

**BITS, PILANI-DUBAI**  
**DUBAI INTERNATIONAL ACADEMIC CITY,**  
**I SEMESTER 2013-2014**  
**Operating systems CS F372 Test1 (closed book)**  
**Date:13-10-2013 Time :50 mts marks:20**

**Answer all the questions**

Q1. Justify under what circumstances a process goes into the following states

- a)Blocked state (1M)
- b)Ready suspended state (2M)
- c) Blocked suspended state(2M)

Q2. Suppose at the end of a quantum interval for Process A, the operating system wants to choose a process among many processes in the system and wants to run the same . How PCB ensures the selection of the right process and resume the same properly?(5M)

Q3.How the OS gives the illusion of an infinite main memory for a user program?(2M)

Q4. During multitasking , choosing the correct quantum size is important to the effective operation of an operating system. Consider a single processor timesharing system that supports a large number of interactive users. Each time a process gets the processor ,the interrupting clock is set to interrupt after the quantum expires. Assume a single quantum for all processes on the system.

- a)What would be the effect of setting the quantum at a very large value, say ten minutes ? (2 marks)
- b)What if the quantum were set to a very small value , say a few processor cycles?(2 marks)
- c)Obviously ,an appropriate quantum must be between the values in a) and b). Suppose you could turn a dial and vary the quantum. How would you know when you had chosen the "right" value.(1M)

Q5. class Parenthesis {

```
void display ( String s) {
```

```
    System.out.print(""+s);
```

```
    try {
```

```
        Thread.sleep(1000);
```

```
    } catch ( InterruptedException e) { System.out.println("Interrupted");}
```

```
    System.out.println("");
```

```
    }
```

```
}
```

```

class MyThread implements Runnable {
    String s;
    Parenthesis p;
    Thread t;
    /*constructor */
    public MyThread(Parenthesis P, String S) {
        p = P;
        s = S;
        t = new Thread(this);
        t.start();
    }

    public void run () {
        p.display(s);
    }
}

public class SyncDemo {

```

```

    public static void main(String[] args) {
        Parenthesis p = new Parenthesis ();
        MyThread name1 = new MyThread(p, "Bob");
        MyThread name2 = new MyThread(p, "Mary");
        System.out.println();
    }
}

```

a)how many threads are there in the above program?[ 1+1+1]

b) what is the expected output from the above program and will you get the expected output always when you run the above program repeatedly?

c)How to get the expected output ?