DHARMSINH DESAI UNIVERSITY, NADIAD
FACULTY OF TECHNOLOGY
B.TECH. SEMESTER VI [INFORMATION TECHNOLOGY]
SUBJECT: (IT 607) APPLIED OPERATING SYSTEM

Examination	**: Block**	**Seat No.**	**: _____**
Date	**: 30/03/2012**	**Day**	**: Friday**
Time	**: 11:30 to 12:30**	**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) Give difference between hard real time and soft real time operating system. **[2]**

(b) What are five major activities of an operating system in regards to process management? **[2]**

(c) Consider the following segment table: **[2]**

Segment	Base	Length
0	219	400
2	90	100

What are the physical addresses for the following logical addresses?

Segment No	Offset
0	430
2	10

(d) A computer system has 6 tape drives, with n processes competing for them. Each process may need 3 tape drives. Find the maximum value of n for which the system is guaranteed to be deadlock free. **[2]**

(e) Give difference between global Page replacement and Local page replacement. **[2]**

(f) Discuss concept of pure demand paging. **[2]**

Q.2 Attempt following questions. **[12]**

(a) Discuss Semaphore. Also discuss how deadlock and starvation can occur if we use semaphore for mutual exclusion.

(b) Discuss Microkernel operating system structure. Also discuss its advantages and disadvantages.

Q.3 (a) Consider the following page-reference string: **[6]**
1,2,3,4,2,1,5,6,2,1,2,3,7,6,3,2,1,2,3,6.
How many page fault would occur assume we have four frames available.
1. LRU replacement.
2. FIFO replacement.

(b) Draw and discuss User Level Threads and Kernel Level threads. Also list out their major advantages and disadvantages. **[6]**