BCA 4th Semester Examination
June-2014
Operating System
Subject Code: CAL-202

Time Allowed: 03 hours.      Maximum Marks: 100

Before answering the question paper the candidate should ensure that they have been supplied the correct question paper. Complaints in this regard, if any, shall not be entertained after the examination.

Note: Attempt five questions in total. Question No.1 is compulsory and remaining four questions from Section A and B (Two questions from each section)

Q.1 (5x4=20)
(a) What do you mean by system call? Explain with some examples.
(b) Differentiate among Multiprogramming and multitasking.
(c) What do you mean thread? Compare it with process.
(d) What do you mean by interrupts? Explain it with the help of diagram.

SECTION-A

Q.2 (a) Describe the features of an operating system? Give some applications of it. (10)
(b) What is process? Explain the process management of the Operating system. (10)

Q.3 (a) Explain the virtual memory principle? What are its benefits and what are the methods used for implementing it. (10)
(b) For the Page Reference String:
5, 1, 1, 2, 0, 3, 0, 4, 2, 3, 0, 3, 2, 1, 2, 0, 1, 5, 0, 1
Calculate the Page Faults applying (i) Optimal (ii) LRU and (iii) FIFO Page Replacement Algorithms for a Memory with four frames. (10)

Q.4 (a) Consider the following set of processes having their burst time (execution time) mentioned in milliseconds.
Calculate the average waiting time and turn around time according to FCFS and SJF (non preemptive) and compare which one scheduling is best for given set of process. (10)

<table>
<thead>
<tr>
<th>Process</th>
<th>Burst Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>P1</td>
<td>20</td>
</tr>
<tr>
<td>P2</td>
<td>8</td>
</tr>
<tr>
<td>P3</td>
<td>5</td>
</tr>
<tr>
<td>P4</td>
<td>3</td>
</tr>
</tbody>
</table>

(b) What is scheduler? What are its various types? Explain the working of scheduler. (10)

Q.5 (a) What is deadlock? Mention the conditions to meet the deadlock (10)
(b) Discuss the deadlock prevention methods. (10)

Q.6 Consider following request of cylinder to access, schedule all request according to giving disk scheduling algorithms and find the seek time for each algorithm.
Request-92, 8, 6, 150, 69, 40, 188, 15, 98.
Assume current location of disk arm is 50 and total cylinders are 200.
a) FCFS   b) SSTF   c) SCAN   d) C-SCAN (20)

Q 7 (a) Write short notes on application I/O interface. (10)
(b) Describe the Unix file system with its advantages. (10)