EAST WEST UNIVERSITY BANGLADESH
Department of Computer Science & Engineering

CSE325: Operating System (1, 2)

Final-Term Examination **Spring 2016**

Total Marks: 30 Instructor: Dr. Md. Shamim Akhter Time: 90 minutes

PART-I : Memory Management (15)

1.
   a) For each of the following decimal virtual addresses, find out the virtual page number (P) and offset (D) for a 4-KB page : **20000, 32768, 60000** (2)
   b) Write the difference between internal & external fragmentation. Which of these is exhibited by a paged memory scheme? Which is exhibited by a segmented memory scheme? (2)
   c) Suppose a system has **48-bit virtual addresses**, and **32-bit physical addresses**. If pages are 4KB, how many entries are in the page table? (2)

2.
   a) Consider a swapping system in which memory consists of the following free sizes in memory order: **10KB, 4 KB, 20 KB, 18 KB, 7 KB, 9KB, 12 KB** and **15KB**. Which free space is taken for successive segment requests of
      i. 12 KB
      ii. 09 KB

      for first fit (from the beginning)? Now repeat the question for best fit and worst fit. (3)

PART-II : File and Storage Management (10)

4. Given a block size of 4KB and 4B pointer is required to point a block. How big can a file be if you have a single index block in an index file management scheme? (2)

5. Disk requests come into the disk driver for cylinders are presented in the following table. In all cases, **the disk head is initially at cylinder 4**.

   Seek time is of the form t=x+yL, where t is the time in milliseconds and L is the seek distance. x=0.25 millisecond and y=0.05 milliseconds.

   Find the average number of seeks for the given approaches:

   a) First-come, first served. (2)
   b) Shortest seek time first or closest cylinder next. (3)
   c) CLook (moving upward). (3)

Cylinder #	Request Time (Milliseconds)
33	2.230
117	3.123

30	4.230
37	6.230
35	8.230
10	10.230
191	12.123
32	12.230
36	14.230
198	15.123