POKHARA UNIVERSITY

Level: Bachelor | Semester: Fall | Year : 2015
Programme: BE | Full Marks: 100
Course: Operating System | Pass Marks: 45
Time : 3hrs.

Candidates are required to give their answers in their own words as far as practicable.
The figures in the margin indicate full marks.
Attempt all the questions.

1. a) Define Batch System. How the disadvantages of Batch System are overcome in Multi-programmed Operating System? Also describe how Multi-programmed operating system is milestone in development of operating system. 8

   b) Draw and describe process state diagram. What types of operations are performed in a process? 7

2. a) Consider following set of processes along with their burst time, arrival time and priorities. Calculate average waiting time and average turnaround time using following scheduling. Also describe which one is best algorithm and why. 8

   i. FCFS
   ii. Priority (Preemptive and Non-preemptive)
   iii. PP(Quantum size=6ms)

Process	CPU Burst Time	Arrival Time	Priority
P1	3	0	2
P2	14	1	1
P3	9	2	3
P4	17	3	4

   b) Define deadlock and its causes. Explain deadlock prevention methods. 7

3. a) Given five memory partitions of 100 KB, 500KB,200KB,300KB and 600KB (in order), how would the first-fit, best fit and worst-fit algorithms place processes of 212KB,, 417KB,112KB, and 426KB (in order)? Which algorithm makes the most efficient use of memory? Illustrate. 7

b) Consider a disk queue with requests for I/O to blocks on cylinders in the order: 15, 25,68,142,64,90,187 and 215 there are 150 cylinders numbered from 0-250 and the disk head starts at number 50.What is the total distance that the disk arm moves to satisfy all the pending requests for each of the following disk scheduling algorithms? 8

i) FCFS ii) SSTF iii) SCAN

4. a) Explain the reader's and writer's classical IPC Problem and its solution 7

b) List out pros and cons of distributed system over centralized system. Explain Flynn's taxonomy of computer system. 8

5. a) Compare and contrast between virus and worm. Explain Access Control List (ACL) and Access Control Matrix (ACM). 7

b) Describe the process management scheme in either Linux or Microsoft-windows OS. 8

6. a) Define Distributed System. List out advantages and disadvantages of distributed system over centralized system. 7

b) Write the difference between logical and physical address. Describe about Coalescing and Compaction with suitable examples. 8

7. Write short notes on: **(Any two)** 2×5

a) Kernel

b) ATM

c) Windows 2000