used as a page address and 12 bits used as a displacement. Calculate the total number of pages and express the following address as a paging address:- 001111000000111000

Q6. (a) How files system is organized in UNIX. Explain with example.

(b) What is a dead lock. How is it detected. What are the necessary conditions for the deadlock to occur?

Q7. (a) What are the various functions of KERNEL of UNIX?

(b) What is the critical section problem? What are its various solutions?

Q8. What are the various security requirements for the operating system. What are the different types of security policies for different types of operating systems.

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