1 Answer the following questions: (any six) 18

(a) What is an interrupt?

(b) What is user level thread and kernel level thread?

(c) What is TLB?

(d) What is compaction?

(e) What is process migration?

(f) What is the function of ready queue?

(g) What is pure demand paging?

2 Answer the following questions in detail: (any three) 18

(1) Explain dining philosopher problem.

(2) What is deadlock? Explain deadlock prevention strategy to handle the deadlock.

(3) Explain real time OS.
(4) Consider the process arrival time chart given below.

<table>
<thead>
<tr>
<th>Process</th>
<th>Arrival time</th>
<th>Burst Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>p1</td>
<td>0</td>
<td>16</td>
</tr>
<tr>
<td>p2</td>
<td>0</td>
<td>10</td>
</tr>
<tr>
<td>p3</td>
<td>6</td>
<td>4</td>
</tr>
<tr>
<td>p4</td>
<td>7</td>
<td>6</td>
</tr>
<tr>
<td>p5</td>
<td>8</td>
<td>10</td>
</tr>
</tbody>
</table>

Draw a Gantt chart to illustrate how these processes would be scheduled using First-come First-Served (FCS) scheduling, and calculate the waiting time for each process.

3 Answer the following questions in detail: (any three) 18

(1) Explain structure of operating system.
(2) Explain process creation and termination process.
(3) Discuss design issues in Distributed OS.
(4) The available numbers of frames are 4. The reference bit string is mentioned below:

0, 1, 3, 2, 4, 3, 2, 1, 4, 3, 5, 3, 2, 7, 3, 2, 1

Find the page fault with optimal page replacement algorithm. Show the trace.

4 Answer the following questions: (any four) 16

(1) Explain internal and external fragmentation.
(2) What is concurrency? Explain hardware approach of mutual exclusion.
(3) Write a short note on virtual memory.
(4) Explain pre-emptive process scheduling algorithm.
(5) Explain resource sharing in network OS.