

**B.Tech Sem – VI (2007 Course) (Computer Engg.) : WINTER -
2017**

SUBJECT : OPERATING SYSTEM

Day : **Wednesday**
Date : **22/11/2017**

W-2017-2506

Time : **10.00 AM TO 01.00 PM**
Max. Marks : 80.

N.B.:

- 1) Q. No. 1 and Q. No. 5 are **COMPULSORY**. Out of the remaining attempt any **TWO** questions from each section.
- 2) Both the sections should be written in **SEPARATE** answer books.
- 3) Figures to the **RIGHT** indicate full marks.
- 4) Draw neat labeled diagrams **WHEREVER** necessary.

SECTION-I

- Q.1**
- a) State and explain different characteristics of modern operating system. (05)
 - b) What are the different criteria that are used for choosing a particular scheduling algorithm? (05)
 - c) What is deadlock? What are necessary conditions for deadlock to occur? (04)
- Q.2**
- a) Distinguish between Kernel and micro-kernel of an operating system. Explain the readers and writers classical IPC problem and its solution. (07)
 - b) What is the main advantage for an operating system designer of using a virtual machine architecture? What is the advantage for a user? (06)
- Q.3**
- a) What constitute a state of system? What is a safe state? Describe an algorithm to check whether a given state is safe or not? (07)
 - b) What are the necessary conditions for a deadlock? Explain the deadlock avoidance algorithm by means of two dimensional matrices? (06)
- Q.4**
- a) Explain the following terms with the help of example. (07)
(i) Race condition (ii) Critical section.
 - b) Explain the readers and writers classical IPC problem and its solution. (06)

SECTION-II

- Q.5**
- a) When do page fault occur? Describe the action taken by operating system when a page fault occurs. (05)
 - b) Describe various issues related to multimedia operating system. (05)
 - c) Discuss UNIX file management. (04)
- Q.6**
- a) What is the difference between virtual address space and physical address space? Explain. (07)
 - b) What is Internal fragmentation? Explain the basic method of implementing paging. (06)
- Q.7**
- a) Discuss the term Guaranteed scheduling for Processor and disk in multimedia operating system with example. (07)
 - b) Write short note on: 'Integrated multimedia device management.' (06)
- Q.8**
- a) Explain the structure of disk scheduling in UNIX operating system. (07)
 - b) Discuss the following operations/ terms with suitable example. (06)
(i) I/o Buffering (ii) Record blocking.

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