



**DHARMSINH DESAI UNIVERSITY, NADIAD**  
**FACULTY OF TECHNOLOGY**  
**FIRST SESSIONAL**

**SUBJECT: (IT 607) Applied Operating System**

<b>Examination</b> : B.TECH Semester - VI	<b>Seat No.</b> :	
<b>Date</b> : 09/01/2013	<b>Day</b> :	Wednesday
<b>Time</b> : 12:00 to 1:15	<b>Max. Marks</b> :	36

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**INSTRUCTIONS:**

1. Figures to the right indicate maximum marks for that question.
  2. The symbols used carry their usual meanings.
  3. Assume suitable data, if required & mention them clearly.
  4. Draw neat sketches wherever necessary.
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**Q.1 Do as directed.**

- |   |     |
|---|-----|
| (a) What is importance of Preempted State in Unix 9 State process model?        | [2] |
| (b) Discuss two approaches of working of command interpreter.                   | [2] |
| (c) Discuss various categories to get benefits of multithreaded programming.    | [2] |
| (d) Write down four circumstances where CPU scheduling decision may take place. | [2] |
| (e) Give difference between Loosely coupled system and Tightly coupled system.  | [2] |
| Give difference between Hard Real time OS and Soft Real Time OS.                |     |
| (f) Discuss dual mode operation with respect to hardware protection.            | [2] |

**Q.2 Attempt *Any TWO* of the following questions.** [12]

- (a) Compare Layered Approach, Microkernel, and Virtual Machine. Discuss their relative advantages and disadvantages with each other.
- (b) Draw 7 state and Unix 9 state process model.
- (c) Discuss various multithreading models.

**Q.3** (a) (1) Discuss Services provided by operating system. [3]  
(2) Discuss mechanism of process creation and process termination. [3]  
(b) 

<b>Process</b>	<b>Arrival Time</b>	<b>Burst Time</b>
P1	0	3
P2	4	2
P3	0	5
P4	11	4

[6]

P1	0	3
P2	4	2
P3	0	5
P4	11	4

Draw Gantt Chart for FCFS scheduling algorithm.

Also find Average Waiting Time, Average Turnaround Time and Average Response Time.

**OR**

**Q.3** (a) Write major activities of an operating system in regards to (1) process management (2) main memory management (3) file management (4) I/O system Management [6]  
(b) (1) Write output for following program. [3]

```
#include<stdio.h>
#include <sys/types.h>
int main()
{ if(fork()==0){}
  else
  {
    if(fork()== 0){}
    else{}
  }
  fork();
  printf("\n Hello");
  return 0;
}
```

(2) Differentiate between Long term Scheduler, medium Term Scheduler and Short Term Scheduler. [3]