Total No. of Questions : 12]

SEAT No. :

P4342

[Total No. of Pages :3

[4860]-1310

M.E. (Computer Engineering)

OPERATING SYSTEM DESIGN

(2013 Credit Pattern) (Semester - II)

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

Instructions to the candidates:

1) ***All Six Questions are compulsory.***
2) ***Neat diagram must be drawn whenever necessary.***
3) ***Assume suitable data, if necessary.***

Q1) a) The interval timer only counts down to zero. Suppose we wanted to keep the time of the day. How could we use the interval timer to keep the time of day? **[5]**

b) Explain the different mechanism of Interprocess Communication? **[4]**

OR

Q2) a) What are the design problems and design techniques. **[5]**

b) Explain the different kind of CPU registers. **[4]**

Q3) a) How flow of control moves in the Operating systems. **[4]**

b) Justify Operating Systems as Event and Table Managers. **[2]**

c) What is context switching? **[2]**

OR

Q4) a) Explain the behavior of round robin scheduling in heavily loaded system. **[4]**

b) How signaling in the Operating System works. **[4]**

P.T.O.

Q5) a) Suppose we decided to keep track of which process creates a message queue and to destroy message queue automatically when the process that created it exits. What problem would this solve and what problem would this cause? (Use of Mathematical model is expected). **[4]**

b) Demonstrate use of design technique " Win big then give some back" for multiprogramming in the context of operating system. **[4]**

OR

Q6) a) Explain with example following interprocess communication problems Starvation , deadlock, data inconsistency , shared buffer. **[4]**

b) Suppose we want to change the message size used in the simple operating system from 8 word to 1024 words. What changes in the code would be required? Give some good and bad effects. **[4]**

Q7) a) Explain the storage violation and memory protection. **[4]**

b) What are design techniques in the memory managements. **[4]**

OR

Q8) a) How processes are link and loaded and explain the variation in loading the process. **[4]**

b) Explain the memory management design problem. What are the solutions available to memory management design problem? **[4]**

Q9) a) What is importance of proc file system. **[4]**

b) Explain block devices and character devices driver. How to insert a driver in the operating system. **[4]**

OR

Q10) a) Explain the data structures required to implement file system. **[4]**

b) What is blocking and non blocking IO devices. **[4]**

Q11)a) What is Queuing Models of Scheduling. **[5]**

b) What are the mechanism for software protection. **[4]**

OR

Q12)a) What is the soft and hard real time operating system and explain the scheduling in real time system. **[5]**

b) Show how to use cryptography to solve the following problem using appropriate design methodology: **[4]**

Create a message that can be read if any two of three people cooperate, but can not be read by any one of them acting alone. Use only the public keys of three people.

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