DHARMSINH DESAI UNIVERSITY, NADIAD
FACULTY OF TECHNOLOGY
FIRST SESSIONAL
SUBJECT: (IT 607) Applied Operating System

Examination	**: B.TECH Semester - VI**	**Seat No.**	**:**
Date	**: 08/01/2014**	**Day**	**: Wednesday**
Time	**: 12:45 to 2:00**	**Max. Marks**	**: 36**

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.

Q.1 Do as directed.

(a) 1. Give the name of the System call which is used in parent process to wait for termination of particular child process in Unix OS. **[2]**
2. Give the name of the System call which is used to assign some new task to any process in Unix OS.

(b) **[2]**

Process	Arrival Time	Burst Time
P1	0	3
P2	4	2
P3	0	5
P4	11	4

If we apply FCFS scheduling algorithm on above group of processes then what is efficiency of processor? Consider each context switch take 1 unit of time.

(c) Discuss various categories to get benefits of multithreaded programming. **[2]**

(d) Discuss how Multiprocessor operating system Increased throughput and reliability of system? **[2]**

(e) Give name of two communication model used for inter-process communication also discuss their relative advantages and drawbacks with each other. **[2]**

(f) What is the drawback of Priority scheduling? How that drawback can be removed? **[2]**

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

(a) Discuss various multithreading models.

(b) Draw 5 state and Unix 9 state process model.

(c) (1) Discuss How MS-Dos and Unix shell command interpreter works differently.
(2) Discuss Information contained in Process control Block.

Q.3 (a) Discuss Monolithic structure, Layered Approach, Microkernel. Discuss their relative advantages and disadvantages with each other. **[6]**

(b) **[6]**

Process	Arrival Time	Burst Time
P1	0	5
P2	3	5
P3	5	3
P4	7	2

Draw Gantt Chart for Round Robin scheduling algorithm. Consider Time Quantum = 1
Also find Average Waiting Time, Average Turnaround Time and Average Response Time.

OR

Q.3 (a) **[6]**

Process	Arrival Time	Burst Time	Priority
P1	0	10	4
P2	0	3	2
P3	3	8	3
P4	4	16	1
P5	7	2	5

Draw Gantt Chart for Preemptive Priority scheduling algorithm.(Smaller priority number implies a higher priority)
Also find Average Waiting Time, Average Turnaround Time and Average Response Time.

(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();}
    }
    fork();
    printf(" Hello ");
    return 0;
}
```

[3]

(2) Draw 7 state process model and mention state transitions where Long term Scheduler, Medium Term Scheduler and Short Term Scheduler are applied.