Total No. of Questions : 12]

SEAT No. :

P4864

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# [5060] - 806
# M.E. (Computer Engineering)
# OPERATING SYSTEM DESIGN
# (2013 Pattern)

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

***Instructions to the candidates:***

1) ***Neat diagrams must be drawn wherever necessary.***
2) ***Assume suitable data, if necessary.***
3) ***Figures to the right indicate full marks.***

***Q1)*** a) What does an operating system do? Explain the tasks performed by Operating system as resource manager. **[5]**

b) State and explain various communication related system calls. **[4]**

OR

***Q2)*** a) What is mean by file identifiers? Which are the identifiers for standard input and standard output? How does shell does the assignments? **[5]**

b) What is mean by design space? How it is useful in design search? **[4]**

***Q3)*** a) How a problem of suspending a system call and completing it later, after another event has occurred is dealt with? Discuss it in the context of send and receive message system call. **[4]**

b) State and Explain few simple ideas on which process implementation rests? How process table and process descriptors helps in implementation of process? **[4]**

OR

***Q4)*** a) State and explain disk driver subsystem. **[4]**

b) What problem would occur if two processes try to examine and modify the process table at the same time? What it is called? How it is dealt?**[4]**

***P.T.O.***

***Q5)*** a) State and Explain the IPC pattern: Signaling. **[4]**

b) What do you mean by failure of process? State its different forms? How fault tolerant server system is implemented? **[4]**

OR

***Q6)*** a) What is starvation? How it is different from deadlock? Explain the solution for starvation. **[4]**

b) Discuss "Win big,then give some back" in context with process. **[4]**

***Q7)*** a) Discuss the problems that we need to deal with when we have more than one program in memory at a time. **[4]**

b) What is the disadvantage of putting the page table in memory and how it is addressed? **[4]**

OR

***Q8)*** a) Explain the clock page replacement algorithm. **[4]**

b) Saving processing time by using more space and saving more time using more them. Which is better? Explain with example. **[4]**

***Q9)*** a) State and Explain the functionalities of disk controller? How SCSI works? State the advantage of it. **[4]**

b) State the purpose of device drivers? Different types of device drivers? Unified device driver interface makes it easier for the rest of operating system - Comment. **[4]**

OR

***Q10)***a) What is the difference between files and open files? State and explain the operations on files and open files in Unix. **[4]**

b) What is mean by hinting and caching? When to use hinting instead of caching. **[4]**

***Q11)*** a) What is the need of integrated scheduling? State and explain various schedulers need to be integrated. **[5]**

b) How protection monitor mechanism assures software secuity? State with file protection example. **[4]**

OR

***Q12)*** a) What is mean by authentication? Can public keys used for authentication? If yes explain the methods. **[5]**

b) How differently system calls handled in client server model then simple operating system? **[4]**

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