

B.Tech II Year II Semester (R15) Regular Examinations May/June 2017

OPERATING SYSTEMS

(Information Technology)

Time: 3 hours

Max. Marks: 70

PART - A

(Compulsory Question)

- 1 Answer the following: (10 X 02 = 20 Marks)
- What are the main differences between operating system for mainframe computers and personal computers?
 - List the operating system functions.
 - Why it is important for the scheduler to distinguish I/O bound programs from CPU bound programs?
 - Mention the purpose of mutex locks.
 - Is it possible to have a deadlock involving only a single process? Justify your answer.
 - Under what circumstances do page faults occurs.
 - In what situations would using memory as a RAM disk be more useful than using it as a disk cache.
 - Give an example of an application that could benefit from operating system support for random access to indexed files.
 - List the forms of accidental and malicious security violations.
 - What is the need to know about the principle of protection?

PART - B

(Answer all five units, 5 X 10 = 50 Marks)

UNIT - I

- 2 (a) How network computers are differs from traditional personal computers? Describe some usages scenario in which it is advantageous to use network computers.
- (b) Make comparisons between the short term, medium term and long term scheduling.

OR

- 3 (a) Why the system calls are to be provided by operating system? What system calls are provided by a typical OS? Explain in detail.
- (b) What is the main difficulty that a programmer must overcome in writing an operating system for a real time environment?

UNIT - II

- 4 Why do solaris, linux and windows XP use spinlocks as a synchronization mechanism only on multiprocessor system and not on single processor systems? Explain.

OR

- 5 (a) Describe the actions taken by a thread library to context switch between user level threads.
- (b) Explain the differences in how much the following scheduling algorithms discriminates in favor of short processes.
- FCFS.
 - RR.

Contd. in page 2

UNIT - III

6 What are the optimistic assumptions made in the deadlock detection algorithm? How can this assumption be violated? Explain.

OR

- 7 (a) Consider logical address space of 64 pages of 1024 words each, mapped onto a physical memory of 32 frames.
- (i) How many bits are there in the logical address?
 - (ii) How many bits are there in the physical address?
- (b) Discuss the hardware support required to support demand paging.

UNIT - IV

8 List and explain the different access methods to access information in files.

OR

- 9 (a) What is mounting of a file system? How mounting takes place in different operating system? Explain with example.
- (b) In a disk jukebox, what would be the effect of having more open files than the number of drives in the jukebox?

UNIT - V

- 10 (a) Discuss the strengths and weakness of implementing an access matrix using capabilities that are associated with domains.
- (b) What protection problems may arise if shared stack is used for parameter passing?

OR

11 Make a list of six security concerns for a bank computer system. For each item on your list, state whether this concern relates to physical, human or operating system security.