Total No. of Questions : 10]

SEAT No. :

P3792

[Total No. of Pages : 3

[4960] - 1310
M.E. (Computer Engineering)
Operating System Design
(2013 Course)

Time : 3 Hours] *[Max. Marks : 50*

Instructions to the candidate:

1) *Attempt any 5 questions from 1 to 8. Attempt any one question from 9 and 10.*
2) *Neat diagram must be drawn whenever necessary.*
3) *Assume suitable data, if necessary.*
4) *Figures to the right indicate full marks.*

Q1) a) Elaborate the functionality of general purpose and control registers. How do base and bound registers control access to memory in user mode. **[4]**

b) What is a design problem? Relate two level implementation to software modules. **[4]**

Q2) a) What is message buffering? Why is it useful. **[4]**

b) Describe the following system calls. **[4]**

i) Createprocess

ii) fork

iii) execv

iv) Iseek

Q3) a) What is multiprogramming? Describe the advantages of multiprogramming over monoprogramming? **[4]**

b) Why are two Queue data structures required for each message queue? **[2]**

c) What makes it hard to copy messages from a user process to the operating system message buffers? **[2]**

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Q4) a) What is TimeQuantum constant used for? Why does the process descriptor have a TimeLeft field? **[4]**

b) Explain the system calls for interrupt handling. **[4]**

Q5) a) Why is indirection useful? How does indirection help in memory management? **[4]**

b) Give an analogy between messages and semaphores? Why are semaphores more efficient than message passing **[4]**

Q6) a) What is the basic purpose of mutual exclusion and signaling in IPC pattern? **[4]**

b) What is the basic idea of client-server IPC Pattern, multiple servers and clients IPC pattern **[4]**

Q7) a) Compare local and global page replacement. Mention advantages of each. **[4]**

b) Why is load control important? Explain how load control is a form of scheduling. **[4]**

Q8) a) Why is virtual memory a form of multiplexing? **[4]**

b) What is late binding? Give examples of late binding. Explain the design technique of late binding in virtual memory. **[4]**

Q9) a) What is the purpose of device driver? Why do character device drivers need a DeviceControl entry? **[3]**

b) Compare batching and aging **[2]**

c) Compare logical and physical disks. **[2]**

d) What are the advantages of putting file systems in logical disks instead of physical disks. **[3]**

Q10) a) What is the relationship between users and processes in terms of protection? Why protection of resources is important? **[5]**

b) What is authentication? What do you mean when we say an operation is "authorized"? How are passwords used for authentication? **[5]**