

C 32266

(Pages : 2)

Name.....

Reg. No.....

**FIFTH SEMESTER B.TECH. (ENGINEERING) DEGREE
EXAMINATION, JUNE 2007****CS/IT 04 503—OPERATING SYSTEMS**

(2004 admissions)

Time : Three Hours

Maximum : 100 Marks

Answer all questions.

1. (a) What is virtual machine concept ? Explain.
(b) List down various disk space allocation strategies with their merits/demerits.
(c) What is meant by busy waiting ? Give an example.
(d) Describe any one of the classical IPC problems.
(e) Explain what is meant by re-entrant code and its significance in memory sharing.
(f) What is thrashing ? When does it occur ? How can one avoid it ?
(g) Describe the steps involved in "Bootting".
(h) How does windows NT handle processes ?

(8 × 5 = 40 marks)

2. (a) (i) What are the functions of an operating system ? Explain.
(ii) Explain the following :—
 - (1) Multiprogramming.
 - (2) Time sharing.
 - (3) Multiprocessing.

Or

- (b) (i) Discuss various device management approaches by the operating system.
(ii) What are device drivers ? Discuss various types of device drivers.
3. (a) (i) Give an example of producer-consumer problem, indicating the reasons for inconsistency that can arise due to race conditions.
(ii) What are Semaphores ? How do they implement mutual exclusion ?

Or

- (b) (i) What is a deadlock ? Describe banker's algorithm to avoid a dead lock.
(ii) What is Scheduling ? Discuss various scheduling levels at which an operating system can schedule processes.
4. (a) (i) Explain the address translation mechanism in paging. Why is the page size normally some power of two ?
(ii) Discuss various algorithms for page replacement.

*Or***Turn over**

- (b) (i) Discuss different memory management schemes.
 - (ii) What is segmentation ? Explain. Give a comparison between paging and segmentation.
5. (a) (i) What is a file system ? Explain.
- (ii) Discuss the access control mechanisms in context of data files.

Or

- (b) (i) Explain authentication and authorization mechanisms provided by Unix Kernel.
- (ii) Explain how directories are implemented. What are the contents of the file directory entry ?

(4 × 15 = 60 marks)