SATHYABAMA UNIVERSITY

(Established under section 3 of UGC Act,1956)

Course & Branch :B.E/B.Tech - CSE/IT
Title of the Paper :Operating Systems   Max. Marks :80
Sub. Code :6C0063   Time : 3 Hours
Date :05/11/2009   Session :AN

PART - A   (10 x 2 = 20)
Answer ALL the Questions

1. Give two examples for abstract resources.
2. What is the advantage of double buffering?
3. Differentiate between a program and a process.
4. What is Zombie state?
5. What is the use of conditional variables?
6. Differentiate between deadlock and starvation.
7. State the principle of locality of reference.
8. What are the advantages of inverted files?
9. Write the Linux command to print the list of File names.
10. Name the different types of shell in Linux.

PART – B   (5 x 12 = 60)
Answer All the Questions

11. (a) State the functions of a Kernel.   (4)
    (b) Explain the techniques used to request services from
    operating systems.   (8)
                              (or)
12. Discuss about device – driver interface and CPU – Device
    interactions.

13. Assume 5 processes are to be executed on a processor.

	Service Time	Arrival Time
P_1	75	0
P_2	40	10
P_3	25	10
P_4	20	80
P_5	45	85

Create Gantt chart for FIFO, RR, SJN, SRN , scheduling policies.

(or)

14. Give a solution to the Readers – Writers problem using semaphores.

15. Give a solution to Producer – Consumer problem using monitors.

(or)

16. A system has four processes $\{P_1,P_2,P_3,P_4\}$, two types of serially reusable resources $\{S_1, S_2\}$ and two types of consumable resources $\{C_1, C_2\}$. S_1 has 2 units, S_2 has 3 units, C_1 has 1 unit and C_2 has 1 unit.

   * P_1 produces C_1 and is requesting 2 units of S_2.
   * P_2 holds 2 units of S_1 and 1 unit of S_2 while it requests 2 units of C_2.
   * P_3 holds 1 unit of S_2 and requests 1 unit of C_1.
   * P_4 produces C_2 and requests 1 unit each of C_1 and S_1.

   Show that general resource graph to represent the state of the system. Is there any of the processes which are deadlocked?

17. Suppose w = 23 43 243 24 56 75 67 45 67 21 is a page reference stream. Assuming a page frame allocation of 3, how many page faults occur in optimal, FIFO, LRU, working – set algorithm.

(or)

18. How is address translation done in segmentation? How is it implemented?

19. Explain the following: tar, mirroring, MIME, virtual system.

(or)

20. Explain the Linux file structure and its related commands.