Navrachana University
School of Business and Law
Bachelor of Computer Applications
End-Semester Examination November 2017
TYBCA Semester-V
Introduction to Operating System (CS206)

Marks: 40

Date: 20/11/2017
Time: 3:30 pm to 5:30 pm

Instructions:
→ Write each answer on a new page
→ Use of a calculator is not permitted

(20 Marks)

Q1. Answer the following questions (Any 5)
1. What is the purpose of interrupts? What are the differences between a trap and an interrupt?
2. Define seek time and rotational latency.
3. Explain demand paging.
4. Explain paging and segmentation.
5. Why is it important for the scheduler to distinguish I/O-bound processes from CPU-bound processes.
6. Explain linux file system.
7. What is the purpose of the command interpreter? Why is it usually separate from the kernel?

(20 Marks)

Q2. Answer in detail (Any 2)
1. Explain techniques for deadlock prevention and deadlock avoidance, in detail.

2. Consider the following page reference string:
   1, 2, 3, 4, 2, 1, 5, 6, 2, 1, 2, 3, 7, 6, 3, 2, 1, 2, 3, 6.
   How many page faults would occur for the following replacement algorithms, assuming four frames?
   Remember that all frames are initially empty, so your first unique pages will cost one fault each.
   - LRU replacement
   - FIFO replacement
   - Optimal replacement

3. Suppose that a disk drive has 5,000 cylinders, numbered 0 to 4999. The drive is currently serving a request at cylinder 143. The queue of pending requests, in FIFO order, is:
   86, 1470, 913, 1774, 948, 1509, 1022, 1750, 130
   Starting from the current head position, what is the total distance (in cylinders) that the disk arm moves to satisfy all the pending requests for each of the following disk-scheduling algorithms?
   a. FCFS   b. SSTF
   c. SCAN   d. LOOK
   e. C-SCAN   f. C-LOOK